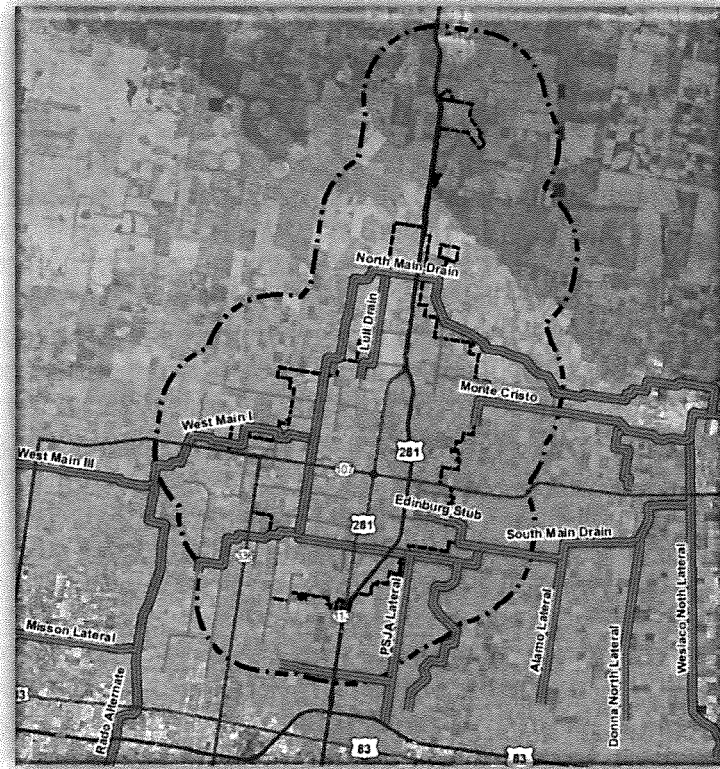
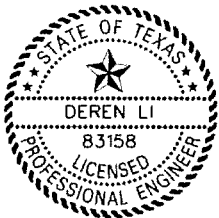


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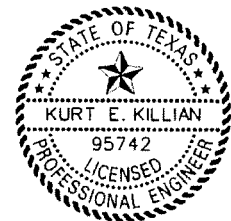
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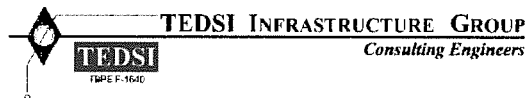
Deren Li
 Deren Li, Ph.D., P.E., CFM
 F-5246
 July 28, 2015

PREPARED BY:



Kurt Killian
 Kurt E. Killian, P.E., CFM
 F-5246
 July 28, 2015

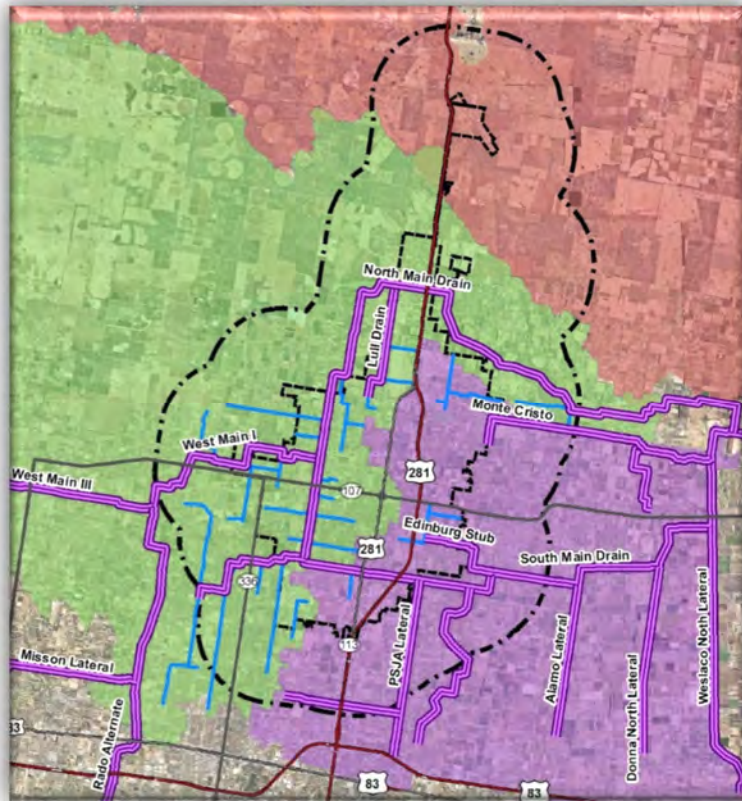
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July 2015

CITY OF EDINBURG MASTER DRAINAGE PLAN



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CITY OF EDINBURG, TEXAS



Deren Li

Deren Li, Ph.D., P.E., CFM
F-5246
July 28, 2015

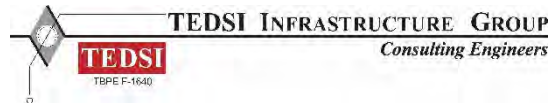
PREPARED BY:



Kurt E. Killian

Kurt E. Killian, P.E., CFM
F-5246
July 28, 2015

IN COOPERATION WITH:



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July 2015

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1.0 EXECUTIVE SUMMARY

This Master Drainage Plan (MDP) was prepared to provide the City of Edinburg a planning tool to guide and prioritize future capital expenditures for the City's drainage systems within its boundaries and ETJ. The City currently operates and maintains a network of drainage ditches and storm sewer systems. Many of its outfall and storm systems are in need of improvements to alleviate flooding that have historically occurred throughout the City and to meet drainage needs of future development. This MDP was focused on the City's outfall drainage ditch systems.

The City of Edinburg's outfall systems are served by two major receiving drainage systems: North Main Drain and South Main Drain. These drainage ditches are part of the Hidalgo County Drainage District No.1 (HCDD1) Master Drainage System. The North Main Drain and South Main Drain outfall into the Main Floodwater Channel east of the City.

The Master Drainage Plan was developed to define various projects consisting of channel improvements, hydraulic structure replacements, and detention. The MDP was developed to establish conceptual designs only, and does not include sufficient details for final design or construction. A detailed hydraulic analysis should be performed to verify conditions for the implementation of the proposed improvements prior to final design. In addition, with the adoption of a "no-adverse impact" policy by the City, further analysis of the proposed improvements will be required to ensure that any impacts incurred due to the proposed projects are mitigated.

The existing drainage systems were evaluated to identify system inadequacies and determine drainage improvements required to alleviate existing flooding problems and upgrade the existing systems to provide drainage infrastructure needs for future development. Alternative solutions to reduce or eliminate flooding from flood prone areas were formulated and evaluated based on detailed hydrologic and hydraulic modeling analysis with consideration of potential hydraulic impacts of each alternative improvement.

ESRI ArcGIS 10.2 was used to facilitate various engineering efforts throughout the project development. Specific GIS applications included digital elevation model (DEM) from the LiDAR dataset obtained from TNRIS, base mapping, drainage basin delineations, watershed parameters extraction, channel cross-section geometric data extraction, drainage systems inventory and mapping. As part of the MDP, a set of GIS layers was developed to represent a digital version of the existing drainage systems and the MDP proposed improvements. This GIS set was included to provide the City a tool to manage the drainage systems and plan implementation in an efficient and systematic manner.

ArchHydro and GeoHMS were used to delineate overall drainage patterns and to assist the development of HEC-HMS models. HEC-HMS hydrologic modeling program was used to compute

peak flows and hydrographs at various locations within the drainage systems for the drainage ditches' hydraulic modeling analyses. GeoRAS was used to construct the HEC-RAS models, which were used to analyze water surface profiles and hydraulic capacity for the existing and proposed drainage ditches.

2.0 INTRODUCTION

2.1 Background

The City of Edinburg is part of the McAllen-Edinburg-Mission and Reynosa-McAllen metropolitan areas and located in the heart of the Lower Rio Grande River Valley of South Texas. The City of Edinburg has experienced significant population increase in recent years. According to the 2012 Census estimate, it has a total population of approximately 81,000. It is projected that the city's population will be more than doubled by 2060. The fast population growth has contributed to the frequency, severity and extent of drainage and flooding problems in many areas of the city in recent years. As land use changes with development, more impervious cover increases the amount of runoff and peak discharges. Future growth and development of the City will be greatly influenced by how well the existing and future drainage systems are maintained and managed. Many of the existing drainage systems do not adequately convey runoff from frequent rainfall events and are in need of improvement.

The City has recognized the needs of improving the drainage systems and authorized this master drainage plan study. The purpose of the plan was to identify the location and extent of existing drainage inadequacies, determine future drainage needs, and propose drainage system improvements. In November, 2013, the City entered an agreement with TEDSI Infrastructure Group Inc. to provide professional engineering services to develop a Master Drainage Plan for the City. The MDP was made possible through the Texas Water Development Board Flood Protection Plan Grant (1348321592) along with the City's matching funding as a participant of the National Flood Insurance Program.

2.2 Study Purpose and Needs

The City recognizes the need for a master drainage plan to provide drainage solutions necessary to reduce flood risk to existing flood-prone areas and adequately accommodate future urbanization. The need for a Master Drainage Plan study is evident by frequent flooding with varying degrees throughout the City's history. Drainage and flood protection has long been a challenge for the City of Edinburg and other communities within the watershed due to the flat topography, periodic intense rainfalls, and limited capacities of existing drainage systems. The rapid population and economic growth in recent years has intensified the frequency, severity and extent of drainage and flooding problems within the City.

The overall purpose of this project was to develop a Master Drainage Plan that provides an effective, implementable plan to eliminate or significantly reduce the flood risks and provide proposed improvements to accommodate the rapid urban growth within the study area. Specific objectives of this project include:

- Identify locations and extent of existing flooding problem areas.

- Formulate, evaluate, and optimize drainage improvements (plans) to eliminate or reduce existing flooding problems.
- Identify, formulate and evaluate drainage improvements to provide drainage infrastructure for future needs.
- Develop a Geographic Information System (GIS) database for the city's drainage systems associated with the MDP.

2.3 Project Considerations

Several factors were considered in evaluating the existing drainage outfall ditch systems, identifying flooding problem areas, inadequate drainage systems, and determining and optimizing drainage improvements. These considerations were:

- Historical documented flooding areas were obtained from the City and public residents.
- Public infrastructure areas that are considered high flood risk were identified by the City and Edinburg ISD.
- HCDD1 drainage improvement planning projects as related to North Main Drain and South Main Drain such as: FEMA floodplain map modernization project, Raymondville Drain Project, Delta Region Water Management Project, and Monte Cristo Drain improvement project.

2.4 Project Study Area

The project study area covers the City of Edinburg corporate limits (City limits) and extraterritorial jurisdiction (ETJ), as shown in **Figure 2-1**. The City of Edinburg covers a total area of 36.67 square miles and is located within the Hidalgo County Main Floodwater Channel Watershed. The topography of the study area is typical of areas located in the Gulf Coastal Plan. It is generally flat, sloping gently toward the coast at an average grade of about 1 foot per mile. The flat topography imposes problems on the design of practical drainage systems because the hydraulic grades for drainage ditches are limited. Further, the City is located within the natural overland flow path within the Main Floodwater Channel Watershed and lies within a natural depressed low lying area, which complicates the City's efforts to develop an effective gravity drainage system.

The overall watershed slopes from west to east, across the City of Edinburg. From the west boundary of the ETJ to the City's urbanized areas, the overland slope is approximately 8 feet per mile. Within the City's urbanized center, which is located mainly between the North Main Drain and US 281 (IH-69), the overland slope is approximately 1.5 feet per mile; an elevation range from 96 feet to 92 feet within a 2.5 mile reach. The significant change in the overland slope across the watershed makes the City vulnerable to excessive ponding and flooding during storm events. The flatter slope within the City's urbanized areas reduces the relief need to efficiently

convey the runoff away. The overland natural topography for the City area is shown in **Figure 2-2**.

The urbanized portion of the City is primarily served by underground storm sewer systems. Open drainage ditches serve as the outfall channels for the City and its storm sewer systems. These ditches outfall either directly into, or into a lateral of, the North Main Drain or South Main Drain, which are part of the HCDD1 Master Drainage System.

The study area has a subtropical and semi-arid climate with dry winters and hot, humid summers. The average annual rainfall is approximately 26 inches. Most precipitation occurs in summer thundershowers and intense rainfall associated with tropical depressions and hurricanes that characterize the Gulf Coast from June to October.

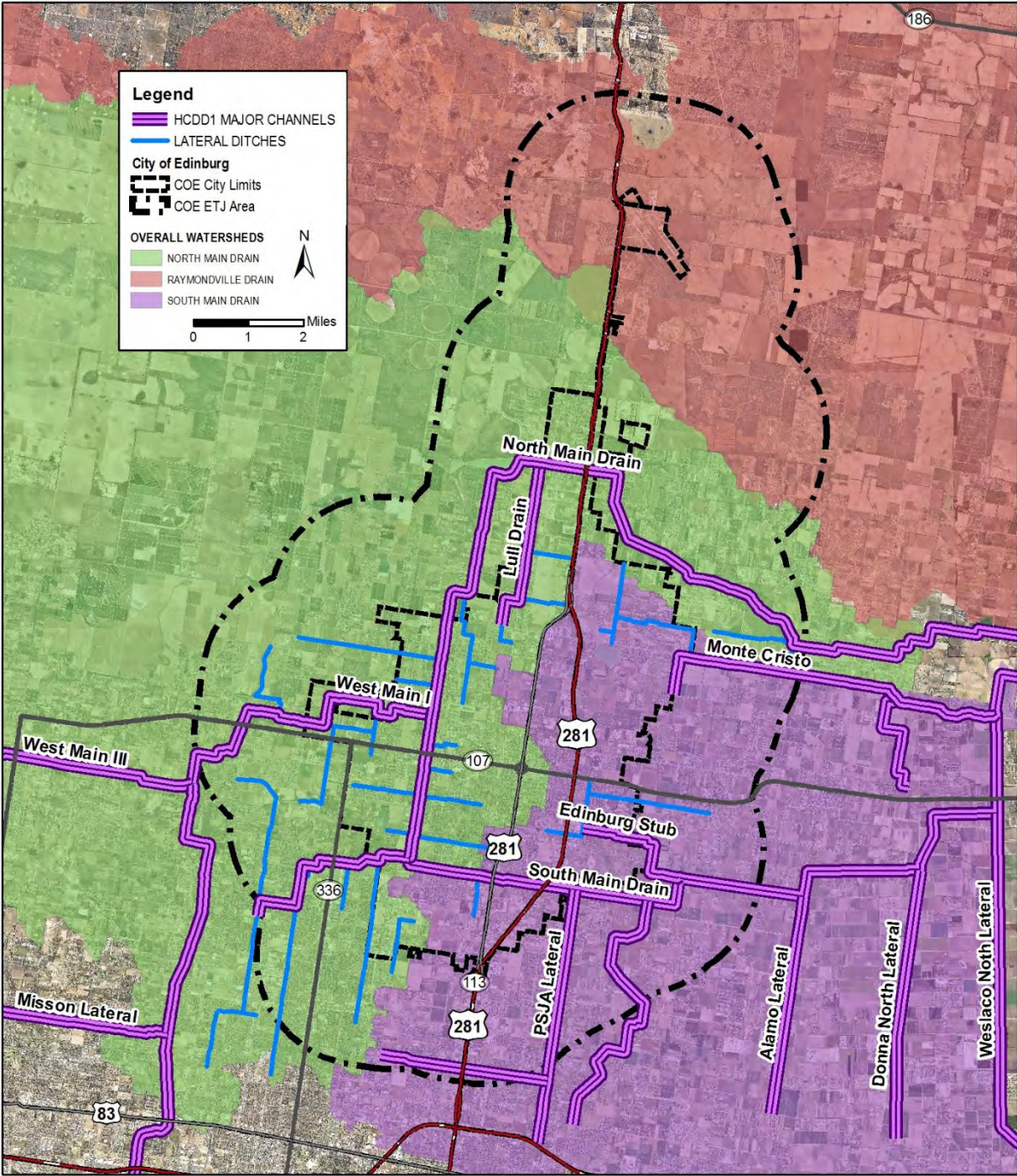


Figure 2-1. Project Study Area

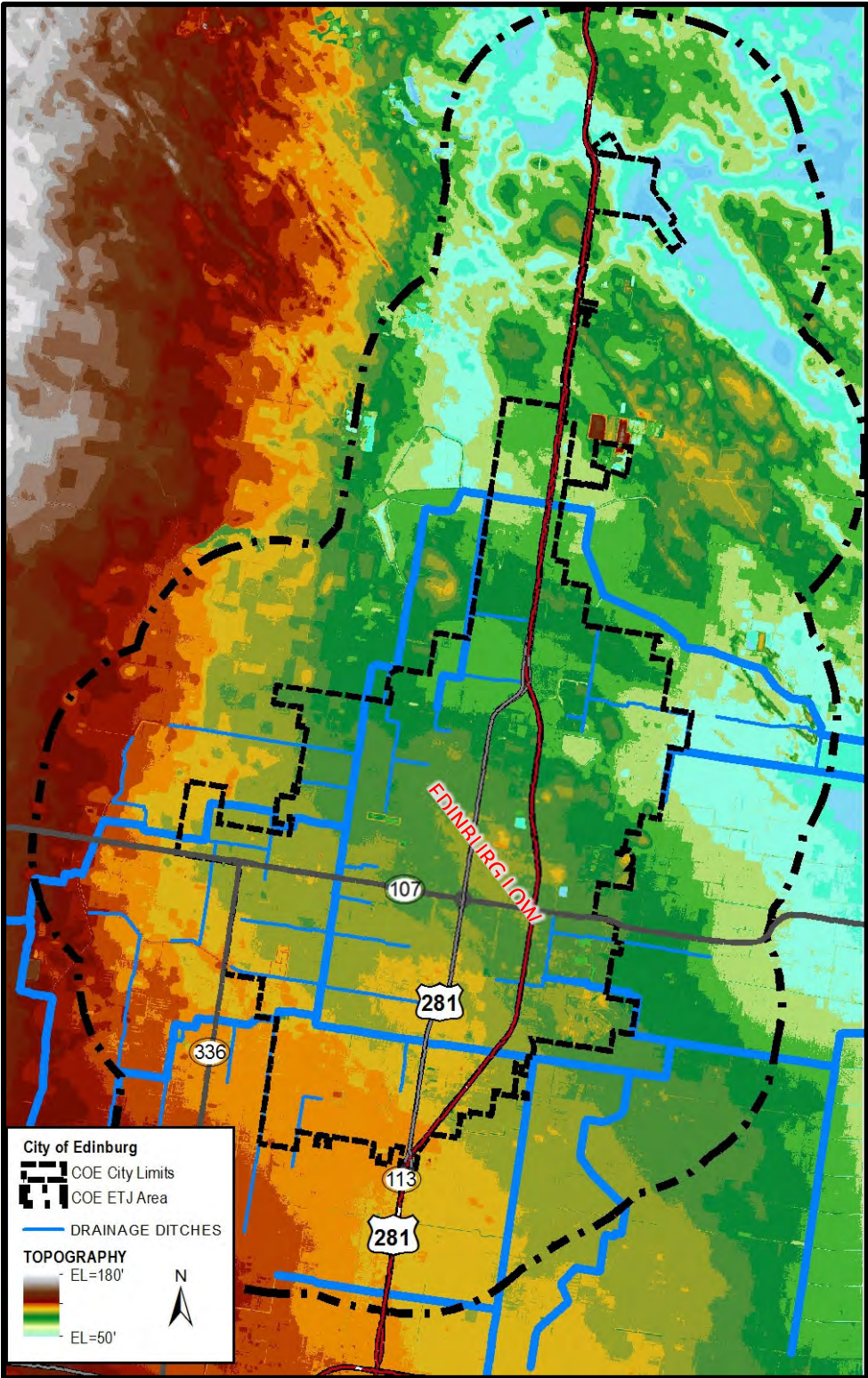


Figure 2-2. Project Area Overland Topography

2.5 NFIP Participation

The City of Edinburg has been a participating partner in the National Flood Insurance Program (NFIP) since January 1, 1978. As reported by FEMA, the City of Edinburg has a total of 2,379 flood insurance policies in-force representing a total property value of approximately \$456M. During the City NFIP participation period, the total flood insurance claims include 601 losses for a total payment of approximately \$6.2M.

Based on the “Cover the Border Hazard Mitigation Planning Project” by the Texas A&M International University, Rio Grande Institute, and H2O Partners, the estimated value of residential, commercial and industrial structures located in the 100-year floodplain is approximately \$525M, which represents the improvement (structure) value for approximately 3,933 structures.

The flood hazard areas, as delineated on the FEMA Flood Insurance Rate Maps (FIRM) effective date June 6, 2000 for Hidalgo County (Community No. 480334) and the City of Edinburg (Community No. 480338), are shown in **Figure 2-3**. As shown in the floodplain figure, there is widespread flooding along the North Main Drain.

Also shown delineated within a flood hazard area is the low, depressed area within the City centralized area; this area is referenced as the “Edinburg Low” within the FEMA Flood Insurance Study (FIS). Based on the LiDAR topography, see **Figure 2-2**, the Edinburg Low is a natural low area that functions as an overflow path between the east and west sides of the City of Edinburg. The Edinburg Low runs in a northwest to southeast direction through the City center located at the Hidalgo County Courthouse. The elevation break point along the flow path is located at the Courthouse, at University Dr. (SH 107) and Closner Blvd. (BS 281).

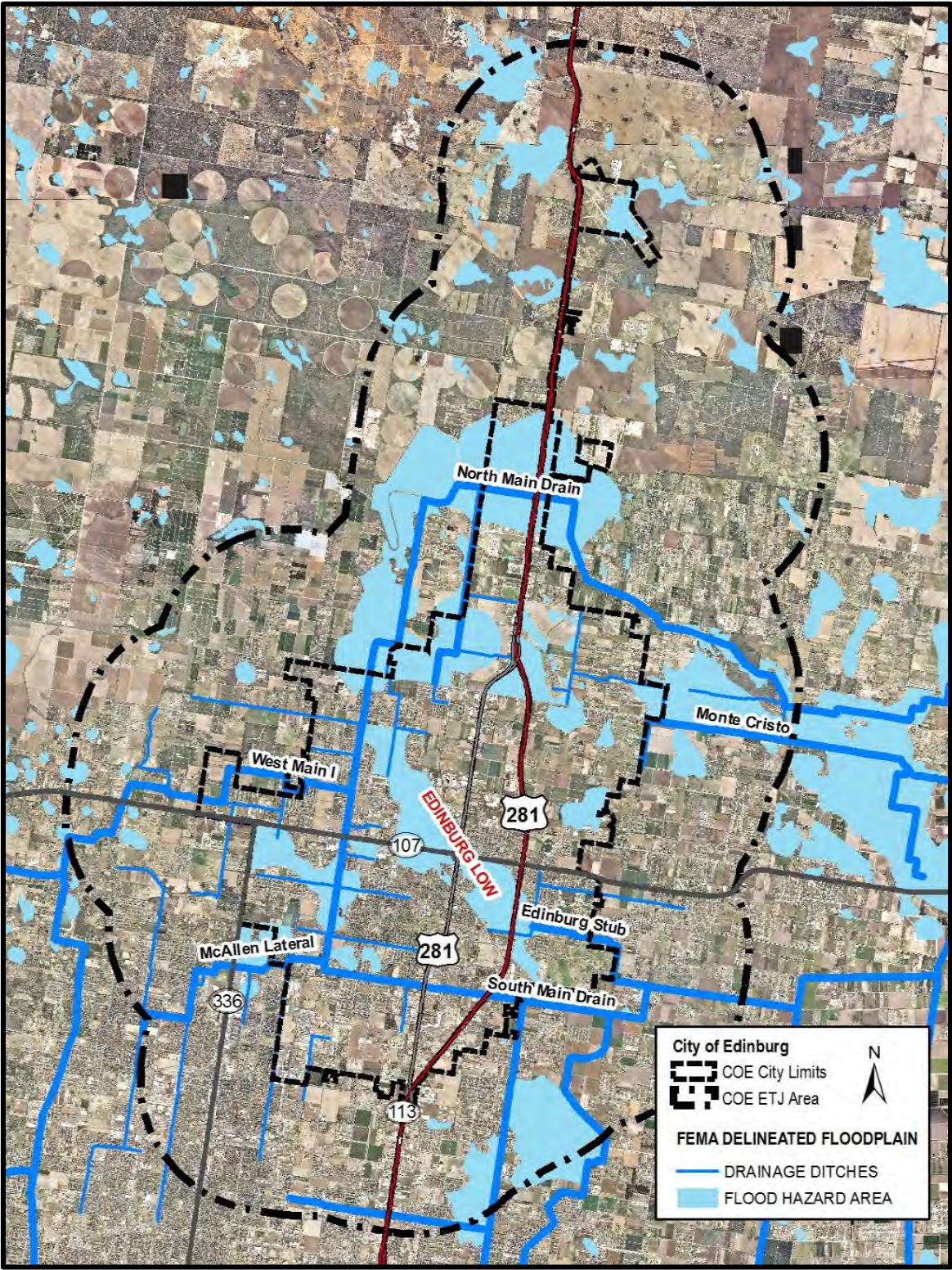


Figure 2-3. FEMA Delineated Flood Hazard Areas

2.6 Historical Flooding

The City of Edinburg has experienced frequent flooding of varying degrees throughout its history. Adequate drainage of storm water runoff has long been a challenge for the City due to the flat topography, periodic intense rainfalls, and limited capacities of existing drainage systems. Localized flooding threatens residences and business, damages structures, and hinders traffic mobility. The City of Edinburg and the Edinburg Independent School District have identified public facilities that are at risk of potential flooding. These flood concern locations as well as documented locations of flooding from recent storm events are shown in **Figure 2-4**.

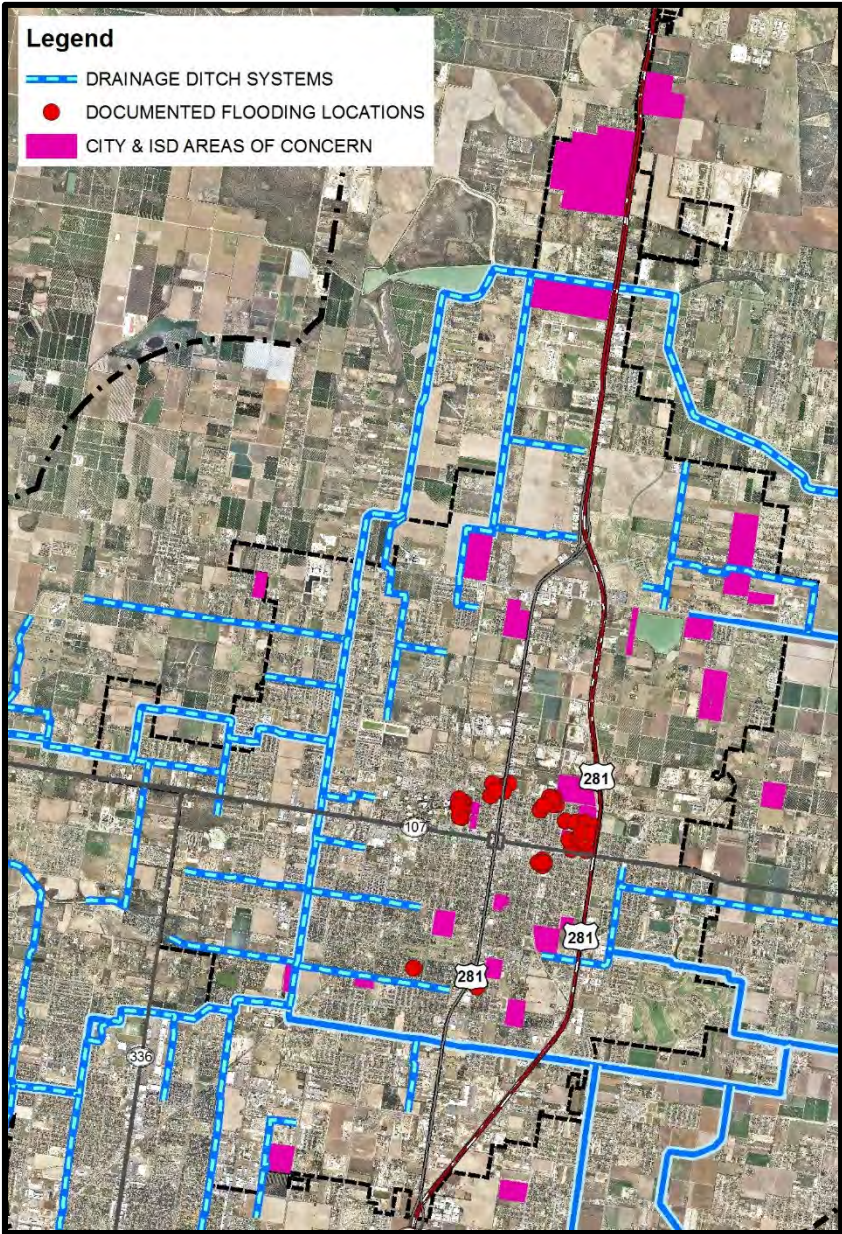


Figure 2-4. Areas of Flood Concern and Documented Flooding Locations

Figure 2-5 shows example pictures of localized flooding with the City which occurred during April 2012 and September 2014 storm events. These storm events are typical of high intensity, short duration rainfall which occurs frequently within the Lower Rio Grande Valley region.

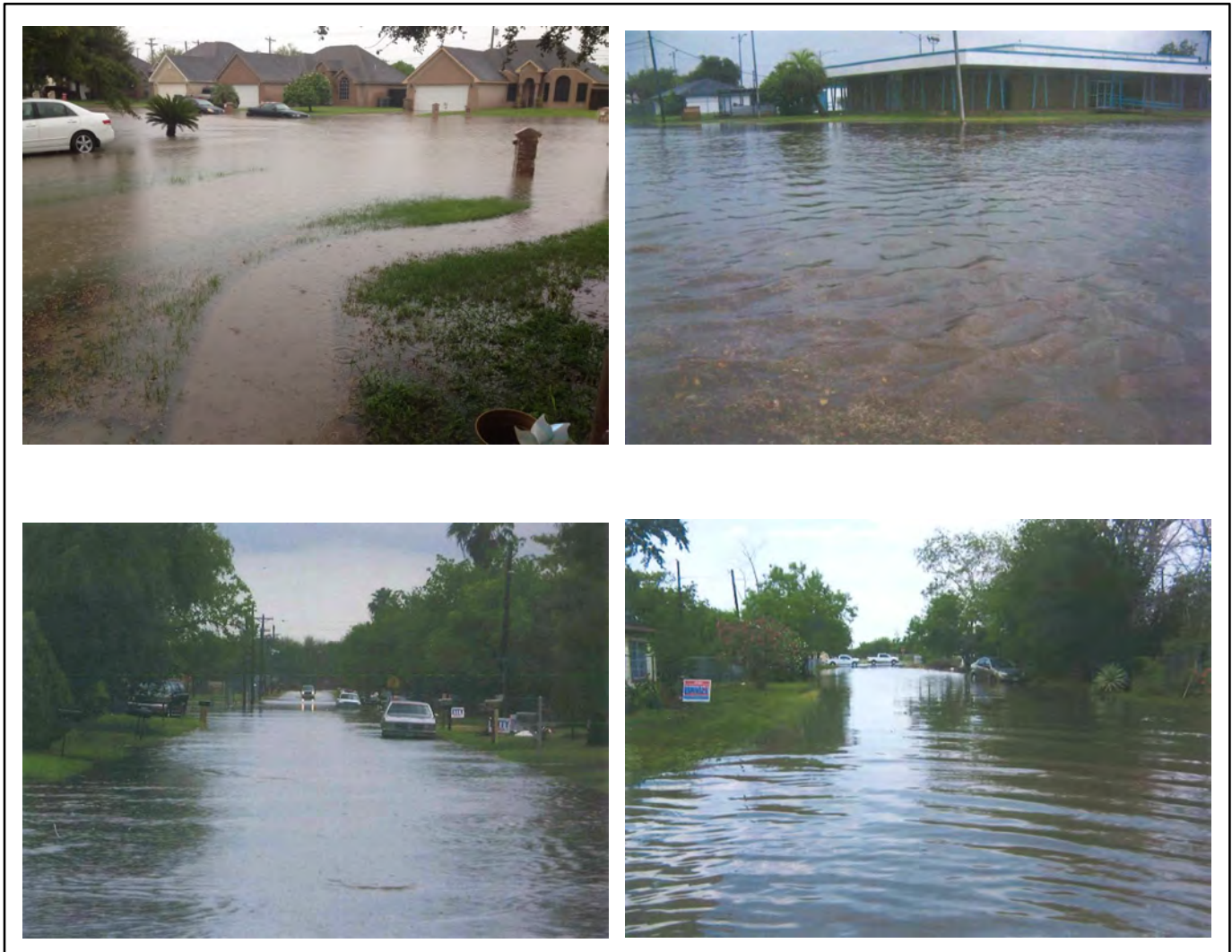


Figure 2-5. Localized Flooding Examples During April 2012 and September 2014 Storm Events

The Lower Rio Grande Valley region is also prone to tropical storms and hurricanes, which produce substantial rainfall and result in wide-spread flooding and significant damage to the region. In July 2008, Hurricane Dolly rainfall amounts within Hidalgo County ranged from 6 to 14 inches; **Figure 2-6** shows the rainfall spatial distribution for the storm event.

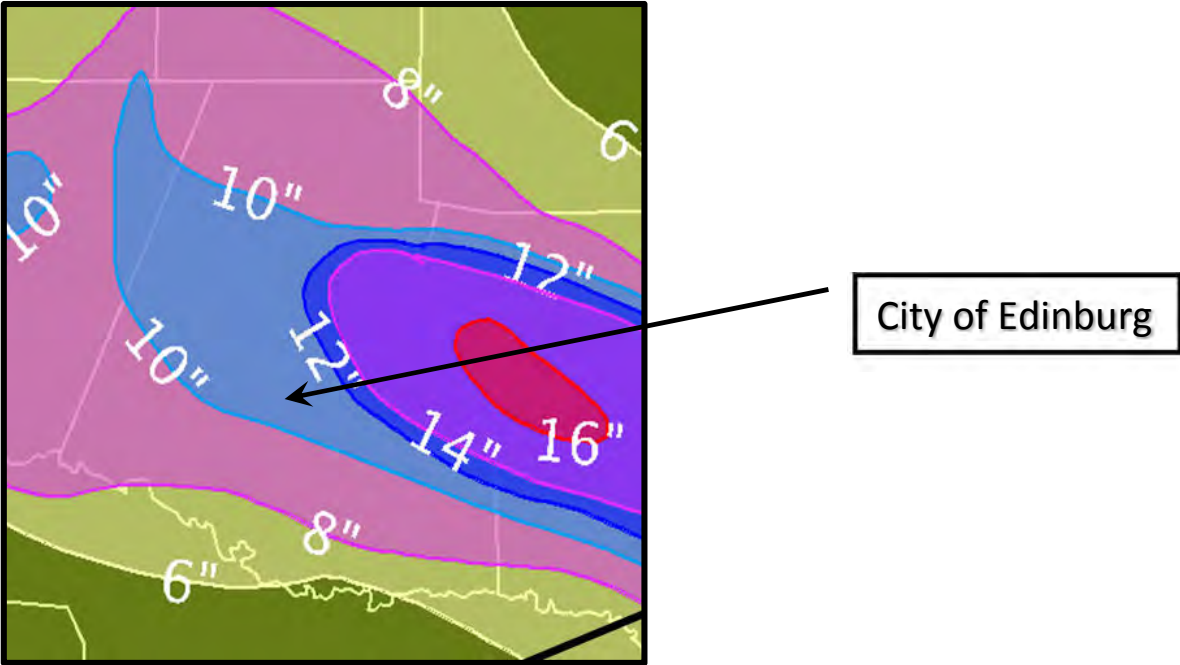


Figure 2-6. Hurricane Dolly Rainfall Spatial Distribution

In July 2010, Hurricane Alex rainfall amounts within Hidalgo County ranged from 5 to 8 inches; **Figure 2-7** shows the rainfall spatial distribution for the storm event.

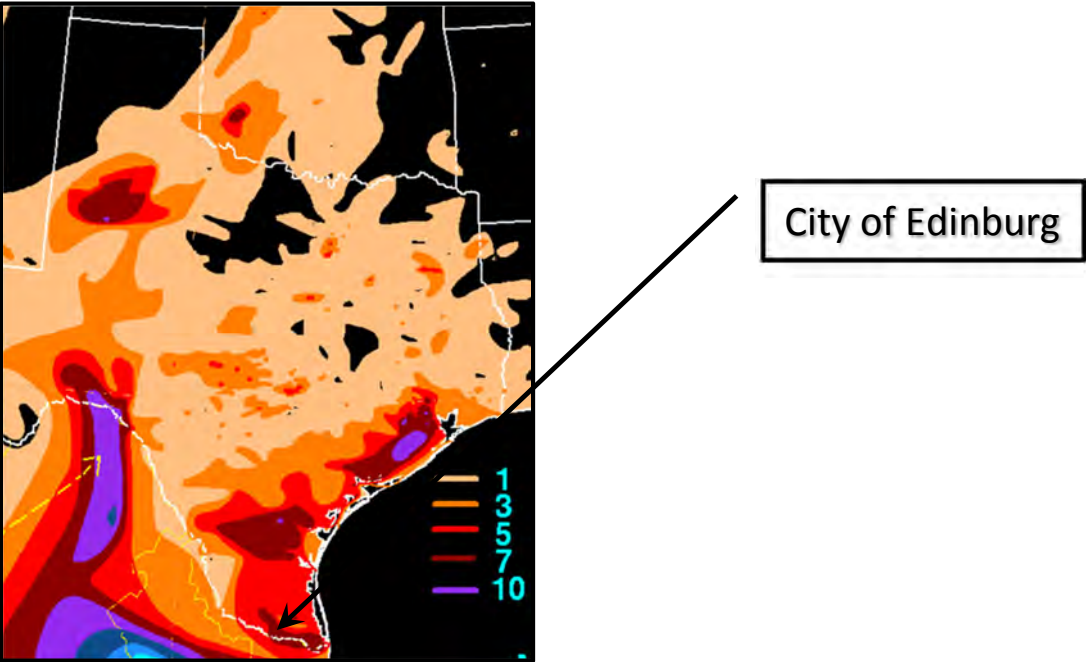


Figure 2-7. Hurricane Alex Rainfall Spatial Distribution

2.7 Environmental Constraints

As part of this contract, a Phase I Environmental Site Assessment (ESA-I) and Constraints Map report was generated for the project area. The environmental documentation was prepared by Raba Kistner Environmental, Inc. and presented within a report entitled “Phase I Environmental Site Assessment (ESA-I) and Constraints Map for City of Edinburg Master Drainage Plan – 16 Outfall Locations, Edinburg, Hidalgo County, Texas” dated January 2014. The referenced ESA-I and Constraints Map are provided within **Appendix G** of this drainage report.

The report summarized conclusions included:

Based on the information reviewed, there was no evidence that the subject or adjacent properties are currently under federal or state environmental enforcement action. The SITE reconnaissance, regulatory database review, and historical review, revealed no evidence to suggest that there are any potential environmental concerns associated with the SITE Northeast, Southeast, Northwest and Southwest outfall locations that would preclude construction or development activities from an environmental standpoint.

This assessment has revealed no evidence of recognized environmental conditions in connection with the SITE Northeast, Southeast, Northwest and Southwest outfall locations.

This assessment has revealed no evidence of recognized environmental conditions in connection with the SITE Northeast, Southeast, Northwest and Southwest outfall locations.

3.0 GIS APPLICATION

Geographic Information Systems (GIS) provides a powerful workspace for storing, compiling, overlaying, integrating, updating and exchanging, analyzing, displaying, and managing geospatial data. It provides a consistent method for watershed and stream network delineations using digital elevation models (DEMs) of land-surface terrain. GIS provided a vital role, from GIS data manipulation to geospatial data layers creation, in developing this project. This section discusses the applications of ArcGIS tools in the project development and the GIS layers developed for the Master Drainage Plan.

ESRI ArcGIS 10.2 was used to facilitate the various engineering workflows required for the project development, including base mapping, topographic data development, drainage system delineations, drainage and hydrologic parameter extraction, hydrologic and hydraulic model development and analyses, and drainage system inventory. The suite of ArcGIS tools utilized for the purpose of this project include Spatial Analyst, 3D Analyst, ArcHydro, HEC-GeoHMS, HEC-GeoRAS, and other ArcGIS extensions.

Digital base maps were compiled from various sources, such as: City of Edinburg, Hidalgo County, Texas Natural Resource Information Systems (TNRIS), TWDB, FEMA, NOAA, and USGS. The available datasets were compiled using conversion, spatial referencing, and integration operations. GIS base map data layers for this project included raster aerial photographs, vector street maps, political boundaries (cities, counties, districts), floodplain delineations, and stream and drainage ditch centerlines.

3.1 Datum and Coordinate System

The common datum, projection, and coordinate system for this project are:

- Horizontal Datum - North American Datum 1983 (NAD83) (Feet)
- Vertical Datum - North American Vertical Datum 1988 (NAVD88)
- Projection - Lambert Conformal Conic
- Coordinate System - State Plane Texas South 4205

3.2 GIS Feature Layers

As part of the engineering efforts in developing the master drainage plan, a set of GIS data layers were created, which provide a digital version of the master drainage plan. The GIS data layers can be updated by incorporating future drainage projects and provide an easy way to locate drainage features such as:

- Watershed Basin
- Drainage Ditch Subbasin
- Drainage Ditch Centerline

- Cross-Culvert Structure Inventory Locations
- Drainage Ditch Improvement Reaches
- Proposed Cross-Culvert Improvement Locations
- Flooding Concerns and Documented Flooding Locations
- Floodplain Boundary
- Street Map
- Soil Map
- Land Use Map
- City Boundary
- County Boundary
- LiDAR Topography DEM
- Digital Aerial Photos

3.3 LiDAR DEM

Automated extraction of topographic parameters from DEMs has been recognized as a viable alternative to traditional surveys and manual evaluation of topographic maps, particularly as the quality and coverage of DEM data increase. A continuous DEM dataset was developed based on tiled LiDAR datasets obtained from Texas Natural Resource Information System (TNRIS), which was flown in 2011. The original LiDAR has a resolution of 3.3 feet in LAS format. These tiled LiDAR datasets were converted to ESRI Arc GRID format through a series of spatial data processing procedures including LAS to Multipoint, Multipoint to TIN, and TIN to GRID. The resulting tiled grid datasets were then merged into one single grid dataset. With consideration of the very large size of LiDAR dataset, a 5-foot grid dataset was created as the base DEM dataset for this project.

By examining the high resolution LiDAR DEM imagery, natural streams and drainage ditches are generally well defined by the LiDAR data. However at many stream crossings (culverts and bridges), elevations on top of the structures were included in the DEM. If the original DEM data was used for automated drainage delineations, the natural drainage patterns could be erroneously modeled without removing these structures from the DEM.

To remove the dam-like hydraulic structures in the DEM, stream and drainage ditch lines and aerial photographs were used to identify stream crossing structure locations. Stream crossing breaklines were created at each hydraulic structure where the top elevation of the structure was included in the DEM. ArcHydro reconditioning tool was used to burn the resulting stream crossing breaklines into the DEM with a certain depth based on the adjacent flowline elevations at the structure. A hydro-enforced DEM was created. This reconditioned 5-foot DEM was used as the base grid dataset for this study.

In developing the HEC-HMS and HEC-RAS models, the ArcHydro, HEC-GeoHMS, HEC-GeoRAS tools were extensively used to facilitate the delineation of drainage areas, extraction of drainage parameters, and extraction of channel cross section geometric data.

3.4 Aerial Photographs

Aerial photographs for the study area were obtained from Texas Natural Resources Information Services (TNRIS) and Hidalgo County, TX. The aerial photographs are dated 2013 and are produced with 0.5 and 1.0 foot resolution.

4.0 HEC-HMS MODELING ANALYSIS

Watershed runoff discharge is a function of precipitation, rainfall losses, and runoff processes. The U.S. Army Corps of Engineers (USACE) HEC-HMS (v. 4.0) computer program was used to evaluate and compute runoff peak flows and hydrographs at various locations within the studied watersheds for this study. Various frequency storm events were evaluated, including 10-, 25- and 100-year, and analyzed for both existing and ultimate conditions. The resulting peak flows and hydrographs were used as input data to HEC-RAS modeling analysis to identify flooding problem areas and evaluate alternative drainage improvement plans.

4.1 Overall Watersheds

The City drainage ditches outfall into the HCDD1 Master Drainage System, specifically the Main Floodway Channel network system. The primary HCDD1 watersheds serving the City include North Main Drain and South Main Drain. Additionally, Raymondville Drain serves a small portion of the City (specifically the South Texas International Airport at the City of Edinburg) and the northern portions of the City ETJ; however the City does not currently have any major outfall ditches within this watershed. The overall HCDD1 Master Drainage System Watershed map is shown in **Figure 4-1**.

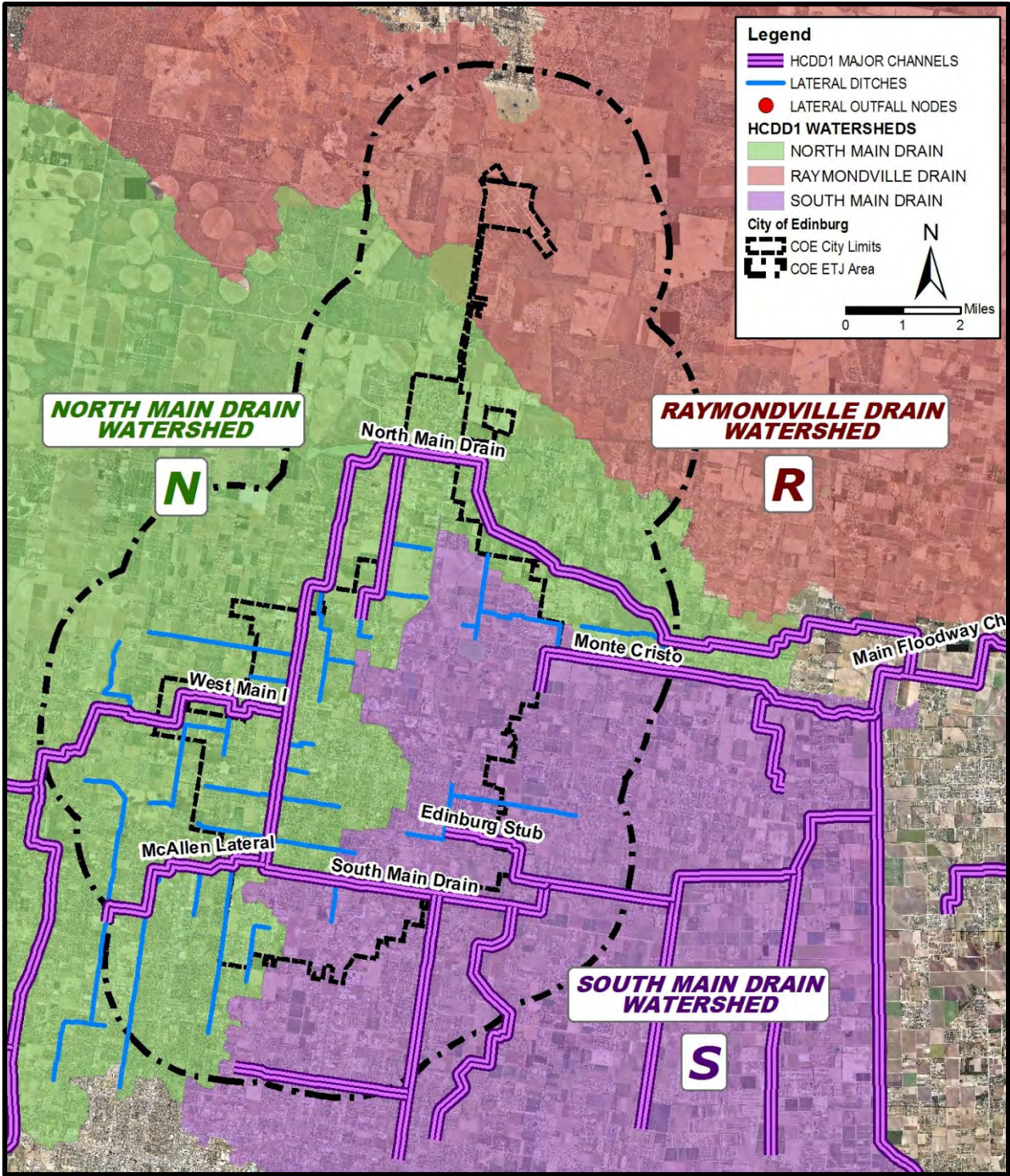


Figure 4-1. Overall Drainage Delineations

4.2 Drainage Area Delineation

Drainage areas were delineated for each drainage system analyzed based on the high resolution LiDAR topographic data and field survey data for this project using ArcGIS tools. The resulting drainage area delineations were verified by aerial photography and field visits. As discussed in Section 3.3, a continuous hydrologic-correct LiDAR DEM dataset was developed based on tiled LiDAR datasets obtained from TNRIS. The LiDAR DEM data provided a more accurate terrain representation than the traditional USGS DEM.

ArcGIS tools including Spatial Analyst, 3D Analyst, ArcHydro and HEC-GeoHMS were used to process the LiDAR DEM datasets for automated drainage and stream delineations and generation of spatially based hydrologic input files for HEC-HMS model development. Automated drainage delineation included a series of spatial data processing steps to derive the drainage networks from the DEM dataset, including flow direction, flow accumulation, stream definition, watershed delineation, watershed polygon processing, stream processing, and watershed aggregation. Watershed physical characteristics that were extracted included drainage areas, longest flow lengths, and slopes. These watershed parameters were then used to assist estimation of other watershed and hydrologic parameters such as CN, Percent Impervious Area, and time of concentration (Tc).

Drainage systems and subbasins were delineated as shown in **Figure 4-2**. There were total 17 drainage system subwatersheds delineated for the study area. Thirteen (13) drainage systems are located within the North Main Drain Watershed; four (4) drainage systems are located within the South Main Drain Watershed.

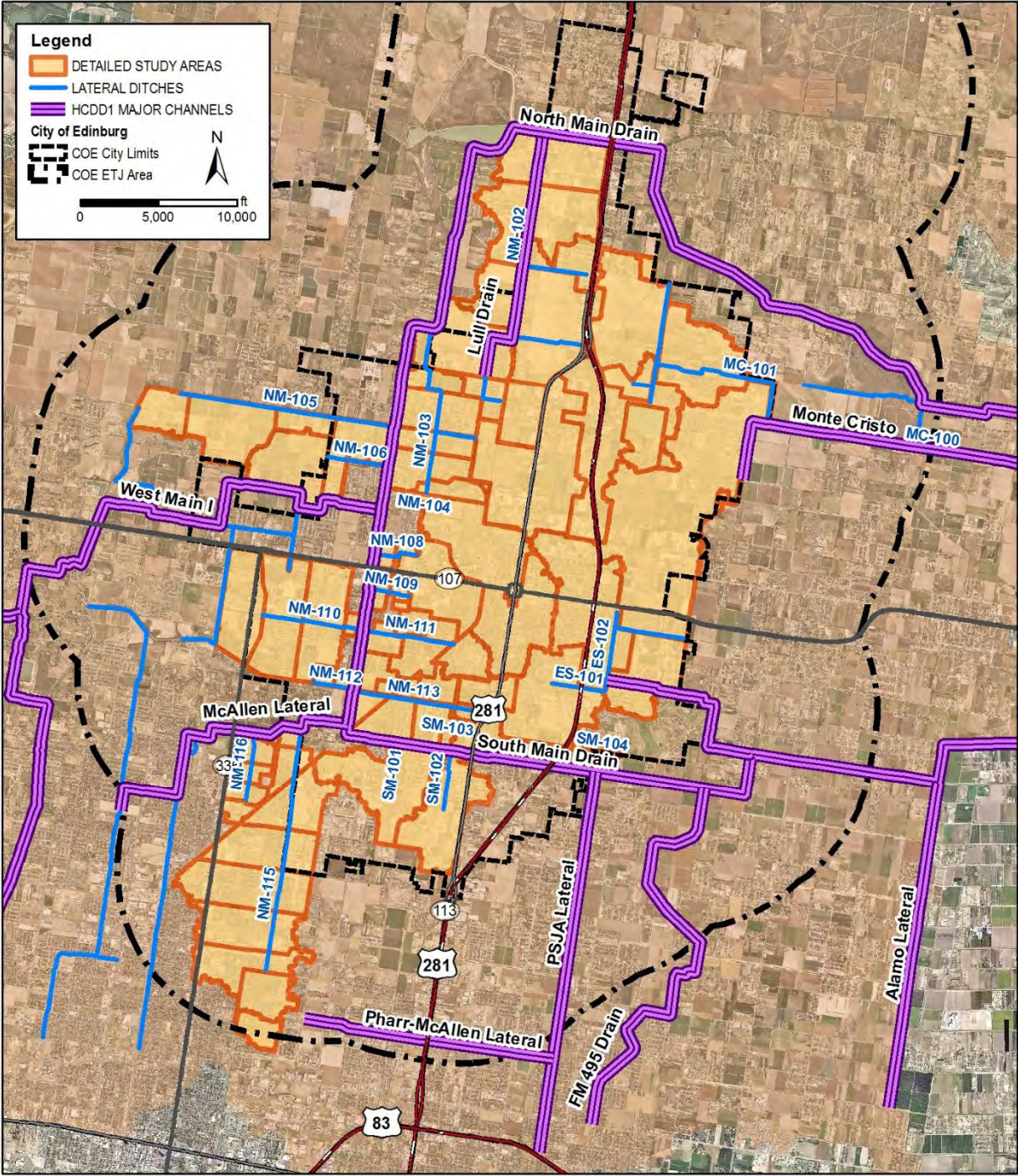


Figure 4-2. Drainage Systems Delineations

4.3 Precipitation Data

The frequency-based hypothetical storm method was selected within the HEC-HMS meteorologic model. This method defines a storm event that the precipitation depths have a consistent exceedance probability for various storm durations. This model employs a balanced and nested rainfall distribution, which positions the block of maximum incremental depth at the middle of the required duration. The remaining blocks are arranged then in descending order, alternately before and after the central block.

Using this method requires input of depths of precipitation for various durations and frequencies. The precipitation depths for various durations for a specified exceedance probability are usually obtained by consulting locally-developed depth-duration-frequency functions. For this project, the precipitation depths were taken from the USGS publication – *Atlas of Depth-Duration-Frequency of Precipitation Annual Maxima for Texas, 2004* by Asquith and Roussel. The newly developed Atlas was developed based on the generalized logistic distribution method (GLO) which is discussed in detailed in the Water-Resources Investigation Report by USGS in cooperation with Texas Department of Transportation. The USGS precipitation depth data are more accurate than those based on the traditional TP-40 and HYDRO-35. **Table 4-1** below summarizes the precipitation depths for various durations and storm events.

TABLE 4-1. RAINFALL DEPTHS-DURATION-FREQUENCY

STORMS	15-MIN	1-HR	2-HR	3-HR	6-HR	12-HR	24-HR
2-year	1.00	1.80	2.20	2.30	2.60	2.85	3.20
5-year	1.30	2.40	2.90	3.15	3.50	4.00	4.50
10-year	1.52	2.85	3.50	3.75	4.25	4.80	5.45
25-year	1.80	3.40	4.30	4.60	5.45	6.00	6.90
50-year	2.00	3.90	5.00	5.40	6.40	7.00	8.00
100-year	2.20	4.45	5.70	6.40	7.40	8.25	9.50

4.4 Initial Abstraction and Infiltration Losses

Significant rainfall losses in flood event analysis include both surface storage and infiltration. The NRCS Runoff Curve Number (CN) Loss Method was used for this study as traditionally used for the study area. This method relates accumulated rainfall excess or runoff to accumulated rainfall with an empirical curve number (CN) in the following equations:

$$Q = \frac{(P - I_a)^2}{P - I_a + S}$$

$$S = \frac{1000}{CN} - 10$$

Where Q = runoff (inches), P = rainfall (inches), I_a = initial abstraction, S = potential maximum retention after runoff begins (inches), and CN = curve number.

Curve number (CN) takes into account several factors such as soil type, cover, management practices, and hydrologic condition. The variation in infiltration rates of different soils is incorporated in the curve number selection through the classification of soils into four hydrologic soil groups as A, B, C, and D, with A having the highest and D the lowest infiltration capacities.

CN is also related to three antecedent runoff conditions: AMC III for relatively high runoff potential, AMC I for relatively low runoff potential, and AMC II for average runoff potential. Based on information provided within “Runoff curve number based on soil-cover complex and climatic factors” dated 1983 by Hailey, James L and McGill, H.N., as well information referenced within the TxDOT Hydraulic Manual 2014, AMC I condition is considered as a represent average condition for City of Edinburg study area and therefore used to estimate CN values for this study.

For this master drainage planning study, the landuse and impervious cover were considered separately from the CN value determination in order evaluate the ultimate conditions of the drainage areas. The impervious cover values were entered as separate parameters within the HEC-HMS model. The curve number was evaluated to represent an undeveloped, agriculture use with brush cover under fair hydrologic conditions. **Table 4-2** below lists the CN values from TR-55 and used for this study.

TABLE 4-2. NRCS CURVE NUMBERS

SOIL GROUP	AMC I	AMC II	AMC III
A	19	35	55
B	36	56	75
C	51	70	84
D	59	77	89

Using AcrGIS Spatial Analyst tools, a composite CN value for each drainage basin was computed based on area weighting of hydrologic soil group within the subbasin as:

$$CN_{composite} = \frac{\sum A_i CN_i}{\sum A_i}$$

The initial abstraction is generally approximated by the following empirical equation:

$$I_a = 0.2S$$

However, with consideration of numerous natural depressed areas and elevated irrigation canals within the study area, adjustment was made to initial loss based this equation. The initial loss for each subbasin was modified based the existence of natural depressed areas and the elevated irrigation canals.

4.5 Soil Map

The geospatial soil data for Hidalgo County was obtained from the NRCS Soil Data Mart. The soil map layer is a polygon feature class that contains the hydrologic soil group types. **Figure 4-3** shows the hydrologic soil types within the City of Edinburg and surrounding areas. Based on the soil map, the study area consist mostly of hydrologic soil group B.

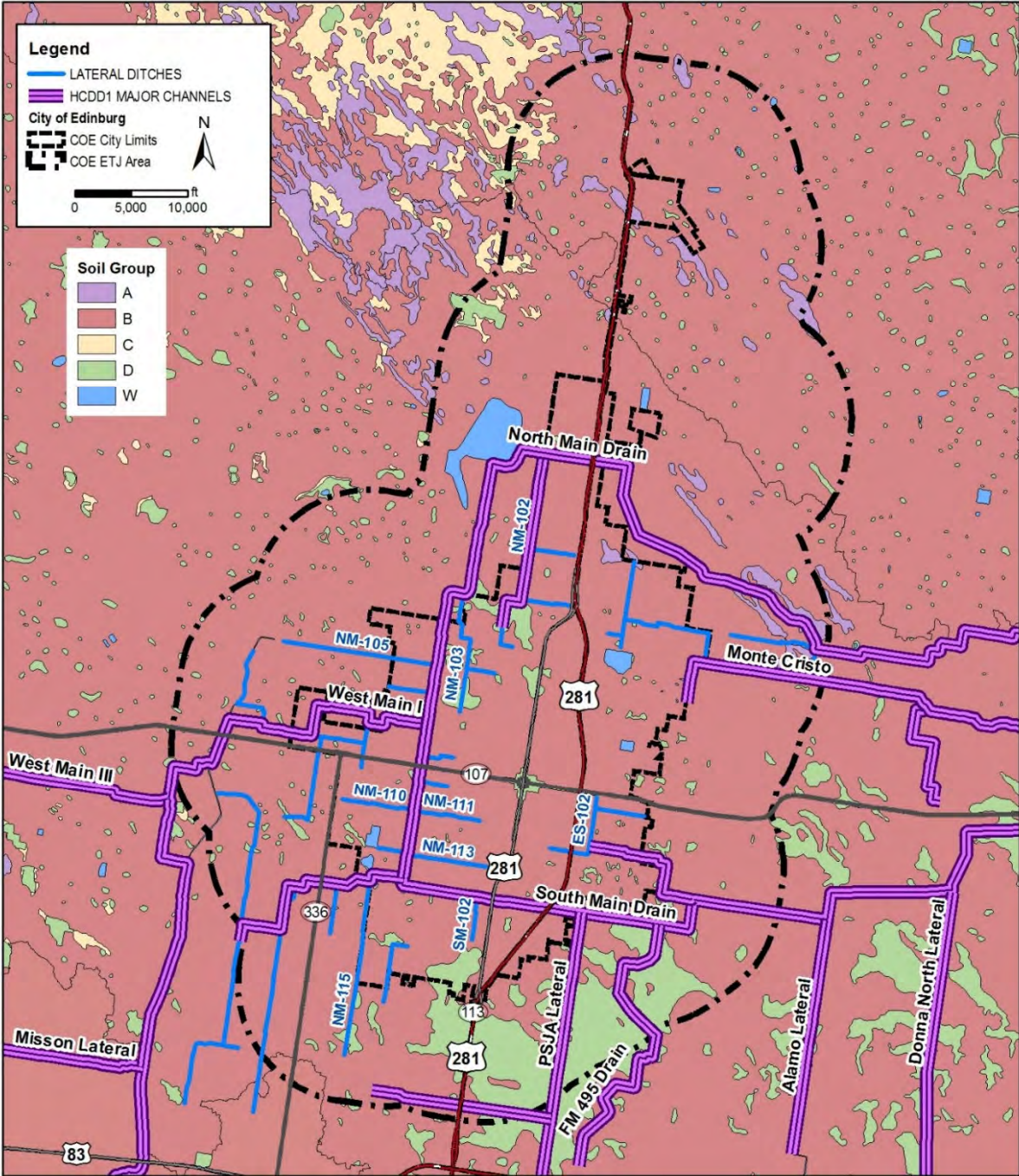


Figure 4-3. Hydrologic Soil Group Map

4.6 Land Use and Impervious Cover

Land use within a drainage basin generally has the greatest impact on the rainfall – runoff relationship. Land use and land cover dictate the percent impervious area of a drainage basin. The land use layer is a polygon feature class that contains land use type and cover and percent impervious cover information. A composite percent impervious cover for each drainage area was computed. The land use and land cover were classified into eight (8) groups for this study, as listed in **Table 4-3**.

TABLE 4-3. LAND USE TYPE VS PERCENT IMPERVIOUS COVER

LAND USE TYPE	LAND USE DESCRIPTION	IMPERVIOUS (%)
U	Undeveloped areas	0
RS	Residential < 1 acre	40
RL	Residential Large > 1 and < 5 acres	20
RR	Residential Rural > 5 acres	5
T	Transportation corridors and streets, etc.	90
W	Water bodies, streams, lakes, reservoirs, etc	100
GA	Green Areas	10
HD	Commercial, Industrial, Schools	85

The land use layer was developed based on the parcel maps from the Hidalgo County Appraisal District. The parcel maps were verified based on latest aerial photography. **Figure 4-4** shows the land use classifications within the City of Edinburg and surrounding areas.

The existing percent impervious cover values for each subbasin were modified to reflect the projected ultimate land use assuming a 30-year planning horizon. Based on the existing level of development within the study area and the expected growth rate within the region, a fully developed ultimate condition was considered for the project study area.

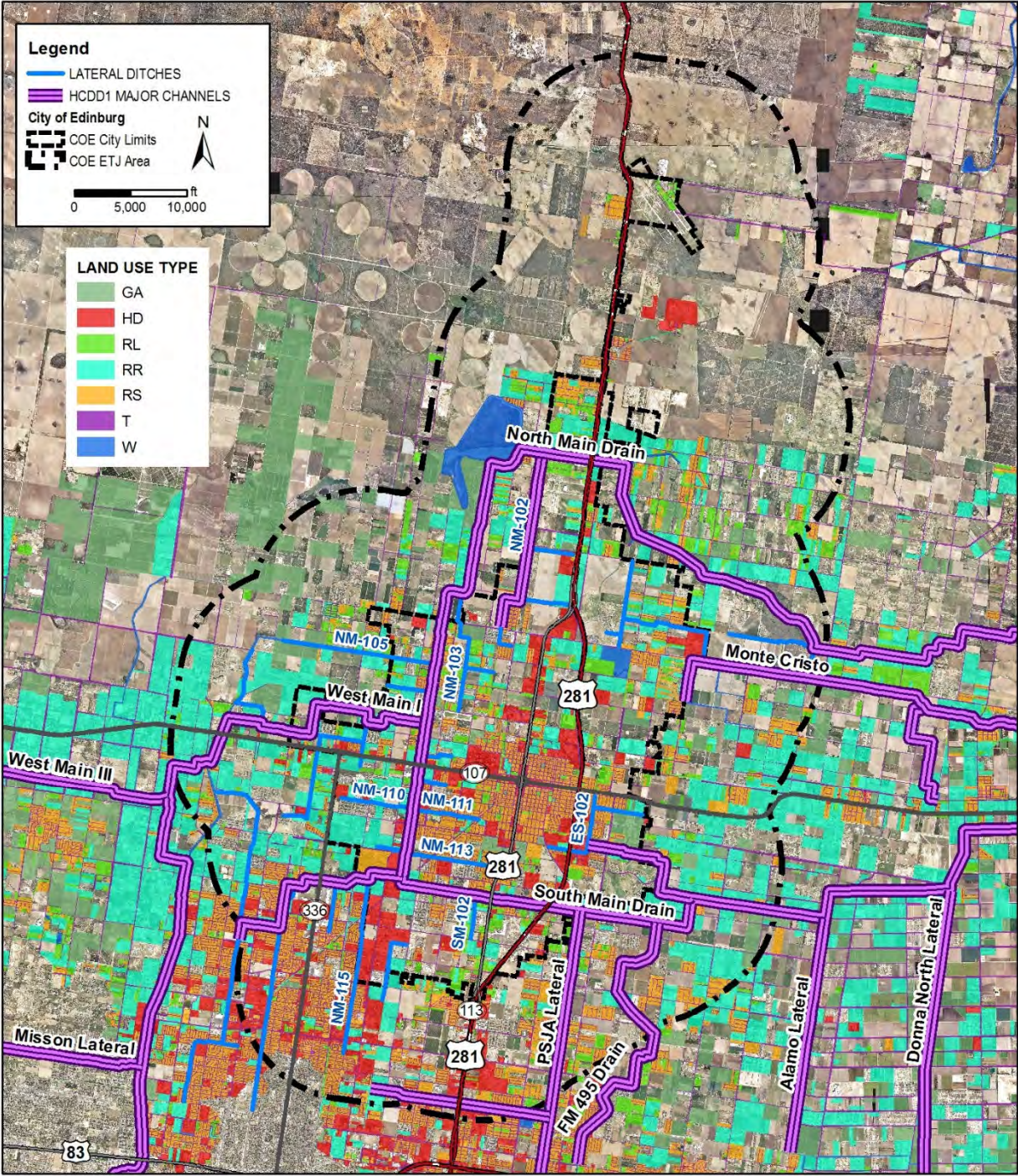


Figure 4-4. Land Use Map

4.7 Lag Time

The lag time represents the time difference between hyetograph center of mass to the peak of the hydrograph for a subbasin. Due to the natural conditions of the watershed, including the relatively flat overland slope, lack of natural channel flow, and the presence of numerous natural

depressions, the SCS (NRCS) Lag Time equation, as shown below, was utilized to determine the subbasin lag time.

$$t_p = \frac{L_w^{0.8} [(1000/CN) - 9]^{0.7}}{31.67S^{0.5}}$$

where: t_p = the lag time in minutes, L_w = the length of the longest flow path in feet, S (%) = the slope of the longest flow path, and CN = the composite curve number.

4.8 Unit Hydrograph

4.8.1 NRCS Dimensionless Unit Hydrograph

The standard NRCS dimensionless unit hydrograph (DUH) has been widely used to construct synthetic unit hydrographs by many agencies for hydrologic design practices and studies. The standard dimensionless unit hydrograph was an “averaged” hydrograph derived from a large number of natural unit hydrographs from watersheds ranging in sizes and geographical locations. The average DUH assumes that 37.5 percent of the total runoff volume occurs in the rising side of the curvilinear hydrograph (or the receding time from the peak is 1.67 times of the time to peak). Based on this assumption and with consideration of unit conversion factors in the equation (such as square miles to acres, acre to cubic feet, and hour to seconds) in peak discharge computation, a standard peaking rate factor (PRF) of 484 was derived as shown in the following equation:

$$Q_p = \frac{484A}{T_p}$$

The NRCS dimensionless unit hydrograph (DUH) is detailed in Chapter 16 of the *National Engineering Handbook, Section 4 (NEH-4), Hydrology*. The report indicates that a PRF value may range from below 100 for very flat watersheds to more than 600 for very steep watersheds. The *NEH-4* provides for the DUH shape based on a Gamma function relationship to the PRF.

A recent study entitled “*Revisit of NRCS Unit Hydrograph Procedures*” by Lamar University, University of Houston, and Texas Tech University for Texas Department of Transportation presents regional regression equations developed for basin-mean time to peak T_p , and peak discharge Q_p of Gamma unit hydrographs based on 1,600 recorded rainfall-runoff data pairs from 90 Texas watersheds within Trinity River, Brazos River, Colorado River, San Antonio River. The study found that the mean peak rate factor for Texas watersheds range from 251 to 626 with an average value of 370.

The U.S. Bureau of Reclamation (USBR) developed a dimensionless unit hydrograph for drainage design purposes for a project entitled “Valley Gravity Project” in 1948. The dimensionless unit hydrograph was developed by averaging two study areas with 48.56 and 22.83 square miles

respectively within the Lower Rio Grande Valley. By examining the dimensionless unit hydrograph, a NRCS DUH PRF value of 130 was determined. Based on the aforementioned studies, it can be concluded that a constant factor of 484 does not reflect the peak flows from the watersheds within Hidalgo County.

A USDA-ARS Coastal study (Sheridan, et al., 1999) evaluated the PRF in eight Texas southeast coastal flat watersheds ranging from 1.0 to 19.3 square miles. Values for the PRF ranged from 174 to 476, depending watershed slope and area. The PRF was predicted by the following empirical equation:

$$PRF = 631.7A^{0.263}S^{0.882}$$

where A is drainage area in square miles and S is watershed channel slope in percent. The channel slopes of the eight watersheds used for this study vary from 0.1 to 0.37 percent.

With considering the significant changes in slopes within the watershed, the empirical equation developed by the USDA-ARS Coastal study was used for this study and a minimum peaking rate factor of 150 value was conservatively adopted. Using the equation shown above, a specific peaking rate factor was determined for each subbasin.

4.8.2 Gamma Function Based Unit Hydrograph

The Peaking Rate Factor (PRF) reflects the shape of the Unit Hydrograph. Each PRF has a unique shape of UH. Since there is no provision in HEC-HMS for changing the 484 PRF and the corresponding UH, to reflect the lower PRF values in the HEC-HMS modeling analysis, a two-parameter Gamma equation was used to fit the UH shape as recommended by NRCS. The Gamma equation has the following equation:

$$\frac{Q_t}{Q_p} = \left(\frac{t}{T_p}\right)^\alpha e^{-\left(\frac{t}{T_p}\right)^\alpha}$$

Where Q_t is the discharge value at time t , Q_p is the peak discharge of the unit hydrograph, e is constant 2.7183, α is gamma equation shape factor, and T_p is time to peak.

The gamma shape factor α can be estimated using the following equation (Aron and White (1982)):

$$\alpha = 0.045 + 0.5\phi + 5.6\phi^2 + 0.3\phi^3$$

$$\phi = \frac{PRF}{645.33}$$

4.8.3 Stream Reach Routing

Stream reach routing enables the consideration of channel storage volume to attenuate hydrograph peak flows. Stream reach routing was accomplished within the contributing drainage

areas using the Muskingum Cunge 8-Point cross-section method. Typical cross-sections were obtained for each reach and input to the HEC-HMS model with a representative slope for the reach. The typical Manning's n value used was 0.045.

Stream reach routing for the North Main Drain and South Main Drain was simulated in the model using the more accurate Modified Puls method. This was possible due to the availability of the HEC-RAS model from the Raymondville Drain Flood Control Project. After convergence from several iterations (cycling) between the HEC-RAS multi-profile model and the HEC-HMS model, acceptable storage-outflow relationships were obtained from the multi-profile hydraulic model to perform Modified Puls routing for reaches along North Main Drain and South Main Drain.

4.9 HEC-HMS Model

The U.S. Army Corps of Engineers (USACE) Hydrologic Modeling Systems (HEC-HMS) version 4.0 modeling program was used to compute peak flows and hydrographs at various locations within the drainage systems for various storm events. The basin model was generated using ArcHydro and HEC-GeoHMS. Corresponding to each drainage system delineated, an HEC-HMS model was developed to peak flows and hydrographs for each frequency storm event.

5.0 HEC-RAS MODELING

The City drainage ditches were analyzed using the U.S. Army Corps of Engineers' HEC-RAS (v.4.1) hydraulic software package. Each drainage ditch system was evaluated to determine its existing conveyance capacities, identify overbank flooding risk areas and system constraints. For systems with insufficient capacity, alternative channel improvements were analyzed.

For the City outfall ditches, one-dimensional steady flow hydraulic models were created for the hydraulic analyses. The HEC-RAS model was developed by importing the geometric import file generated from HEC-GeoRAS, as discussed below, and flow data into the geometry model data. The ditch capacity analyses were performed utilizing a normal depth tailwater condition. Existing channel capacities were determined based on the existing HEC-RAS models. Alternative HEC-RAS geometry models were created using the program's channel modification tools to evaluate alternative channel improvements.

5.1 HEC-GeoRAS

HEC-GeoRAS, an ArcGIS extension, is a set of ArcGIS tools specifically designed to process DEM data to extract channel geometric data for HEC-RAS model development. Using HEC-GeoRAS requires a digital terrain model (DTM) represented by ESRI ArcGRID or triangulated irregular network (TIN). The current version of HEC-GeoRAS creates an import file, referred to as the RAS GIS Import File, which contains the channel network, channel cross-section geometry, and reach length data from a set of RAS themes and a DTM (collectively referred as the RAS Layers). The RAS themes, including stream centerlines, flow path centerlines, channel banks, and cross section cut lines, are created based on LiDAR data, channel cross section field survey data, and aerial photograph.

5.2 Manning's n-values

The channel roughness, Manning's n-values, are representative of the vegetation, flow obstruction, and overall channel/ floodplain conditions. The Manning's n-values were assigned based on field visit, photos, and aeriels. For all the hydraulic models, standardize values were determined to be representative. These include a typical channel n-value of 0.045, representing the low-velocity, trapezoidal man-made ditches with vegetation growth, and an overbank n-value of 0.06, representing a mix of urbanized/residential development areas and maintained grassy areas with some limited agricultural areas.

5.3 Overbank Ineffective/ Obstructed Areas

Several of the drainage ditches either are adjacent to elevated irrigation canals or have depressed areas within the overbank areas. The high berms of the canals cause flow blockage with the

channel overbanks, and the depressed areas represent locations of non-contributing flow area to the channel conveyance. The cross section overbank data were checked against topography and aerials. Ineffective flow areas and block obstructions were added to the cross section based on topography and overland flow patterns.

5.4 Cross-Drainage Structures

The cross-drainage culverts details within the channels were obtained from field measurements and observations. The field notes and photos for lateral cross-drainage structures as well as an overall location map are provided in **Appendix B**. Each structure's size and length was incorporated into the HEC-RAS modeling for the hydraulic capacity analyses.

5.5 Proposed Improvements

For drainage ditch systems that were determined to have inadequate conveyance capacity or requiring additional infrastructure to provide for future development needs, multiple modification measures were considered to reduce the existing flooding risks. These modification measures include:

- Channel improvements
- New channel alignments
- Crossing structure improvements
- Detention basins
- Levee systems

Channel improvements were recommended for various drainage ditch segments. The proposed channel improvements reduce the potential flood damages by increasing the channel conveyance capacity and lowering the water surface elevation along the channel. Channel improvements usually include channel widening and/or deepening, removing woody vegetation, and/or concrete lining.

New channel alignments were proposed to provide drainage relief to collect runoff from existing flooding problematic areas and areas of future development.

The typical proposed channel improvement includes a trapezoidal, grass-lined channel section with 3:1 side slopes and 30-foot maintenance berms. The channel section's bottom width, slope, and depth were optimized based on conveyance needs and available outfall depth.

For ditch reaches that are to be improved, proposed stream crossing structures were proposed to accommodate the proposed channel improvements and adequately convey the fully developed flows without impediment. It should be noted that the scope of this study did not include the survey and therefore the analysis of existing structures.

Detention basin alternatives were also considered at various locations. Detention is an alternative structural solution to reduce flows within the channel and therefore reduce water surface elevations along the channels. A detention basin stores stormwater runoff temporarily and then releases the water downstream to the channel over a longer period of time when the channel can safely convey the water away.

Levee systems with pump stations were also considered as options to protect subdivisions from flooding. Levee systems can be used to block offsite runoff flowing into a subdivision. Internal floodwater must be pumped during a flood.

5.6 HCDD1 Master Drainage System

The City drainage ditches outfall into the HCDD1 Master Drainage System, specifically the Main Floodway Channel network system. The primary HCDD1 receiving ditches serving the City include the North Main Drain and South Main Drain. The North Main Drain and South Main Drain were analyzed hydraulically to establish tailwater conditions and backwater inundation for the City drainage systems, as well as potential flooding within the City from the HCDD1 ditches. The HEC-RAS modeling for the North Main Drain and South Main Drain, as described below, is provided in **Appendix C**.

5.6.1 North Main Drain

The North Main Drain was modeled using 1D steady HEC-RAS model as part of the Raymondville Drain Flood Control Project for HCDD1. The North Main Drain receives runoff from the western and northern portions of the City of Edinburg, as well as from the majority of this project's studied outfall ditches. The model was updated based on a combination of 1D channel and 2D floodplain unsteady modeling approach with the latest 2D unsteady HEC-RAS model (v.5.0 Beta) program. The widespread floodplain along the channel was modeled by generating a 2D computation mesh based on LiDAR DEM data. Hydrographs from HEC-HMS model were incorporated into the 1D/2D unsteady flow model as boundary conditions. The results provided a more detailed representation of overbank and low depressed area flooding potential along North Main Drain within the City. The 100-year, 25-year, and 10-year inundation depth results are shown in **Figures 5-1, 5-2, and 5-3**, respectively.

As shown in the figures, areas along the North Main Drain and Lull Drain within the northern portions of the City are susceptible to inundation, even during a 10-year storm event, as well as the low-lying areas within the City Center, previously referenced as the "Edinburg Low".

5.6.2 South Main Drain

The South Main Drain was modeled using 1D steady HEC-RAS model as part of the Raymondville Drain Flood Control Project for HCDD1. Since the original HEC-RAS model was not geo-referenced

and only three of the studied outfall ditches drain to the South Main Drain system, a 2D unsteady HEC-RAS model was not created for this ditch.

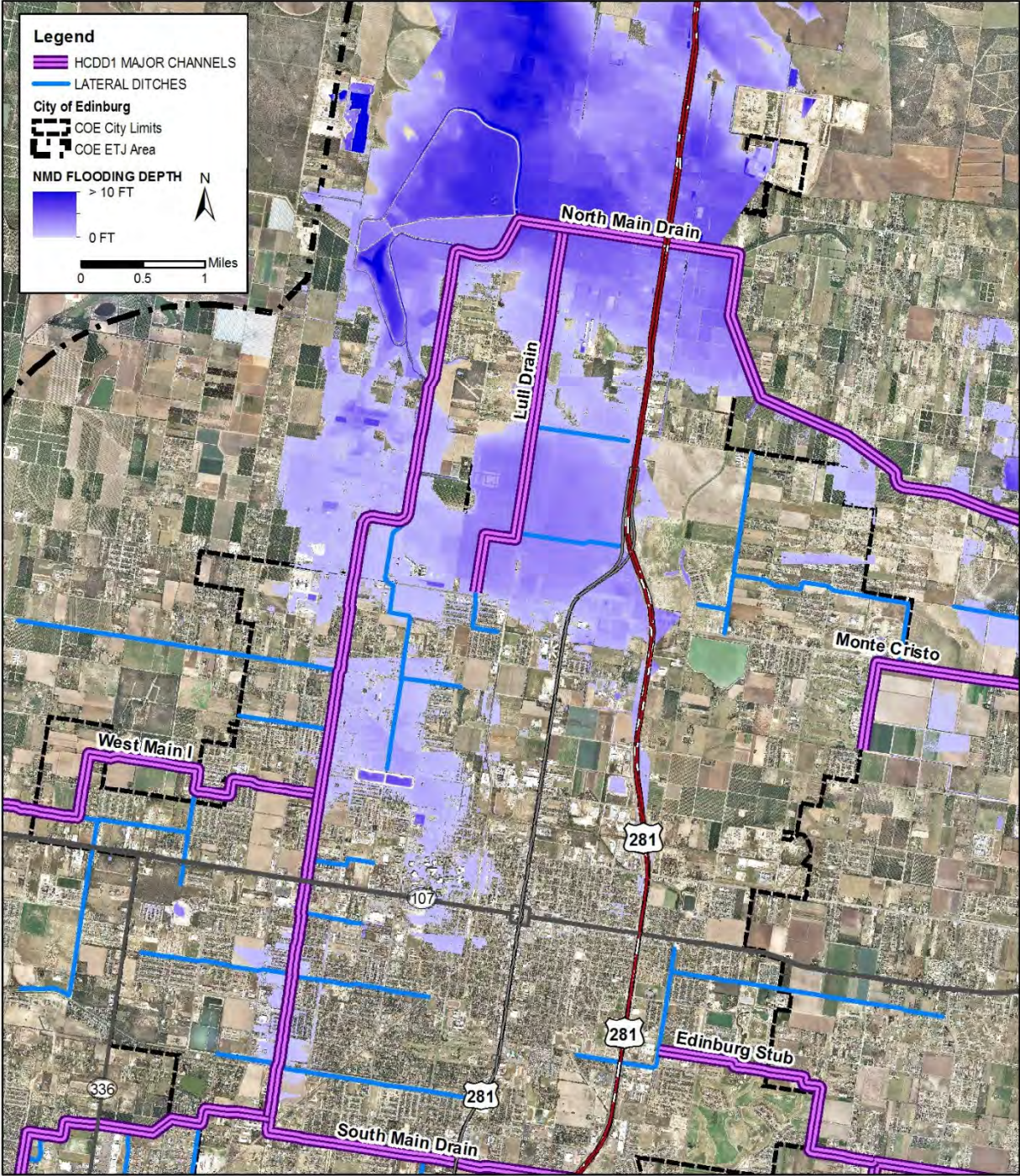


Figure 5-1. North Main Drain 100-Year Flooding Potential

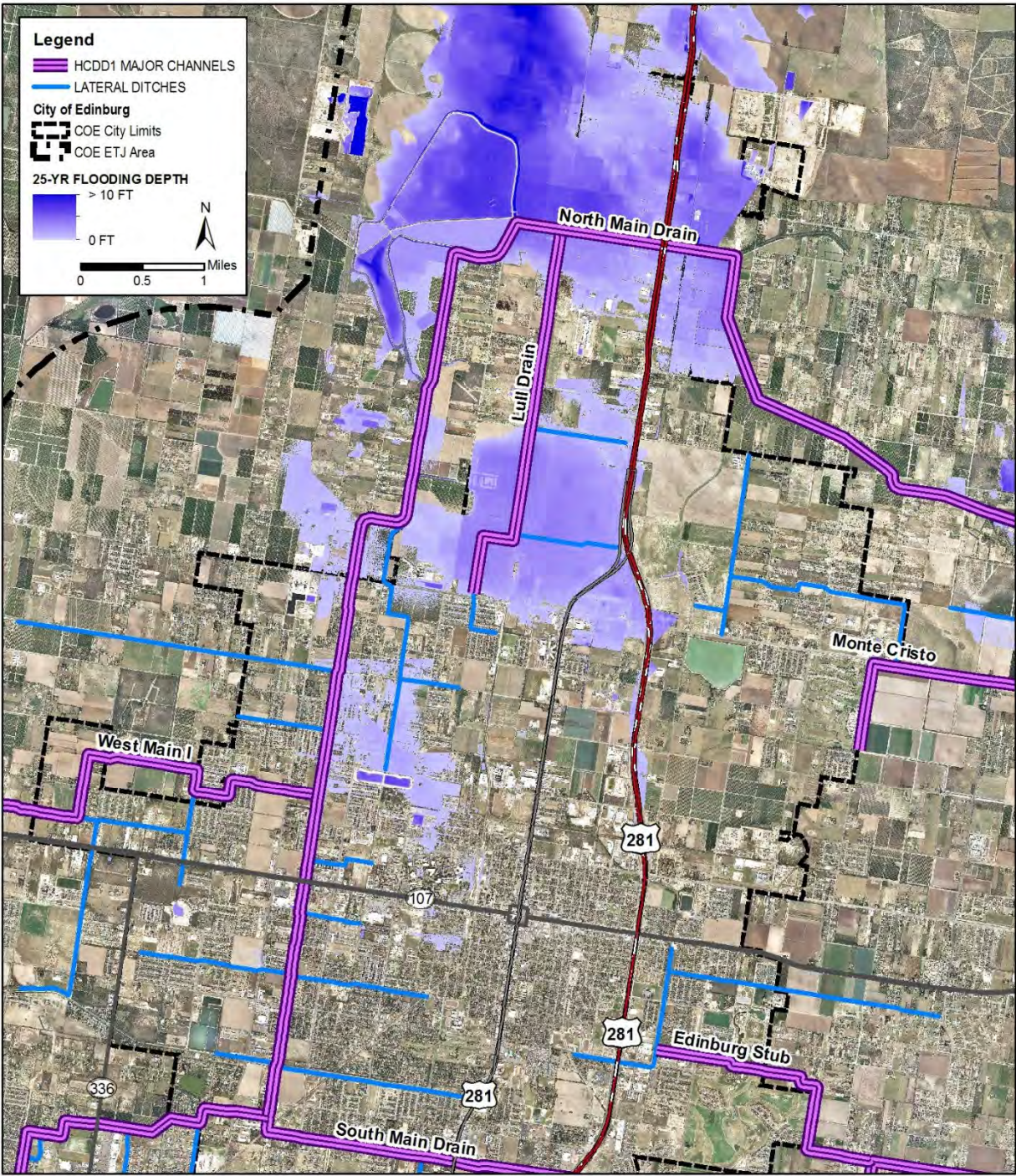


Figure 5-2. North Main Drain 25-Year Flooding Potential

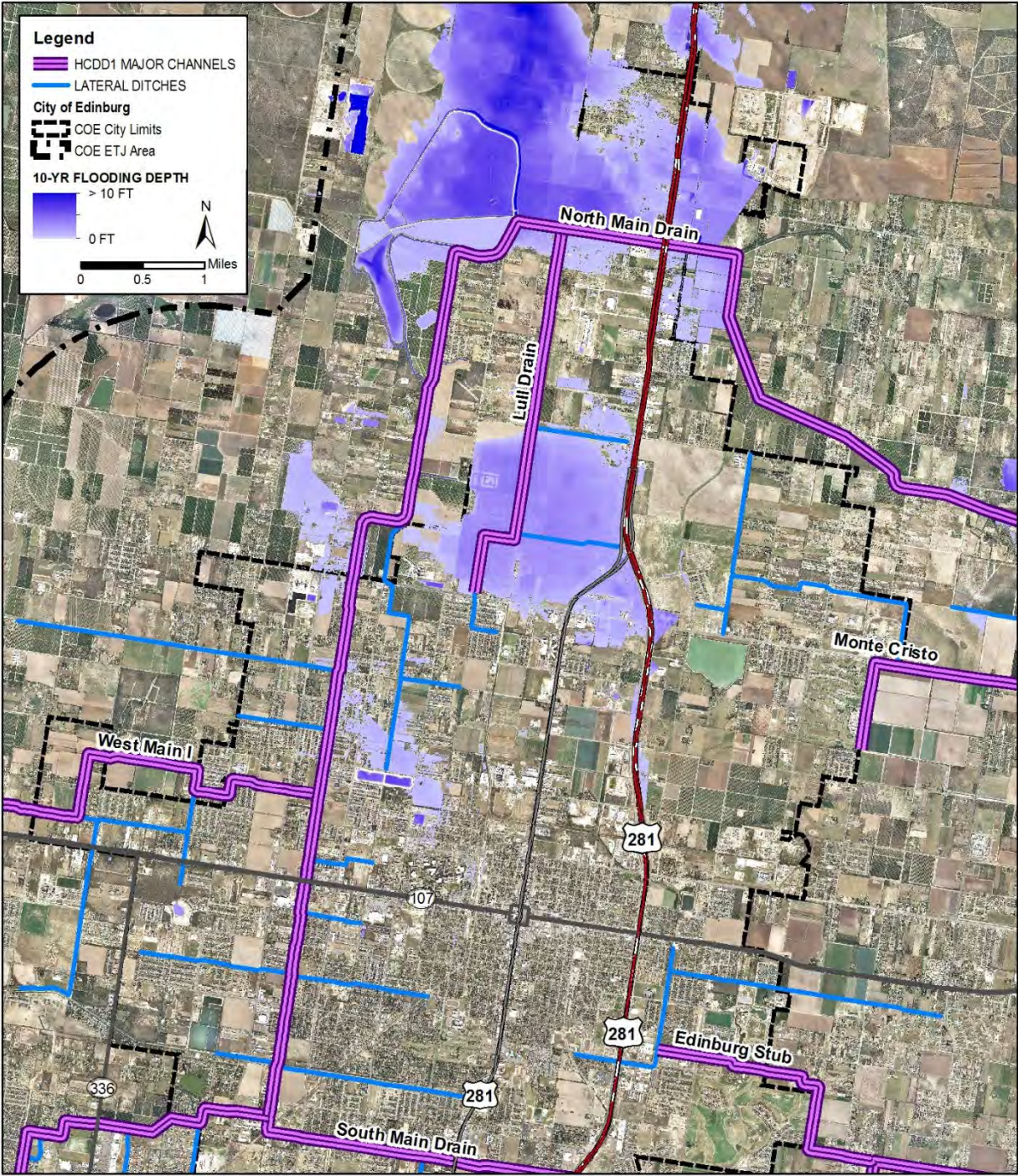


Figure 5-3. North Main Drain 10-Year Flooding Potential

6.0 DRAINAGE SYSTEM EVALUATION

This section presents the results of the detailed hydraulic analysis for both existing and proposed conditions. The existing City drainage ditches were evaluated for capacity adequacy and to identify problematic flood areas. The drainage systems were analyzed using HEC-HMS to compute runoff flows and HEC-RAS to compute capacity and water surface elevations. The drainage system investigation and evaluation included the City drainage ditch systems, as well as the associated receiving HCDD1 Master Drainage Systems. Specifically included in the discussions are descriptions of each drainage ditch system and service area, structural crossings, existing ditch capacities, drainage and flooding problems, and recommended improvements to address potential flooding problems. The HEC-RAS modeling for the lateral drainage system evaluations is provided in **Appendix D**. The resulting water surface elevation comparison between the existing and proposed water surface elevations for existing and ultimate multiple frequency flows is provided in tables within each respective subsection.

To relieve existing flooding, increase ditch capacity, and/or provide for future development, improvement alternatives were analyzed and recommended. The proposed alternative components included channel improvements, new channel alignments, crossing structure improvements, and detention basins, as previously discussed in **Section 5.4**.

6.1 Investigated City Drainage Systems

A total of twenty-one (21) City drainage systems were studied and hydraulically modeled, which are listed **Table 6-1** and shown in **Figure 6-1**. The City drainage ditch systems were categorized and labeled based on the receiving HCDD1 drainage system: NM = North Main Drain, SM = South Main Drain, ES = Edinburg Stub, and MC = Monte Cristo Drain. Details of the investigated drainage systems are presented in the following subsections. Several systems are presented together based on interaction between the systems, proposed measures, and geographic location.

TABLE 6-1. INVESTIGATED CITY DRAINAGE SYSTEMS

NORTH MAIN DRAIN WATERSHED	SOUTH MAIN DRAIN WATERSHED
NM-102 (HCDD1 Lull Drain) NM-103 & NM-104 NM-105 & NM-106 NM-108 & NM-109 NM-110 & NM-112 NM-111 & NM-113 NM-115 & NM-116	SM-101 & SM-102 & SM-103 SM-104 ES-101 & ES-102 MC-100 & MC-101

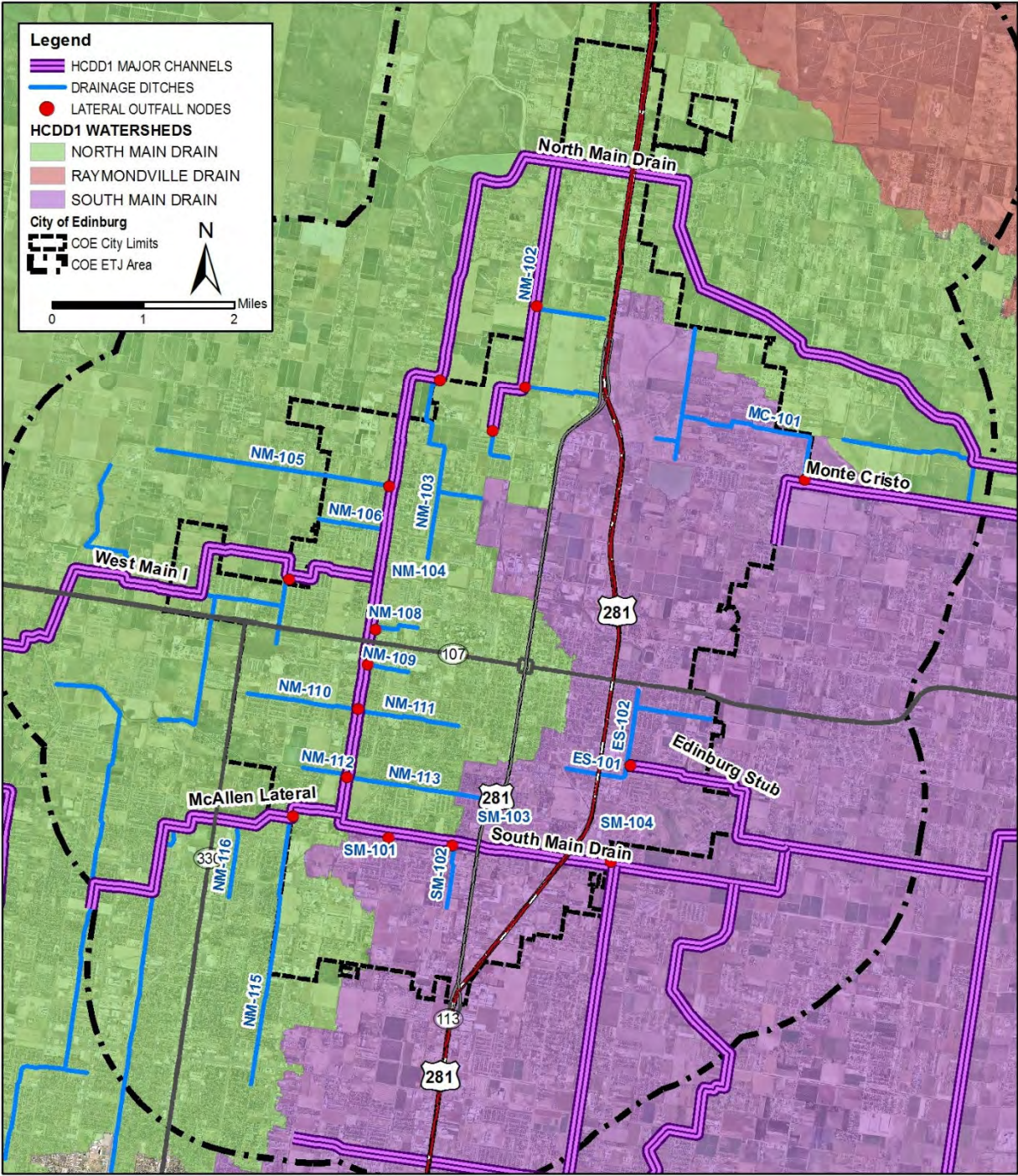


Figure 6-1. COE Drainage Ditch Systems

SYSTEM NM-102

System NM-102 represents the contributing drainage area for the HCDD1 Lull Drain and its laterals. Lull Drain is a part of the HCDD1 Master Drainage System. The drainage area is located within the northern portions of the City of Edinburg; generally between North Main Drain to the west and US 281 to the east. The system drains from south of W. Monte Cristo St. north to the North Main Drain with a total drainage area of approximately 3214 acres (5.02 sq. miles).

The drainage network consists of approximately 28,300 feet of ditches including the Lull Drain (NM-102), which serves as the main drainage ditch, and recently constructed (within ten years) laterals to service specific developments. Laterals NM-102-01 and NM-102-02 run west to Lull Drain and service US 281 (IH-69). Lateral NM-102-03 runs south from Lull Drain and services the Monte Cristo Park, Solana, and Las Cruces subdivisions which lie between Rogers Road and Monte Cristo Road. The NM-102 system drainage area and ditch alignments are shown in **Figure 6-2**.

The City has identified the Lull Townsite Subdivision, which is located along Lull Drain adjacent to Monte Cristo Road, to be a flooding prone area. This subdivision is located within a low-lying topographic area, as shown in **Figure 6-3**. Based on the North Main Drain hydraulic analysis, the 10-year water surface elevation within North Main Drain equates to the natural elevations along Lull Drain near Monte Cristo Road. As shown in the figures in Section 5.5, the area around Lull Subdivision is inundated during the 10-year and greater storms by the backwater from North Main Drain.

The hydraulic analysis shows that the Lull Drain system has a greater than 25-year capacity within the lower (northern) reaches and less than 10-year capacity within the reach along Lull Townsite Subdivision (downstream/north of Monte Cristo Road). The hydraulic analysis shows that the downstream Access Road and the Denver Road culverts require replacement to provide adequate conveyance for the proposed conditions. The following table lists the existing and proposed structures.

TABLE 6-2. NM-102 SYSTEM CROSS-DRAINAGE STRUCTURE INVENTORY

DITCH STATION	CROSSING NAME	EXISTING STRUCTURE	CULVERT LENGTH	PROPOSED STRUCTURE
NM-102				
1822	ACCESS	72" RCP	100	10' X 6' RCB
17433	MONTE CRISTO	60" RCP	554	--
18586	DENVER	36" RCP	93	2-36" RCP

The Lull Drain tailwater conditions from North Main Drain imply that any channel improvements along Lull Drain to increase the existing capacity will not result in significant benefit without improvements along North Main Drain. However, detention storage is an effective measure to provide flood relief for existing localized flooding as well as future development drainage needs.

Two alternatives are proposed to provide detention storage. One option includes inline detention within Lull Drain for the entire ditch reach. This option would provide storage needs for the existing flooding problems as well as drainage needs for future development. The option includes widening the existing channel and installing control structures such as flood gates and weir structures to prevent backwater from North Main Drain inundating the ditch system. A comparison of the improvement option existing and proposed water surface elevations from HEC-RAS modeling is provided in **Table 6-3**.

Another option is to provide an offline detention basin to relief localized flooding within the Lull Townsite Subdivision and adjacent areas. The two proposed alternatives are shown in **Figure 6-3**.

The Edinburg ISD has identified the Edinburg North High School campus as a flood risk area of concern. The campus is located along Closner Blvd. (BS 281) south of Monte Cristo Rd. within the upper reaches of the Lull Drain drainage area. The high school is currently drained by storm sewer systems. In order to provide additional drainage relief to the campus, it is recommended that the upstream reach of the Lull Drain (NM-102-03) be extended east from Brenda Road to the high school. The ditch extension would be approximately 1500 feet in length and consist of 10-foot bottom width, 3:1 (H:V) side slopes, and approximately 6 feet in depth. The ditch extension alignment is shown in **Figure 6-3**.

As part of the proposed Raymondville Drain Flood Control Project, flow will be diverted from North Main Drain near the Lull Drain confluence. These improvements project could significantly lower the tailwater condition for Lull Drain and reduce the ponding along the ditch. Any improvements to relieve existing flooding potential and provide drainage infrastructure needs for future development within this drainage system will depend on HCDD1 drainage improvements such as the Raymondville Drain Flood Control Project.

TABLE 6-3. NM-102 EXISTING & PROPOSED WATER SURFACE ELEVATION COMPARISON

RIVER REACH	NM-102 RIVER STATION	PROFILE FREQUENCY	Q TOTAL (CFS)	EXISTING W.S. ELEV (FT)	PROPOSED W.S. ELEV (FT)	WS DIFF (PR-EX) (FT)
NM-102-00 MAIN STEM						
NM-102C	664	EX 10Y	147	77.0	80.9	3.9
NM-102C	664	EX 25Y	205	81.6	81.3	-0.3
NM-102C	664	EX 100Y	356	82.1	81.7	-0.4
NM-102C	664	ULT 10Y	241	81.7	77.8	-3.9
NM-102C	664	ULT 25Y	316	82.0	81.6	-0.4
NM-102C	664	ULT 100Y	498	82.5	82.1	-0.4
NM-102C	1325	EX 10Y	134	80.1	80.9	0.8
NM-102C	1325	EX 25Y	186	81.6	81.3	-0.3
NM-102C	1325	EX 100Y	321	82.0	81.7	-0.3
NM-102C	1325	ULT 10Y	211	81.7	79.2	-2.5
NM-102C	1325	ULT 25Y	276	81.9	81.6	-0.3
NM-102C	1325	ULT 100Y	436	82.4	82.1	-0.3
NM-102C	1822	ACCESS RD			Culvert	
NM-102C	2159	EX 10Y	134	80.8	81.0	0.2
NM-102C	2159	EX 25Y	186	82.7	81.5	-1.2
NM-102C	2159	EX 100Y	321	84.6	82.5	-2.1
NM-102C	2159	ULT 10Y	211	83.2	79.8	-3.4
NM-102C	2159	ULT 25Y	276	84.4	82.2	-2.2
NM-102C	2159	ULT 100Y	436	85.0	83.5	-1.5
NM-102C	3517	EX 10Y	134	80.8	81.0	0.2
NM-102C	3517	EX 25Y	186	82.8	81.5	-1.3
NM-102C	3517	EX 100Y	321	84.6	82.5	-2.1
NM-102C	3517	ULT 10Y	211	83.2	79.8	-3.4
NM-102C	3517	ULT 25Y	276	84.4	82.2	-2.2
NM-102C	3517	ULT 100Y	436	85.0	83.5	-1.5
NM-102C	4131	EX 10Y	115	80.8	81.0	0.2
NM-102C	4131	EX 25Y	158	82.7	81.5	-1.2
NM-102C	4131	EX 100Y	268	84.6	82.5	-2.1
NM-102C	4131	ULT 10Y	168	83.2	79.8	-3.4
NM-102C	4131	ULT 25Y	218	84.4	82.2	-2.2
NM-102C	4131	ULT 100Y	346	85.0	83.5	-1.5
NM-102C	5122	EX 10Y	115	81.3	81.0	-0.3
NM-102C	5122	EX 25Y	158	83.0	81.6	-1.4
NM-102C	5122	EX 100Y	268	84.9	82.5	-2.4
NM-102C	5122	ULT 10Y	168	83.4	80.1	-3.3
NM-102C	5122	ULT 25Y	218	84.6	82.2	-2.4
NM-102C	5122	ULT 100Y	346	85.4	83.6	-1.8
NM-102C	6093	EX 10Y	115	81.8	81.1	-0.7
NM-102C	6093	EX 25Y	158	83.3	81.6	-1.7
NM-102C	6093	EX 100Y	268	85.2	82.6	-2.6
NM-102C	6093	ULT 10Y	168	83.7	80.3	-3.4
NM-102C	6093	ULT 25Y	218	84.8	82.2	-2.6
NM-102C	6093	ULT 100Y	346	85.8	83.6	-2.2
NM-102C	7022	EX 10Y	115	82.3	81.1	-1.2
NM-102C	7022	EX 25Y	158	83.6	81.6	-2
NM-102C	7022	EX 100Y	268	85.6	82.6	-3
NM-102C	7022	ULT 10Y	168	84.0	80.6	-3.4
NM-102C	7022	ULT 25Y	218	85.1	82.3	-2.8
NM-102C	7022	ULT 100Y	346	86.2	83.6	-2.6
NM-102C	7972	EX 10Y	115	82.7	81.2	-1.5
NM-102C	7972	EX 25Y	158	84.0	81.7	-2.3
NM-102C	7972	EX 100Y	268	85.9	82.7	-3.2
NM-102C	7972	ULT 10Y	168	84.3	80.9	-3.4
NM-102C	7972	ULT 25Y	218	85.4	82.3	-3.1
NM-102C	7972	ULT 100Y	346	86.6	83.7	-2.9

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RIVER REACH	NM-102 RIVER STATION	PROFILE FREQUENCY	Q TOTAL (CFS)	EXISTING W.S. ELEV (FT)	PROPOSED W.S. ELEV (FT)	WS DIFF (PR-Ex) (FT)
NM-102B	9226	EX 10Y	97	83.1	81.4	-1.7
NM-102B	9226	EX 25Y	133	84.3	81.9	-2.4
NM-102B	9226	EX 100Y	225	86.2	82.8	-3.4
NM-102B	9226	ULT 10Y	142	84.6	81.5	-3.1
NM-102B	9226	ULT 25Y	185	85.7	82.5	-3.2
NM-102B	9226	ULT 100Y	293	87.0	83.8	-3.2
NM-102B	10288	EX 10Y	87	83.4	81.9	-1.5
NM-102B	10288	EX 25Y	117	84.5	82.2	-2.3
NM-102B	10288	EX 100Y	197	86.2	83.0	-3.2
NM-102B	10288	ULT 10Y	120	84.8	82.1	-2.7
NM-102B	10288	ULT 25Y	156	85.7	82.7	-3
NM-102B	10288	ULT 100Y	247	87.0	83.9	-3.1
NM-102B	11504	EX 10Y	87	83.7	82.1	-1.6
NM-102B	11504	EX 25Y	117	84.8	82.4	-2.4
NM-102B	11504	EX 100Y	197	86.2	83.2	-3
NM-102B	11504	ULT 10Y	120	84.9	82.4	-2.5
NM-102B	11504	ULT 25Y	156	85.7	82.9	-2.8
NM-102B	11504	ULT 100Y	247	87.0	84.0	-3
NM-102B	12505	EX 10Y	87	83.9	82.3	-1.6
NM-102B	12505	EX 25Y	117	84.8	82.6	-2.2
NM-102B	12505	EX 100Y	197	86.2	83.3	-2.9
NM-102B	12505	ULT 10Y	120	84.9	82.5	-2.4
NM-102B	12505	ULT 25Y	156	85.7	83.0	-2.7
NM-102B	12505	ULT 100Y	247	87.0	84.0	-3
NM-102A	13789	EX 10Y	74	84.0	82.3	-1.7
NM-102A	13789	EX 25Y	99	84.9	82.6	-2.3
NM-102A	13789	EX 100Y	165	86.2	83.4	-2.8
NM-102A	13789	ULT 10Y	95	85.0	82.6	-2.4
NM-102A	13789	ULT 25Y	123	85.7	83.0	-2.7
NM-102A	13789	ULT 100Y	196	87.0	84.1	-2.9
NM-102A	15326	EX 10Y	45	84.0	82.4	-1.6
NM-102A	15326	EX 25Y	59	84.9	82.7	-2.2
NM-102A	15326	EX 100Y	95	86.2	83.4	-2.8
NM-102A	15326	ULT 10Y	47	85.0	82.6	-2.4
NM-102A	15326	ULT 25Y	61	85.7	83.1	-2.6
NM-102A	15326	ULT 100Y	97	87.0	84.1	-2.9
NM-102A	16116	EX 10Y	45	84.0	82.4	-1.6
NM-102A	16116	EX 25Y	59	84.9	82.7	-2.2
NM-102A	16116	EX 100Y	95	86.2	83.4	-2.8
NM-102A	16116	ULT 10Y	47	85.0	82.6	-2.4
NM-102A	16116	ULT 25Y	61	85.7	83.1	-2.6
NM-102A	16116	ULT 100Y	97	87.0	84.1	-2.9
NM-102A	16917	EX 10Y	45	84.0	82.4	-1.6
NM-102A	16917	EX 25Y	59	84.9	82.7	-2.2
NM-102A	16917	EX 100Y	95	86.3	83.4	-2.9
NM-102A	16917	ULT 10Y	47	85.0	82.6	-2.4
NM-102A	16917	ULT 25Y	61	85.7	83.1	-2.6
NM-102A	16917	ULT 100Y	97	87.0	84.1	-2.9
NM-102A	17433	MONTE CRISTO			Culvert	
NM-102A	18004	EX 10Y	26	86.9	86.8	-0.1
NM-102A	18004	EX 25Y	34	87.2	87.1	-0.1
NM-102A	18004	EX 100Y	55	88.0	87.9	-0.1
NM-102A	18004	ULT 10Y	27	86.9	86.8	-0.1
NM-102A	18004	ULT 25Y	35	87.2	87.1	-0.1
NM-102A	18004	ULT 100Y	56	88.0	87.9	-0.1
NM-102A	18419	EX 10Y	26	86.9	86.8	-0.1
NM-102A	18419	EX 25Y	34	87.2	87.2	0
NM-102A	18419	EX 100Y	55	88.0	87.9	-0.1

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RIVER REACH	NM-102 RIVER STATION	PROFILE FREQUENCY	Q TOTAL (CFS)	EXISTING W.S. ELEV (FT)	PROPOSED W.S. ELEV (FT)	WS DIFF (PR-EX) (FT)
NM-102A	18419	ULT 10Y	27	87.0	86.9	-0.1
NM-102A	18419	ULT 25Y	35	87.3	87.2	-0.1
NM-102A	18419	ULT 100Y	56	88.0	87.9	-0.1
NM-102A	18586	DENVER			Culvert	
NM-102A	18676	EX 10Y	26	87.6	87.0	-0.6
NM-102A	18676	EX 25Y	34	88.1	87.4	-0.7
NM-102A	18676	EX 100Y	55	89.6	88.4	-1.2
NM-102A	18676	ULT 10Y	27	87.7	87.1	-0.6
NM-102A	18676	ULT 25Y	35	88.2	87.4	-0.8
NM-102A	18676	ULT 100Y	56	89.6	88.4	-1.2
NM-102A	18902	EX 10Y	26	87.6	87.0	-0.6
NM-102A	18902	EX 25Y	34	88.1	87.4	-0.7
NM-102A	18902	EX 100Y	55	89.6	88.4	-1.2
NM-102A	18902	ULT 10Y	27	87.7	87.1	-0.6
NM-102A	18902	ULT 25Y	35	88.2	87.5	-0.7
NM-102A	18902	ULT 100Y	56	89.6	88.4	-1.2
NM-102A	19462	EX 10Y	26	87.7	87.2	-0.5
NM-102A	19462	EX 25Y	34	88.2	87.5	-0.7
NM-102A	19462	EX 100Y	55	89.6	88.4	-1.2
NM-102A	19462	ULT 10Y	27	87.7	87.2	-0.5
NM-102A	19462	ULT 25Y	35	88.2	87.6	-0.6
NM-102A	19462	ULT 100Y	56	89.6	88.5	-1.1
NM-102-01 TRIBUTARY						
NM-102-01	656	EX 10Y	18	82.9	81.3	-1.6
NM-102-01	656	EX 25Y	25	84.1	81.8	-2.3
NM-102-01	656	EX 100Y	43	86.0	82.8	-3.2
NM-102-01	656	ULT 10Y	26	84.4	81.3	-3.1
NM-102-01	656	ULT 25Y	34	85.5	82.4	-3.1
NM-102-01	656	ULT 100Y	54	86.8	83.8	-3
NM-102-01	2176	EX 10Y	18	83.0	82.1	-0.9
NM-102-01	2176	EX 25Y	25	84.1	82.3	-1.8
NM-102-01	2176	EX 100Y	43	86.1	83.1	-3
NM-102-01	2176	ULT 10Y	26	84.5	82.4	-2.1
NM-102-01	2176	ULT 25Y	34	85.5	82.7	-2.8
NM-102-01	2176	ULT 100Y	54	86.8	83.9	-2.9
NM-102-01	3452	EX 10Y	18	83.1	82.6	-0.5
NM-102-01	3452	EX 25Y	25	84.2	82.8	-1.4
NM-102-01	3452	EX 100Y	43	86.1	83.4	-2.7
NM-102-01	3452	ULT 10Y	26	84.5	82.9	-1.6
NM-102-01	3452	ULT 25Y	34	85.5	83.2	-2.3
NM-102-01	3452	ULT 100Y	54	86.8	84.1	-2.7
NM-102-02 TRIBUTARY						
NM-102-02	569	EX 10Y	16	84.0	82.4	-1.6
NM-102-02	569	EX 25Y	23	84.9	82.7	-2.2
NM-102-02	569	EX 100Y	40	86.2	83.4	-2.8
NM-102-02	569	ULT 10Y	29	85.0	82.7	-2.3
NM-102-02	569	ULT 25Y	39	85.8	83.1	-2.7
NM-102-02	569	ULT 100Y	61	87.0	84.1	-2.9
NM-102-02	2137	EX 10Y	16	84.0	82.4	-1.6
NM-102-02	2137	EX 25Y	23	84.9	82.7	-2.2
NM-102-02	2137	EX 100Y	40	86.2	83.4	-2.8
NM-102-02	2137	ULT 10Y	29	85.0	82.7	-2.3
NM-102-02	2137	ULT 25Y	39	85.8	83.1	-2.7
NM-102-02	2137	ULT 100Y	61	87.0	84.2	-2.8
NM-102-02	3577	EX 10Y	16	84.7	84.7	0
NM-102-02	3577	EX 25Y	23	84.9	84.8	-0.1
NM-102-02	3577	EX 100Y	40	86.3	84.9	-1.4
NM-102-02	3577	ULT 10Y	29	85.0	84.8	-0.2
NM-102-02	3577	ULT 25Y	39	85.8	84.9	-0.9
NM-102-02	3577	ULT 100Y	61	87.0	85.0	-2

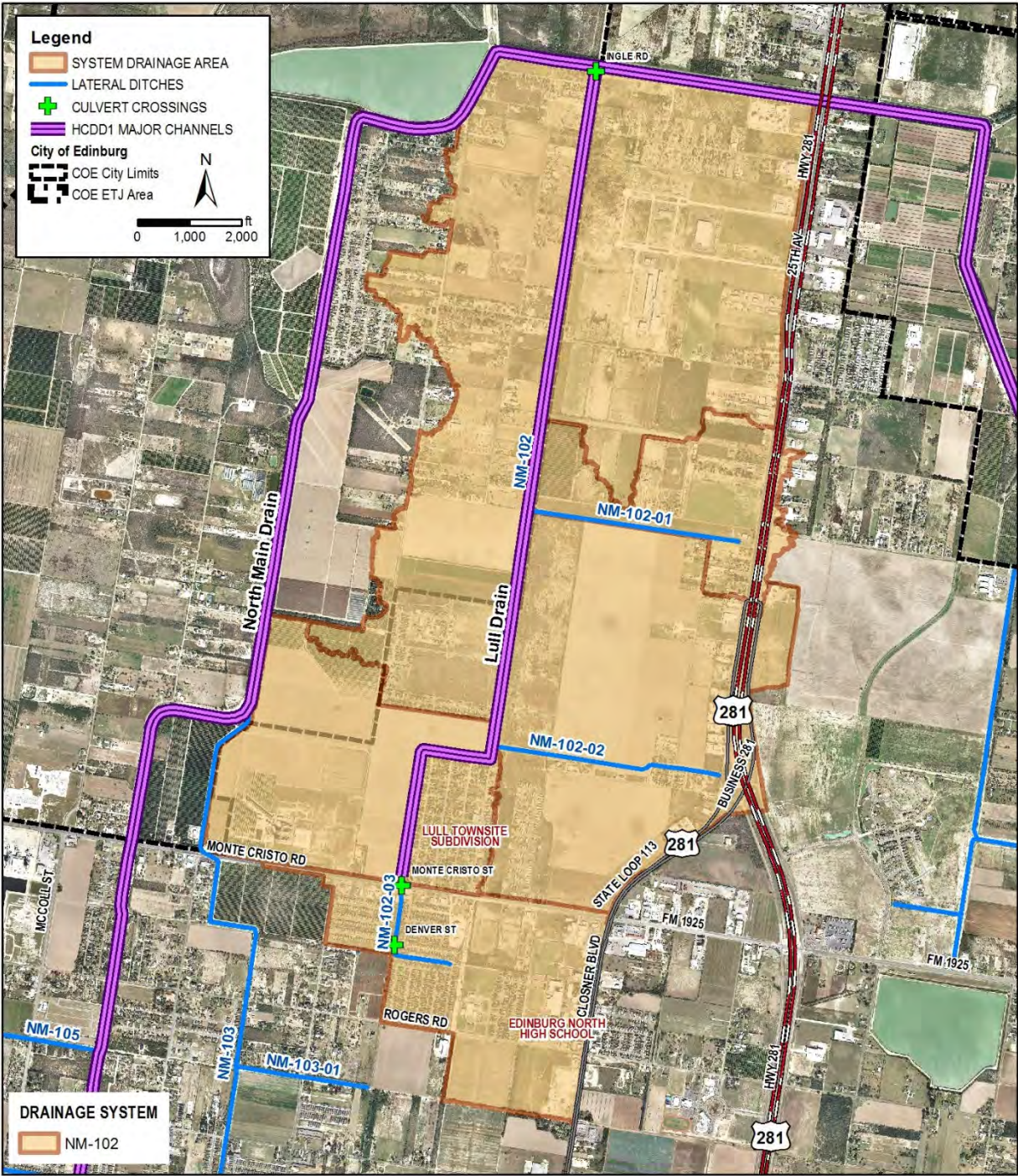


Figure 6-2. NM-102 Drainage System

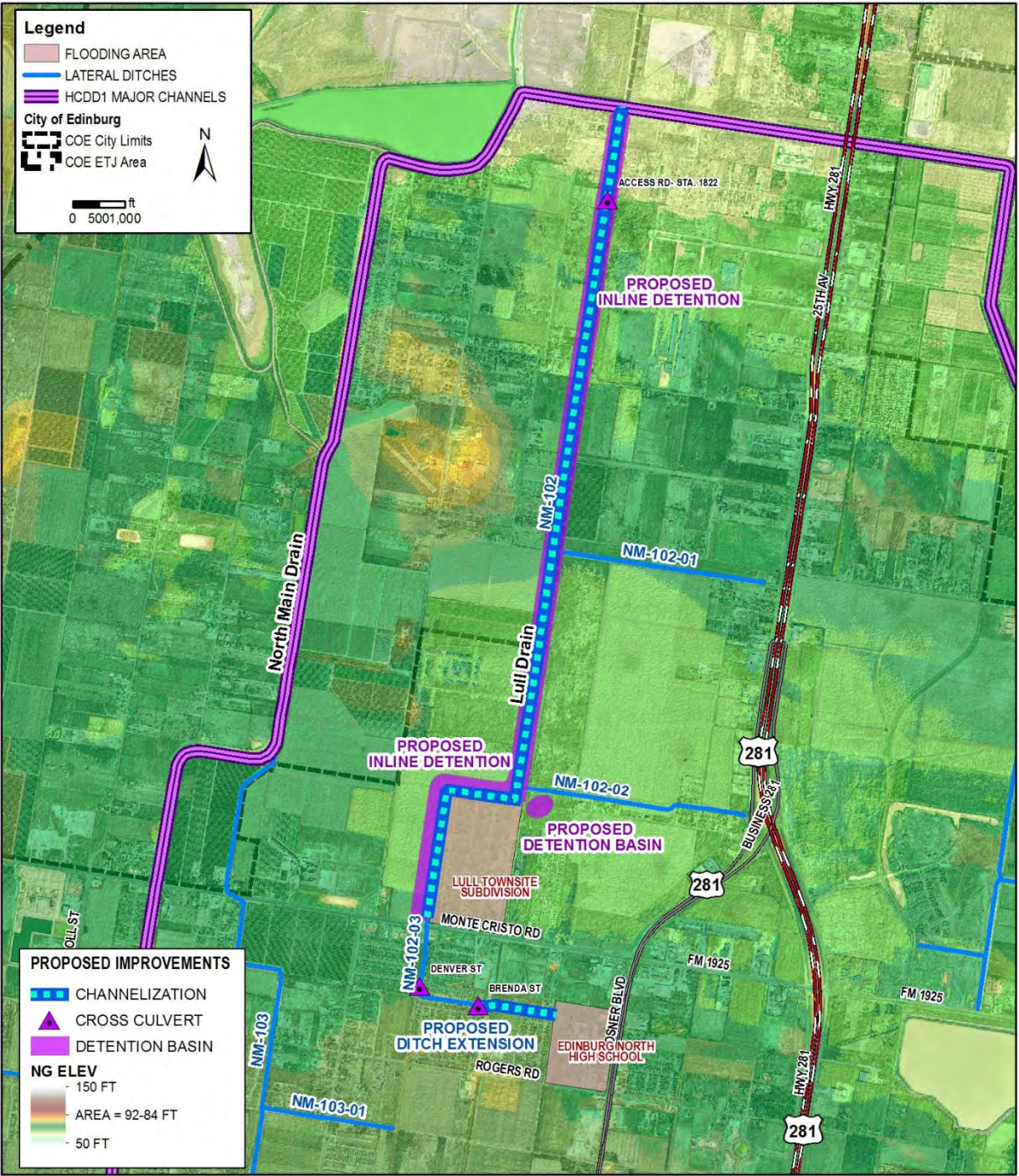


Figure 6-3. NM-102 Proposed System Improvements

SYSTEMS NM-103 & NM-104

System NM-103 represents the contributing drainage area of a lateral ditch to North Main Drain within the northern portions of the City of Edinburg and its ETJ. The area is generally located east of North Main Drain, west of Sugar Road, south of Monte Cristo Rd., and north of University of Texas-Pan American and W. Chapin St. The system drains from Chapin St. north to the North Main Drain with a total drainage area of approximately 903 acres (1.41 sq. miles). The drainage network consists of approximately 14,700 feet of ditches including the NM-103 mainstem (12,200 feet) and NM-103-01 lateral (2500 feet). The NM-103 system drainage area and ditch alignments are shown in **Figure 6-4**.

System NM-104 represent the contributing drainage area to the City of Edinburg storm water detention basins located at Chapin St. and Sugar Rd. The drainage area includes portions of the City central area, such as the University of Texas – Pan American (UTPA) campus and areas along Schunior St. and University Dr. The contributing area of this system is located within the natural flow path of the Edinburg Low. The area is collected by existing storm sewer systems that are pumped in to the City storm water basin. The storm water basin discharges into a storm sewer system along Chapin St. and outfalls into North Main Drain. The NM-104 system drainage area is shown in **Figure 6-4**.

A HEC-RAS model was developed to analysis the NM-103 system ditches for capacity. Based on the HEC-RAS hydraulic modeling, the NM-103 has a 100-year capacity along its reach. However, the North Main Drain tailwater condition dictates the flooding along the ditch. Based on the overland topography, the NM-103 system is located within the Edinburg Low flow path area. Additionally as shown in the hydraulic analysis presented in Section 5, NM-103 is subjected to overbank and backwater flooding from the North Main Drain for the 10-year and greater storm events. The overland topography and North Main Drain high water surface elevations reduce the conveyance capacity of the NM-103 channel.

The hydraulic analysis shows that the NM-103 system has a less than 25-year capacity along the channel. The hydraulic analysis shows that the culverts along the ditch require replacement to provide adequate conveyance for existing and future proposed conditions. The existing and proposed structures are listed in **Table 6-4**. A comparison of the existing and proposed improvement water surface elevations from HEC-RAS modeling is provided in **Table 6-5**.

TABLE 6-4. NM-103 SYSTEM CROSS-DRAINAGE STRUCTURE INVENTORY

DITCH STATION	CROSSING NAME	EXISTING STRUCTURE	CULVERT LENGTH	PROPOSED STRUCTURE
NM-103				
600	ACCESS ROAD	60" RCP	30	10' X 6' RCB
3297	MONTE CRISTO	60" RCP	474	10' X 6' RCB
6952	ROGERS	36" RCP	80	8' X 6' RCB
8282	UTILITY- CANAL	36" RCP	72	6' X 6' RCB
9597	RUSSELL	36" RCP	72	48" RCP

Based on received public comments, the residential area along Carmen and Greenfield Roads, east of N. Sugar Road has been identified as a flooding area. Investigation of the area shows there is no significant drainage outfall to collect overland runoff contributing along Sugar Road. It is recommended that a proposed outfall be constructed to convey the Sugar Road drainage to the NM-103 ditch. Another alternative to provide drainage relief for the area is to route the runoff contributing to Sugar Road to the existing storm water basin (or a proposed basin as described below) located south of W. Chapin St.

Flooding has historically plagued the City central area within the NM-104 system area due to the low-lying topography, limited relief and outfall capacity, and tailwater conditions within North Main Drain. The City of Edinburg has a storm water retention basin along W. Chapin St, immediately south of NM-103 ditch. The retention basin provides storage for the City storm sewer systems within the NM-104 system area. The retention basin is currently pumped to North Main Drain along W. Chapin St. Additional relief for the retention basin can be potentially provided by a proposed discharge connection across W. Chapin St. into NM-103. An additional alternative includes increasing the capacity of the storm water basin through an additional basin cell north of W. Chapin St. The proposed basin would provide increased storage capacity for the existing City storm water facility. This would reduce the tailwater of the storm sewer systems within the City central area, reducing the flooding potential. The proposed alternative options are shown in **Figure 6-5**.

TABLE 6-5. NM-103 EXISTING & PROPOSED WATER SURFACE ELEVATION COMPARISON

NM-103 RIVER STATION	PROFILE FREQUENCY	Q TOTAL (CFS)	EXISTING W.S. ELEV (FT)	PROPOSED W.S. ELEV (FT)	WS DIFF (PR-Ex) (FT)
628	EX 10Y	108	81.5	81.5	0
628	EX 25Y	150	82.2	82.2	0
628	EX 100Y	261	83.9	83.9	0
628	ULT 10Y	173	82.6	82.6	0
628	ULT 25Y	225	83.4	83.4	0
628	ULT 100Y	356	85.1	85.1	0
1579	EX 10Y	108	81.9	81.9	0
1579	EX 25Y	150	82.7	82.7	0
1579	EX 100Y	261	84.4	84.4	0
1579	ULT 10Y	173	83.1	83.1	0
1579	ULT 25Y	225	83.9	83.9	0
1579	ULT 100Y	356	85.6	85.6	0
2322	EX 10Y	97	82.6	82.6	0
2322	EX 25Y	135	83.3	83.3	0
2322	EX 100Y	234	84.8	84.8	0
2322	ULT 10Y	152	83.6	83.6	0
2322	ULT 25Y	199	84.4	84.4	0
2322	ULT 100Y	314	86.0	86.0	0
3019	EX 10Y	97	83.8	83.8	0
3019	EX 25Y	135	84.3	84.3	0
3019	EX 100Y	234	85.6	85.6	0
3019	ULT 10Y	152	84.5	84.5	0
3019	ULT 25Y	199	85.1	85.1	0
3019	ULT 100Y	314	86.6	86.6	0
3297	MONTE CRISTO			Culvert	
3550	EX 10Y	97	85.4	84.1	-1.3
3550	EX 25Y	135	86.6	84.7	-1.9
3550	EX 100Y	234	90.1	86.2	-3.9
3550	ULT 10Y	152	87.4	84.9	-2.5
3550	ULT 25Y	199	89.7	85.7	-4
3550	ULT 100Y	314	90.5	87.5	-3
4540	EX 10Y	97	85.5	84.4	-1.1
4540	EX 25Y	135	86.7	85.0	-1.7
4540	EX 100Y	234	90.1	86.5	-3.6
4540	ULT 10Y	152	87.5	85.3	-2.2
4540	ULT 25Y	199	89.7	86.0	-3.7
4540	ULT 100Y	314	90.6	87.8	-2.8
6017	EX 10Y	97	85.6	84.6	-1
6017	EX 25Y	135	86.8	85.3	-1.5
6017	EX 100Y	234	90.2	86.8	-3.4
6017	ULT 10Y	152	87.6	85.6	-2
6017	ULT 25Y	199	89.8	86.3	-3.5
6017	ULT 100Y	314	90.6	88.0	-2.6
6894	EX 10Y	56	85.7	84.8	-0.9
6894	EX 25Y	79	86.9	85.4	-1.5
6894	EX 100Y	137	90.2	86.9	-3.3
6894	ULT 10Y	89	87.6	85.7	-1.9
6894	ULT 25Y	116	89.8	86.4	-3.4
6894	ULT 100Y	184	90.7	88.2	-2.5
6952	ROGERS			Culvert	
7025	EX 10Y	56	87.6	84.8	-2.8
7025	EX 25Y	79	90.7	85.5	-5.2
7025	EX 100Y	137	91.7	87.1	-4.6
7025	ULT 10Y	89	91.1	85.8	-5.3

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NM-103 RIVER STATION	PROFILE FREQUENCY	Q TOTAL (CFS)	EXISTING W.S. ELEV (FT)	PROPOSED W.S. ELEV (FT)	WS DIFF (Pr-Ex) (FT)
7025	ULT 25Y	116	91.6	86.6	-5
7025	ULT 100Y	184	92.0	88.5	-3.5
7975	EX 10Y	56	87.6	84.9	-2.7
7975	EX 25Y	79	90.7	85.6	-5.1
7975	EX 100Y	137	91.7	87.2	-4.5
7975	ULT 10Y	89	91.2	85.9	-5.3
7975	ULT 25Y	116	91.6	86.7	-4.9
7975	ULT 100Y	184	92.0	88.6	-3.4
8282	UTILITY			Culvert	
8419	EX 10Y	56	89.5	85.0	-4.5
8419	EX 25Y	79	94.5	85.8	-8.7
8419	EX 100Y	137	95.0	87.6	-7.4
8419	ULT 10Y	89	95.0	86.1	-8.9
8419	ULT 25Y	116	95.0	86.9	-8.1
8419	ULT 100Y	184	95.0	89.3	-5.7
8922	EX 10Y	12	89.5	85.0	-4.5
8922	EX 25Y	16	94.5	85.8	-8.7
8922	EX 100Y	28	95.0	87.6	-7.4
8922	ULT 10Y	19	95.0	86.1	-8.9
8922	ULT 25Y	24	95.0	87.0	-8
8922	ULT 100Y	38	95.0	89.3	-5.7
9510	EX 10Y	12	89.5	85.0	-4.5
9510	EX 25Y	16	94.5	85.8	-8.7
9510	EX 100Y	28	95.0	87.6	-7.4
9510	ULT 10Y	19	95.0	86.1	-8.9
9510	ULT 25Y	24	95.0	87.0	-8
9510	ULT 100Y	38	95.0	89.3	-5.7
9597	RUSSELL			Culvert	
9676	EX 10Y	12	89.6	85.1	-4.5
9676	EX 25Y	16	94.5	85.9	-8.6
9676	EX 100Y	28	95.0	87.7	-7.3
9676	ULT 10Y	19	95.0	86.2	-8.8
9676	ULT 25Y	24	95.0	87.1	-7.9
9676	ULT 100Y	38	95.0	89.5	-5.5
10905	EX 10Y	12	89.6	85.1	-4.5
10905	EX 25Y	16	94.5	85.9	-8.6
10905	EX 100Y	28	95.0	87.7	-7.3
10905	ULT 10Y	19	95.0	86.2	-8.8
10905	ULT 25Y	24	95.0	87.1	-7.9
10905	ULT 100Y	38	95.0	89.5	-5.5
12134	EX 10Y	12	89.6	85.1	-4.5
12134	EX 25Y	16	94.5	85.9	-8.6
12134	EX 100Y	28	95.0	87.7	-7.3
12134	ULT 10Y	19	95.0	86.2	-8.8
12134	ULT 25Y	24	95.0	87.1	-7.9
12134	ULT 100Y	38	95.0	89.6	-5.4

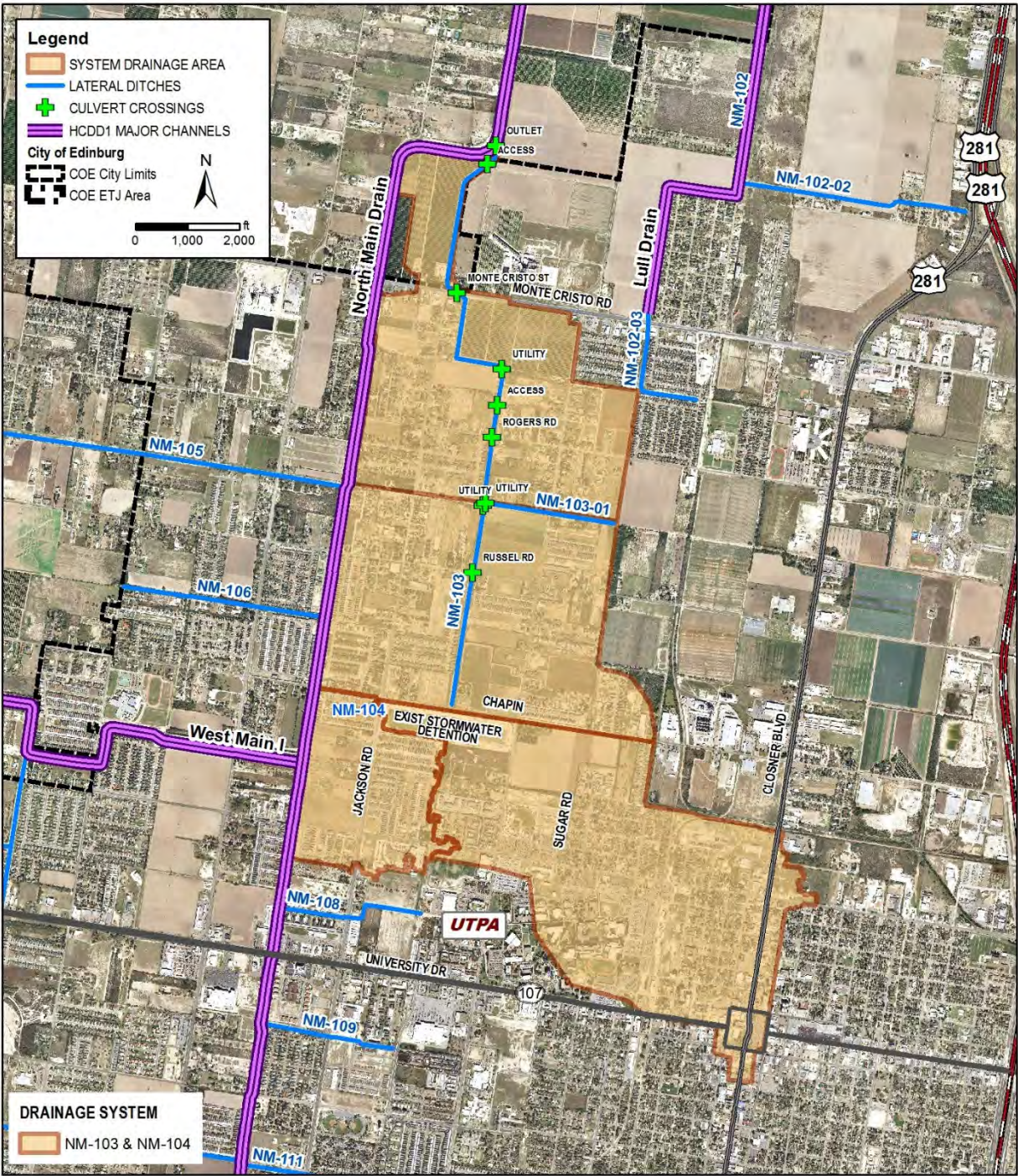


Figure 6-4. NM-103 & NM-104 Drainage System

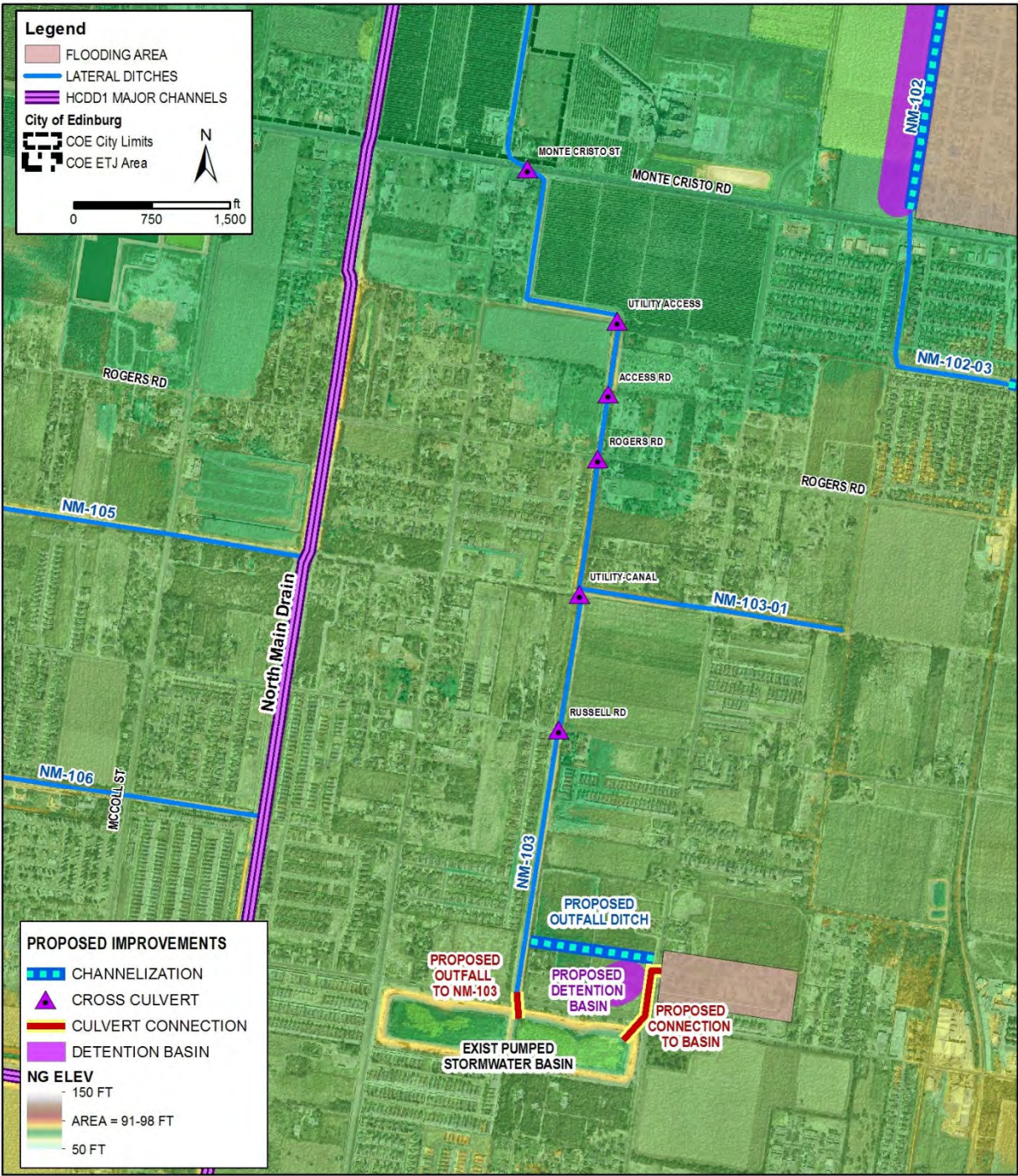


Figure 6-5. NM-103 & NM-104 Proposed System Improvements

SYSTEMS NM-105 & NM-106

Systems NM-105 and NM-106 represent the contributing drainage areas to North Main Drain and local laterals located within the northwest portions of the City of Edinburg and its ETJ. The area is generally west of North Main Drain, north of West Main I Drain, east of HCID canal, and south of W. Rogers Road. The system drainage areas are approximately 942 and 518 acres, respectively. The drainage network consists of a single ditch for NM-105 (13,800 feet) and NM-106 (3900 feet). The NM-105 and NM-106 system drainage area and ditch alignments are shown in **Figure 6-6**.

The drainage areas overland topography runs from west to east towards the North Main Drain at an approximate slope of 0.15%. The eastern, downstream areas of the ditch systems are susceptible to backwater effects from the North Main Drain water surface elevation during large storm events.

The NM-105 ditch has high channel banks with low-lying overbank areas located within the current undeveloped reaches. The contributing drainage area to NM-105 is located south of the channel and consist of a mixture of residential development, which is located mostly in the downstream reaches, and undeveloped agricultural lands. The Elias Longoria Middle School, which was recently constructed, is located at the upstream end of the ditch.

The NM-106 ditch has high channel banks along its entire reach. The majority of the contributing drainage area is located upstream of the existing NM-106 ditch and is conveyed to the channel either by sheetflow or roadside ditches. The area consist of residential development located along Monument Mack Road and undeveloped areas within the upstream reaches.

HEC-RAS models were developed for each ditch to analyze the systems' capacities. Based on the HEC-RAS hydraulic modeling, the NM-105 has a 25-year capacity along its reach upstream. The model indicates some out-of-bank ponding along NM-105 within the currently undeveloped, low-lying adjacent areas. The NM-106 has a 100-year capacity along its reach with some out-of-bank ponding within the adjacent, low-lying overbank areas.

The hydraulic analysis shows that the NM-105 system has a variable capacity ranging between 10-year and 100-year along the channel. The crossing structures are shown to provide significant restrictions at specific locations. The hydraulic analysis shows that the culverts at McColl Road, Monument Mack Road, and Hoehn Road require replacement to provide adequate conveyance for existing and future proposed conditions. The hydraulic analysis shows that the NM-106 system has a greater than 25-year capacity along the channel. The hydraulic analysis shows that the culverts at McColl Road and the upstream Access Road require additional culverts to provide

for future conveyance capacity. The existing and proposed structures for the NM-105 and NM-106 systems are listed in **Table 6-6**.

TABLE 6-6. NM-105 & NM-106 SYSTEM CROSS-DRAINAGE STRUCTURE INVENTORY

DITCH STATION	CROSSING NAME	EXISTING STRUCTURE	CULVERT LENGTH	PROPOSED STRUCTURE
NM-105				
1318	MCCOLL (FM 2061)	30" RCP	124	5' X 5' RCB
3954	MONUMENT MACK	30" RCP	90	6' X 4' RCB
5285	UTILITY- CANAL	48" RCP	56	--
9235	HOEHN	18" RCP	114	48" RCP
11882	DEPOT	48" RCP	200	--
NM-106				
1311	MCCOLL (FM 2061)	36" RCP	108	2-36" RCP
2652	ACCESS	36" RCP	36	2-36" RCP

For future development outfall, drainage laterals and extensions are proposed within the NM-105 and NM-106 drainage areas, as shown in **Figure 6-7**. A lateral ditch is proposed within the upstream portion of the NM-105 drainage area; the ditch configuration consist of an 10-foot bottom width, 3:1 (H:V) side slopes, and 8-foot depth. The NM-106 ditch is proposed to be extended west with a 10-foot bottom width, 3:1 (H:V) side slopes, and 8-foot depth. Comparisons of the existing and proposed condition water surface elevations for the NM-105 and NM-106 ditches are provided in **Tables 6-7** and **6-8**, respectively.

TABLE 6-7. NM-105 EXISTING & PROPOSED WATER SURFACE ELEVATION COMPARISON

NM-105 RIVER STATION	PROFILE FREQUENCY	Q TOTAL (CFS)	EXISTING W.S. ELEV (FT)	PROPOSED W.S. ELEV (FT)	WS DIFF (PR-EX) (FT)
598	EX 10Y	42	86.6	86.6	0
598	EX 25Y	60	87.1	87.1	0
598	EX 100Y	110	88.3	88.3	0
598	ULT 10Y	86	87.7	87.7	0
598	ULT 25Y	112	88.3	88.3	0
598	ULT 100Y	177	89.5	89.5	0
1218	EX 10Y	25	86.7	86.7	0
1218	EX 25Y	38	87.3	87.3	0
1218	EX 100Y	73	88.4	88.4	0
1218	ULT 10Y	62	87.9	87.9	0
1218	ULT 25Y	81	88.5	88.5	0
1218	ULT 100Y	128	89.7	89.7	0
1318	MCCOLL/FM2061			Culvert	
1461	EX 10Y	25	87.1	86.8	-0.3
1461	EX 25Y	38	88.3	87.4	-0.9
1461	EX 100Y	73	92.2	88.7	-3.5
1461	ULT 10Y	62	90.6	88.1	-2.5
1461	ULT 25Y	81	92.5	88.8	-3.7
1461	ULT 100Y	128	93.1	90.4	-2.7
2605	EX 10Y	25	87.3	87.0	-0.3
2605	EX 25Y	38	88.4	87.6	-0.8
2605	EX 100Y	73	92.2	88.9	-3.3
2605	ULT 10Y	62	90.7	88.4	-2.3
2605	ULT 25Y	81	92.5	89.0	-3.5
2605	ULT 100Y	128	93.2	90.6	-2.6
3868	EX 10Y	25	88.4	88.4	0
3868	EX 25Y	38	88.7	88.7	0
3868	EX 100Y	73	92.3	89.6	-2.7
3868	ULT 10Y	62	90.8	89.2	-1.6
3868	ULT 25Y	81	92.6	89.8	-2.8
3868	ULT 100Y	128	93.3	91.1	-2.2
3954	MON MACK			Culvert	
4029	EX 10Y	25	90.8	90.6	-0.2
4029	EX 25Y	38	92.1	90.9	-1.2
4029	EX 100Y	73	96.2	91.3	-4.9
4029	ULT 10Y	62	96.0	91.2	-4.8
4029	ULT 25Y	81	96.2	91.4	-4.8
4029	ULT 100Y	128	96.3	91.9	-4.4
5250	EX 10Y	19	91.6	91.6	0
5250	EX 25Y	29	92.5	92.1	-0.4
5250	EX 100Y	54	96.2	93.1	-3.1
5250	ULT 10Y	48	96.1	92.8	-3.3
5250	ULT 25Y	63	96.2	93.3	-2.9
5250	ULT 100Y	98	96.3	94.2	-2.1
5285	UTILITY/CANAL			Culvert	
5316	EX 10Y	19	91.7	91.7	0
5316	EX 25Y	29	92.6	92.3	-0.3
5316	EX 100Y	54	96.7	93.6	-3.1
5316	ULT 10Y	48	96.5	93.2	-3.3
5316	ULT 25Y	63	96.9	93.9	-3
5316	ULT 100Y	98	98.0	95.8	-2.2
6599	EX 10Y	19	91.8	91.8	0
6599	EX 25Y	29	92.7	92.4	-0.3
6599	EX 100Y	54	96.7	93.7	-3
6599	ULT 10Y	48	96.5	93.3	-3.2

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NM-105 RIVER STATION	PROFILE FREQUENCY	Q TOTAL (CFS)	EXISTING W.S. ELEV (FT)	PROPOSED W.S. ELEV (FT)	WS DIFF (PR-Ex) (FT)
6599	ULT 25Y	63	96.9	94.1	-2.8
6599	ULT 100Y	98	98.0	95.9	-2.1
7830	EX 10Y	19	91.9	91.9	0
7830	EX 25Y	29	92.8	92.5	-0.3
7830	EX 100Y	54	96.7	93.8	-2.9
7830	ULT 10Y	48	96.5	93.5	-3
7830	ULT 25Y	63	96.9	94.2	-2.7
7830	ULT 100Y	98	98.0	96.0	-2
9131	EX 10Y	6	92.0	92.1	0.1
9131	EX 25Y	9	92.9	92.7	-0.2
9131	EX 100Y	17	96.7	93.9	-2.8
9131	ULT 10Y	14	96.5	93.6	-2.9
9131	ULT 25Y	19	96.9	94.3	-2.6
9131	ULT 100Y	29	98.0	96.0	-2
9235	HOEHN			Culvert	
9303	EX 10Y	6	92.6	92.1	-0.5
9303	EX 25Y	9	94.2	92.7	-1.5
9303	EX 100Y	17	100.9	93.9	-7
9303	ULT 10Y	14	99.7	93.6	-6.1
9303	ULT 25Y	19	100.9	94.3	-6.6
9303	ULT 100Y	29	101.1	96.2	-4.9
10512	EX 10Y	6	92.6	92.4	-0.2
10512	EX 25Y	9	94.2	92.7	-1.5
10512	EX 100Y	17	100.9	94.0	-6.9
10512	ULT 10Y	14	99.7	93.6	-6.1
10512	ULT 25Y	19	100.9	94.4	-6.5
10512	ULT 100Y	29	101.1	96.2	-4.9
11711	EX 10Y	6	94.9	95.0	0.1
11711	EX 25Y	9	94.5	95.2	0.7
11711	EX 100Y	17	100.9	95.1	-5.8
11711	ULT 10Y	14	99.7	95.1	-4.6
11711	ULT 25Y	19	100.9	95.1	-5.8
11711	ULT 100Y	29	101.1	96.3	-4.8
11882	DEPOT			Culvert	
11996	EX 10Y	6	96.1	96.1	0
11996	EX 25Y	9	96.3	96.3	0
11996	EX 100Y	17	100.9	96.8	-4.1
11996	ULT 10Y	14	99.7	96.7	-3
11996	ULT 25Y	19	101.0	97.0	-4
11996	ULT 100Y	29	101.3	97.5	-3.8
12607	EX 10Y	6	104.4	104.4	0
12607	EX 25Y	9	104.5	104.5	0
12607	EX 100Y	17	104.6	104.6	0
12607	ULT 10Y	14	104.6	104.6	0
12607	ULT 25Y	19	104.7	104.7	0
12607	ULT 100Y	29	104.8	104.8	0
13424	EX 10Y	6	106.6	106.6	0
13424	EX 25Y	9	106.7	106.7	0
13424	EX 100Y	17	107.1	107.1	0
13424	ULT 10Y	14	106.9	106.9	0
13424	ULT 25Y	19	107.1	107.1	0
13424	ULT 100Y	29	107.4	107.4	0

TABLE 6-8. NM-106 EXISTING & PROPOSED WATER SURFACE ELEVATION COMPARISON

NM-106 RIVER STATION	PROFILE FREQUENCY	Q TOTAL (CFS)	EXISTING W.S. ELEV (FT)	PROPOSED W.S. ELEV (FT)	WS DIFF (PR-EX) (FT)
677	EX 10Y	22	87.3	87.3	0
677	EX 25Y	31	87.8	87.8	0
677	EX 100Y	54	88.5	88.5	0
677	ULT 10Y	37	88.0	88.0	0
677	ULT 25Y	49	88.3	88.3	0
677	ULT 100Y	77	89.0	89.0	0
1252	EX 10Y	22	87.3	87.3	0
1252	EX 25Y	31	87.9	87.9	0
1252	EX 100Y	54	88.6	88.6	0
1252	ULT 10Y	37	88.1	88.1	0
1252	ULT 25Y	49	88.4	88.4	0
1252	ULT 100Y	77	89.1	89.1	0
1311	MCCOLL/FM2061			Culvert	
1391	EX 10Y	22	87.7	87.4	-0.3
1391	EX 25Y	31	88.5	88.0	-0.5
1391	EX 100Y	54	90.5	89.1	-1.4
1391	ULT 10Y	37	89.0	88.3	-0.7
1391	ULT 25Y	49	90.0	88.8	-1.2
1391	ULT 100Y	77	93.1	90.1	-3
1933	EX 10Y	22	87.8	87.7	-0.1
1933	EX 25Y	31	88.6	88.2	-0.4
1933	EX 100Y	54	90.6	89.2	-1.4
1933	ULT 10Y	37	89.1	88.5	-0.6
1933	ULT 25Y	49	90.1	89.0	-1.1
1933	ULT 100Y	77	93.1	90.2	-2.9
2583	EX 10Y	22	88.9	88.9	0
2583	EX 25Y	31	89.2	89.2	0
2583	EX 100Y	54	90.7	89.9	-0.8
2583	ULT 10Y	37	89.5	89.4	-0.1
2583	ULT 25Y	49	90.3	89.7	-0.6
2583	ULT 100Y	77	93.2	90.7	-2.5
2652	ACCESS			Culvert	
2701	EX 10Y	22	89.2	89.0	-0.2
2701	EX 25Y	31	89.7	89.3	-0.4
2701	EX 100Y	54	92.3	90.2	-2.1
2701	ULT 10Y	37	90.2	89.5	-0.7
2701	ULT 25Y	49	91.6	90.0	-1.6
2701	ULT 100Y	77	96.1	91.4	-4.7
3270	EX 10Y	22	89.8	89.8	0
3270	EX 25Y	31	90.2	90.1	-0.1
3270	EX 100Y	54	92.4	90.8	-1.6
3270	ULT 10Y	37	90.5	90.3	-0.2
3270	ULT 25Y	49	91.7	90.6	-1.1
3270	ULT 100Y	77	96.1	91.7	-4.4
3830	EX 10Y	22	90.0	90.0	0
3830	EX 25Y	31	90.4	90.4	0
3830	EX 100Y	54	92.4	91.1	-1.3
3830	ULT 10Y	37	90.7	90.6	-0.1
3830	ULT 25Y	49	91.8	90.9	-0.9
3830	ULT 100Y	77	96.1	91.9	-4.2

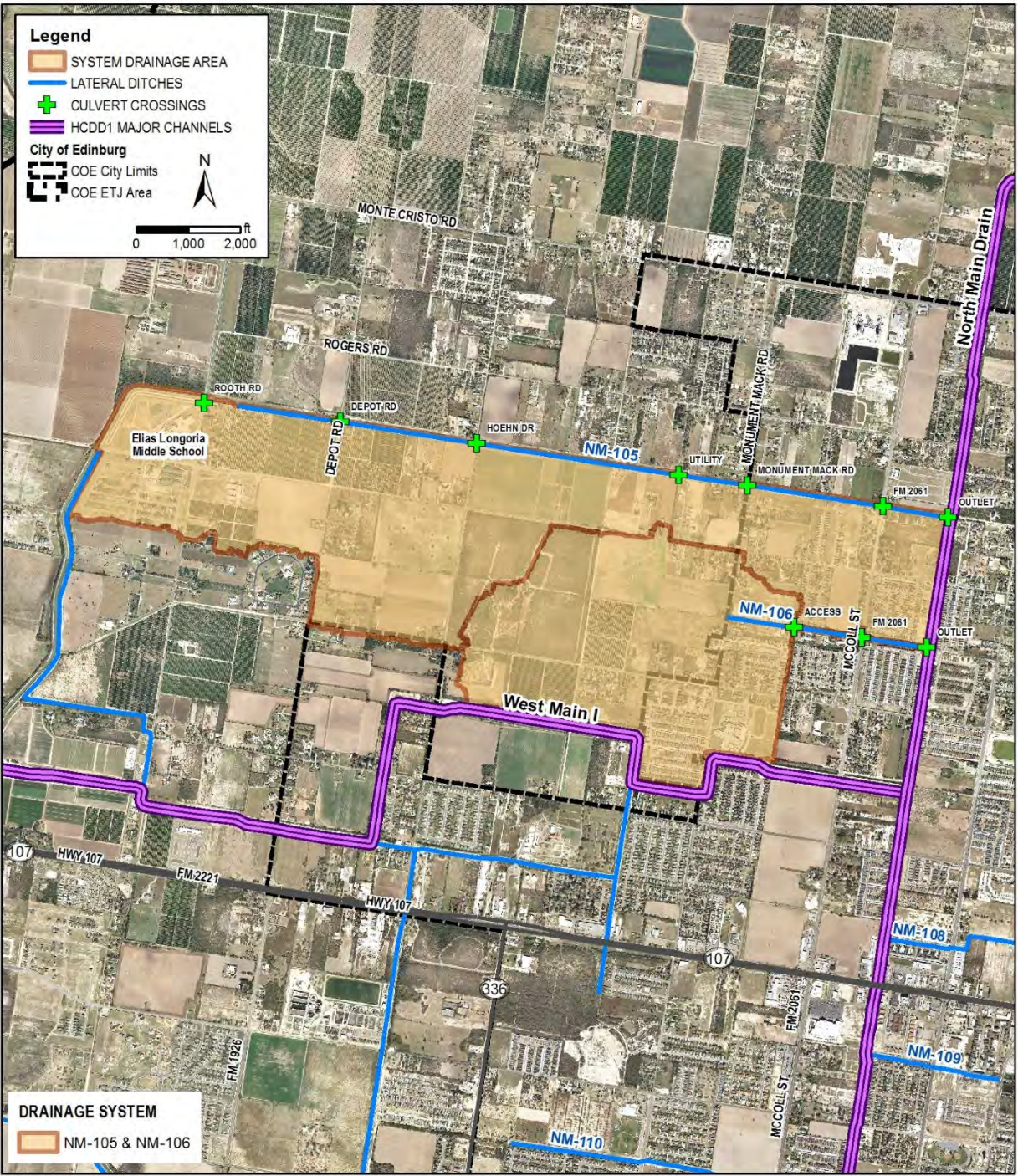


Figure 6-6. NM-105 & NM-106 Drainage Systems

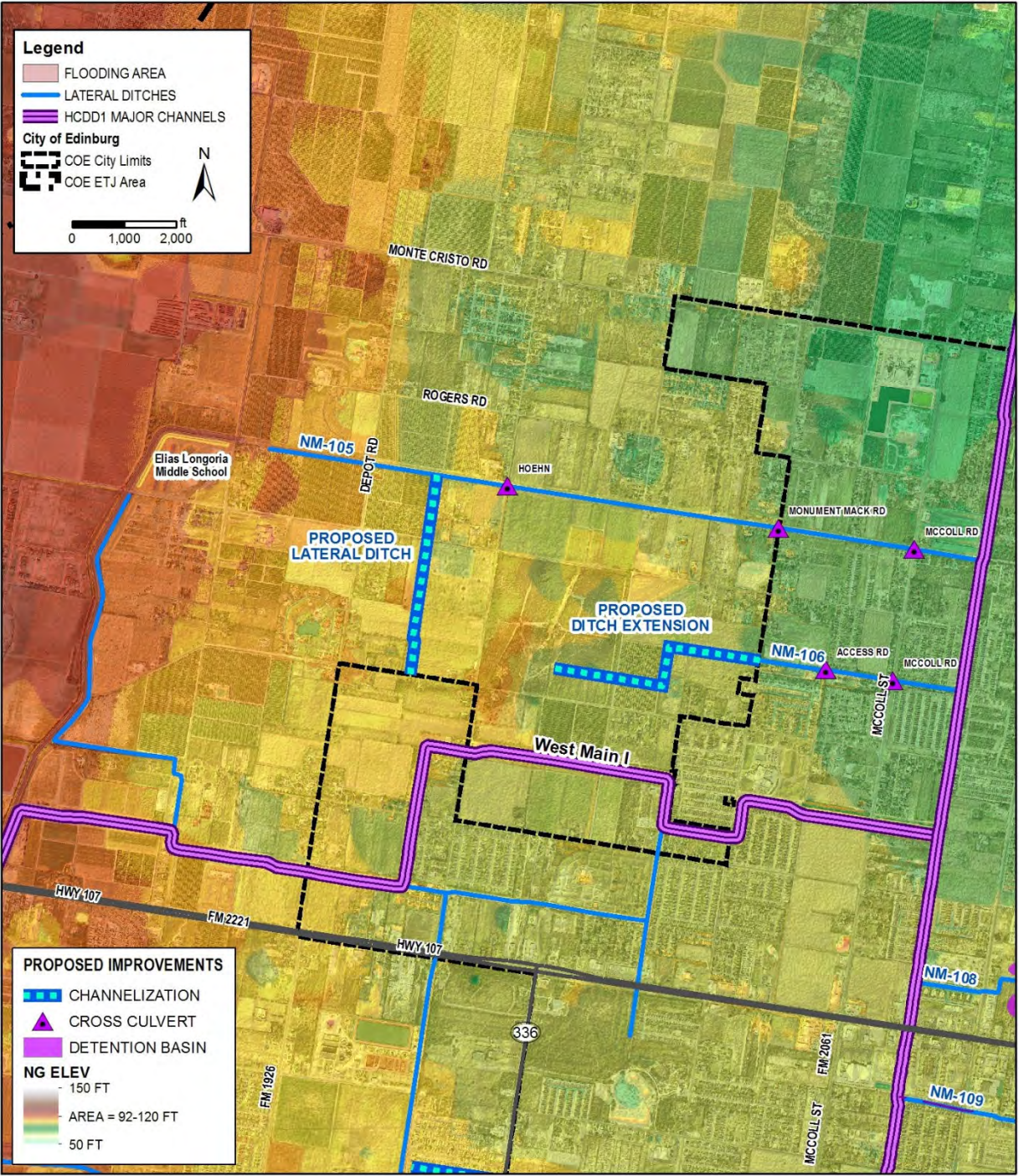


Figure 6-7. NM-105 & NM-106 Systems Improvements

SYSTEMS NM-108 & NM-109

Systems NM-108 and NM-109 represent the contributing drainage areas to North Main Drain and local laterals located within the western portions of the City of Edinburg. The area is generally east of North Main Drain, north of South Main Drain, south of SH 107 (W. University Dr.) and west of US 281B (S. Closner Blvd). The system drainage areas are approximately 527 and 133 acres, respectively. The drainage network consists of a single lateral ditch for each system basin with ditch lengths of 2900 (NM-108) and 2600 (NM-109) feet. See **Figure 6-8** for the drainage system area.

The existing NM-108 ditch is as an outfall for portion of the storm sewer system that serves a portion of the University of Texas – Pan American (UTPA), University Drive, and the southwest portions of the City central area. Due to the repetitive flooding issues within the downtown and UTPA areas, detention is proposed within the drainage area to provide relief for the existing storm sewer systems. The proposed detention would reduce the backwater effects associated with North Main Drain, reducing the storm sewer system tailwater conditions. The detention alternative is dependent on the land availability and acquisition cost within the highly urbanized area adjacent to UTPA. Potential basin locations, as shown in **Figure 6-9**, were based on the latest available aerial photography.

The hydraulic analysis shows that the NM-108 system has a greater than 25-year capacity for existing and future conditions. Additionally, the culvert at Jackson Road is shown to provide adequate conveyance capacity. The hydraulic analysis shows that the NM-109 system has a 25-year capacity along the channel. The existing NM-109 ditch is enclosed from S. Jackson Road to S. Pacific Ave; a total length of approximately 940 feet. Based on field measurements, this culvert is a 36" RCP. It is recommended that this culvert be enlarged to increase the conveyance capacity of the ditch system. A minimum 48" RCP is recommended for these structures. The existing and proposed structures for the NM-108 and NM-109 systems are listed in **Table 6-9**.

TABLE 6-9. NM-108 & NM-109 SYSTEM CROSS-DRAINAGE STRUCTURE INVENTORY

DITCH STATION	CROSSING NAME	EXISTING STRUCTURE	CULVERT LENGTH	PROPOSED STRUCTURE
NM-108				
1343	JACKSON	10' X 6' RCB	186	--
NM-109				
1331	JACKSON	36" RCP	940	48" RCP

Another alternative option that was investigated for the relief of the existing flooding within the NM-108 system, i.e. at UTPA and along University Drive, included the partial diversion of the University Drive storm sewer system into a basin within the mid-reach of the system. This improvement will provide storm water detention and reduce the North Main Drain backwater effects onto the existing storm sewer systems within the area. The basin would be connected to the NM-109 ditch to provide further outfall relief for the system. A detention basin location was proposed based on undeveloped, open land near University Dr., as shown in **Figure 6-9**.

Due to the extensive length of the Jackson Road culvert and the size of the contributing drainage area, this structure is sensitive to the culvert open area and the condition of the downstream channel. It is recommended that this culvert and channel approaches be maintained regularly. If the crossing roadways are improved within the future, it is recommended that this culvert be enlarged to provide additional relief to potential ponding issues within the adjacent areas upstream and to accommodate future development within the subbasin.

Comparisons of the existing and proposed condition water surface elevations for the NM-108 and NM-109 ditches are provided in **Tables 6-10** and **6-11**, respectively.

TABLE 6-10. NM-108 EXISTING & PROPOSED WATER SURFACE ELEVATION COMPARISON

NM-108 RIVER STATION	PROFILE FREQUENCY	Q TOTAL (CFS)	EXISTING W.S. ELEV (FT)	PROPOSED W.S. ELEV (FT)	WS DIFF (PR-EX) (FT)
282	EX 10Y	37	87.7	87.7	0
282	EX 25Y	49	88.1	88.1	0
282	EX 100Y	75	88.8	88.8	0
282	ULT 10Y	39	87.8	87.8	0
282	ULT 25Y	52	88.2	88.2	0
282	ULT 100Y	79	88.9	88.9	0
793	EX 10Y	37	88.1	88.1	0
793	EX 25Y	49	88.5	88.5	0
793	EX 100Y	75	89.2	89.2	0
793	ULT 10Y	39	88.2	88.2	0
793	ULT 25Y	52	88.6	88.6	0
793	ULT 100Y	79	89.3	89.3	0
1174	EX 10Y	37	89.0	89.0	0
1174	EX 25Y	49	89.2	89.2	0
1174	EX 100Y	75	89.8	89.8	0
1174	ULT 10Y	39	89.0	89.0	0
1174	ULT 25Y	52	89.3	89.3	0
1174	ULT 100Y	79	89.9	89.9	0
1343	JACKSON			Culvert	
1488	EX 10Y	20	89.0	89.0	0
1488	EX 25Y	26	89.3	89.3	0
1488	EX 100Y	39	89.8	89.8	0
1488	ULT 10Y	20	89.0	89.0	0
1488	ULT 25Y	26	89.3	89.3	0
1488	ULT 100Y	39	89.9	89.9	0
1927	EX 10Y	20	91.5	91.5	0
1927	EX 25Y	26	91.4	91.4	0
1927	EX 100Y	39	91.4	91.4	0
1927	ULT 10Y	20	91.5	91.5	0
1927	ULT 25Y	26	91.4	91.4	0
1927	ULT 100Y	39	91.4	91.4	0
2132	EX 10Y	20	91.7	91.7	0
2132	EX 25Y	26	91.7	91.7	0
2132	EX 100Y	39	92.0	92.0	0
2132	ULT 10Y	20	91.6	91.6	0
2132	ULT 25Y	26	91.7	91.7	0
2132	ULT 100Y	39	92.0	92.0	0
2317	EX 10Y	20	91.7	91.7	0
2317	EX 25Y	26	91.7	91.7	0
2317	EX 100Y	39	92.0	92.0	0
2317	ULT 10Y	20	91.6	91.6	0
2317	ULT 25Y	26	91.7	91.7	0
2317	ULT 100Y	39	92.0	92.0	0
2596	EX 10Y	20	91.7	91.7	0
2596	EX 25Y	26	91.7	91.7	0
2596	EX 100Y	39	92.0	92.0	0
2596	ULT 10Y	20	91.6	91.6	0
2596	ULT 25Y	26	91.7	91.7	0
2596	ULT 100Y	39	92.0	92.0	0
2881	EX 10Y	20	91.7	91.7	0
2881	EX 25Y	26	91.7	91.7	0
2881	EX 100Y	39	92.0	92.0	0
2881	ULT 10Y	20	91.6	91.6	0
2881	ULT 25Y	26	91.7	91.7	0
2881	ULT 100Y	39	92.0	92.0	0

TABLE 6-11. NM-109 EXISTING & PROPOSED WATER SURFACE ELEVATION COMPARISON

NM-109 RIVER STATION	PROFILE FREQUENCY	Q TOTAL (CFS)	EXISTING W.S. ELEV (FT)	PROPOSED W.S. ELEV (FT)	WS DIFF (PR-EX) (FT)
251	EX 10Y	21	90.5	90.5	0
251	EX 25Y	28	90.6	90.6	0
251	EX 100Y	45	90.9	90.9	0
251	ULT 10Y	24	90.6	90.6	0
251	ULT 25Y	31	90.7	90.7	0
251	ULT 100Y	49	90.9	90.9	0
472	EX 10Y	21	90.6	90.6	0
472	EX 25Y	28	90.7	90.7	0
472	EX 100Y	45	91.0	91.0	0
472	ULT 10Y	24	90.6	90.6	0
472	ULT 25Y	31	90.7	90.7	0
472	ULT 100Y	49	91.0	91.0	0
1331	JACKSON			Culvert	
1516	EX 10Y	21	92.7	92.4	-0.3
1516	EX 25Y	28	93.3	92.8	-0.5
1516	EX 100Y	45	96.3	93.6	-2.7
1516	ULT 10Y	24	93.0	92.6	-0.4
1516	ULT 25Y	31	93.6	92.9	-0.7
1516	ULT 100Y	49	96.9	93.8	-3.1
1776	EX 10Y	21	92.8	92.7	-0.1
1776	EX 25Y	28	93.4	93.0	-0.4
1776	EX 100Y	45	96.3	93.7	-2.6
1776	ULT 10Y	24	93.1	92.8	-0.3
1776	ULT 25Y	31	93.7	93.1	-0.6
1776	ULT 100Y	49	96.9	93.9	-3
2096	EX 10Y	21	93.6	93.6	0
2096	EX 25Y	28	93.9	93.8	-0.1
2096	EX 100Y	45	96.4	94.3	-2.1
2096	ULT 10Y	24	93.7	93.7	0
2096	ULT 25Y	31	94.1	93.9	-0.2
2096	ULT 100Y	49	96.9	94.5	-2.4
2536	EX 10Y	21	93.8	93.8	0
2536	EX 25Y	28	94.1	94.0	-0.1
2536	EX 100Y	45	96.4	94.6	-1.8
2536	ULT 10Y	24	93.9	93.9	0
2536	ULT 25Y	31	94.3	94.1	-0.2
2536	ULT 100Y	49	96.9	94.7	-2.2

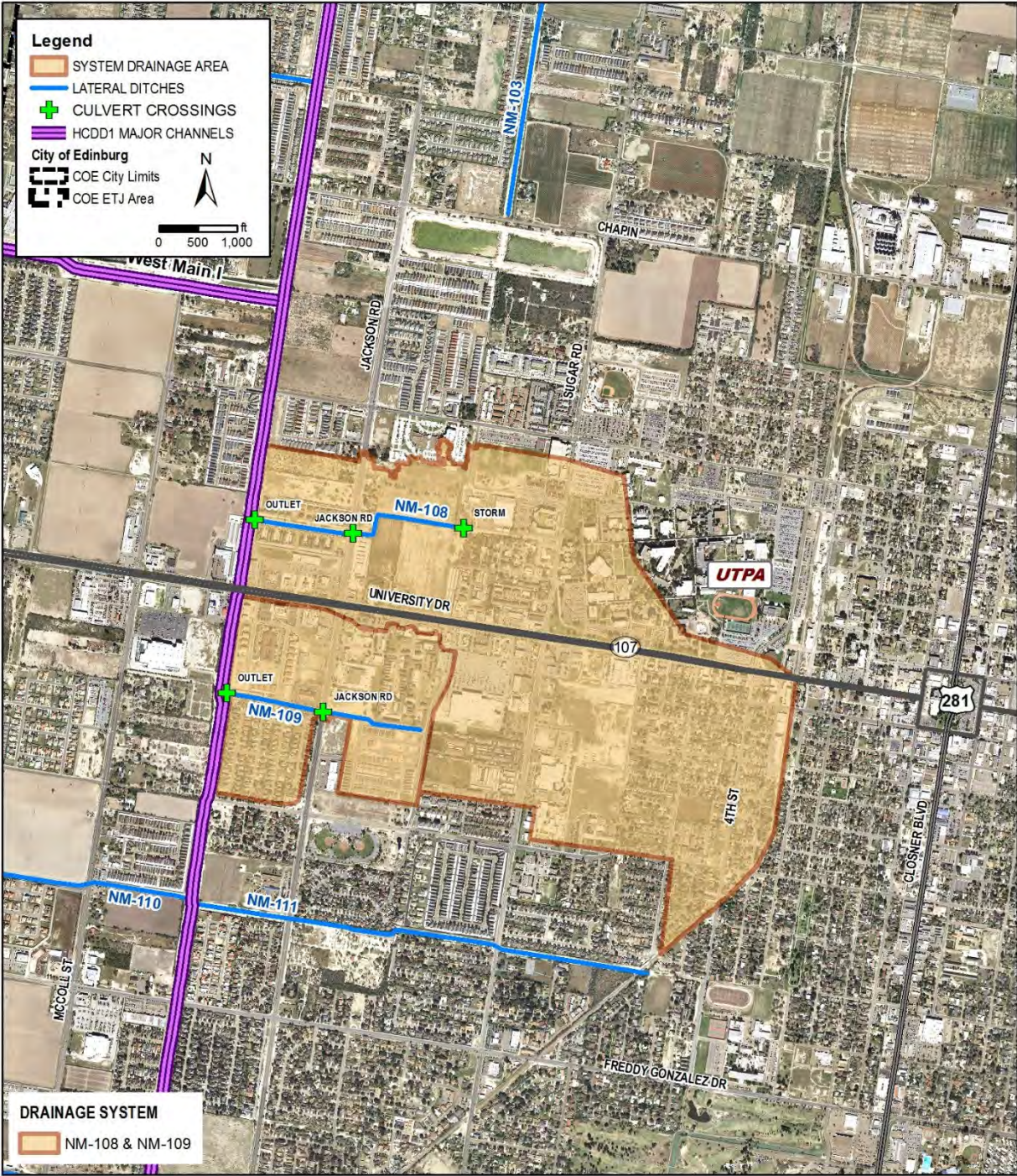


Figure 6-8. NM-108 & NM-109 Drainage Systems

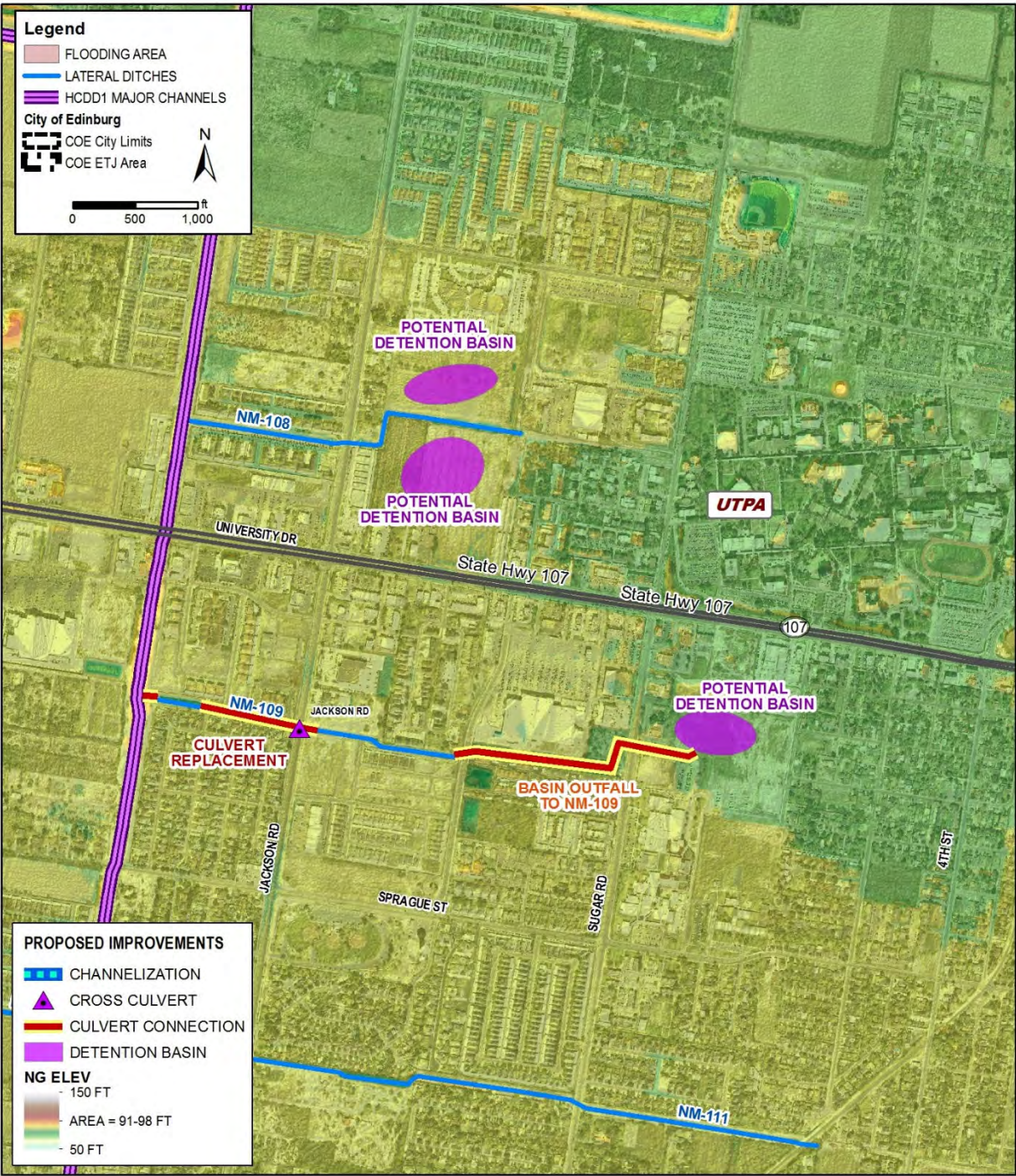


Figure 6-9. NM-108 & NM-109 Systems Improvements

SYSTEMS NM-110, NM-112

Systems NM-110 and NM-112 represent the contributing drainage areas of lateral ditches to North Main Drain within the southwest portions of the City of Edinburg and its ETJ. The areas are generally located west of North Main Drain, north of Edinburg East Main Canal, south of SH 107 (W. University Dr.) and west of Hoehn Rd. The system drainage areas are approximately 1363 and 47 acres, respectively. The drainage network consists of a single lateral ditch for each system basin with ditch lengths of 6500 (NM-110) and 6700 (NM-112) feet. Both systems drain from west to east into North Main Drain. The NM-110 and NM-112 system drainage area and ditch alignments are shown in **Figure 6-10**.

The hydraulic analysis shows that the NM-110 system has less than a 10-year capacity due to the low overbanks and the inadequate cross-drainage structures. The crossing structures are shown to provide significant restrictions along the channel. The existing McColl Road culvert consist of a 30" RCP at the upstream face, connected to an 8'x4' RCB outlet. It is proposed that the outlet box be extended upstream to increase the conveyance across McColl Road. Additionally, the upstream crossings at a utility-canal access road and Monument Mack Road be replaced and an additional pipe be provided at Saker Road. The hydraulic analysis shows that the NM-112 system has a greater than 25-year capacity along the channel. The hydraulic analysis shows that the culvert at McColl Road provides sufficient capacity for existing and future conditions. The existing and proposed structures for the NM-110 and NM-112 systems are listed in **Table 6-12**.

TABLE 6-12. NM-110 & NM-112 SYSTEM CROSS-DRAINAGE STRUCTURE INVENTORY

DITCH STATION	CROSSING NAME	EXISTING STRUCTURE	CULVERT LENGTH	PROPOSED STRUCTURE
NM-110				
1335	MCCOLL (FM 2061)	30" RCP (US) / 8'X4' RCB (DS)	176	8'X4' RCB EXTENDED U/S
2639	UTILITY	30" RCP	108	7' X 4' RCP
3988	MON MACK	36" RCP	142	7' X 4' RCP
5454	SAKER	36" RCP	76	2-36" RCP
11882	DEPOT	48" RCP	200	--
NM-112				
1335	MCCOLL (FM 2061)	24" RCP	220	--

There are no current identified flooding issues within the drainage system areas, as provided by the City. However, based on the overland topography there are low-lying areas within the current undeveloped properties adjacent to the drainage ditches. For any future development within this drainage area, fill will probably be necessary to provide drainage into the receiving ditches.

Based on the current level of development and no currently reported flooding issues within the drainage area, only the cross-culvert improvements along NM-110 are recommended for these systems to relieve potential flooding. For future development it is recommended that the NM-110 ditch be extended to the south to provide for drainage outfall needs, shown in **Figure 6-11**.

Comparisons of the existing and proposed condition water surface elevations for the NM-110 and NM-112 ditches are provided in **Tables 6-13** and **6-14**, respectively.

TABLE 6-13. NM-110 EXISTING & PROPOSED WATER SURFACE ELEVATION COMPARISON

NM-110 RIVER STATION	PROFILE FREQUENCY	Q TOTAL (CFS)	EXISTING W.S. ELEV (FT)	PROPOSED W.S. ELEV (FT)	WS DIFF (PR-EX) (FT)
585	EX 10Y	63	91.5	91.5	0
585	EX 25Y	90	91.9	91.9	0
585	EX 100Y	156	92.7	92.7	0
585	ULT 10Y	106	92.1	92.1	0
585	ULT 25Y	140	92.5	92.5	0
585	ULT 100Y	220	93.4	93.4	0
1218	EX 10Y	63	92.0	92.0	0
1218	EX 25Y	90	92.5	92.4	-0.1
1218	EX 100Y	156	93.3	93.3	0
1218	ULT 10Y	106	92.7	92.7	0
1218	ULT 25Y	140	93.1	93.1	0
1218	ULT 100Y	220	93.9	93.9	0
1335	MCCOLL/FM2061			Culvert	
1531	EX 10Y	63	95.8	92.6	-3.2
1531	EX 25Y	90	96.0	93.2	-2.8
1531	EX 100Y	156	96.5	94.4	-2.1
1531	ULT 10Y	106	96.2	93.5	-2.7
1531	ULT 25Y	140	96.4	94.1	-2.3
1531	ULT 100Y	220	96.6	95.4	-1.2
1992	EX 10Y	39	95.9	93.4	-2.5
1992	EX 25Y	56	96.1	93.8	-2.3
1992	EX 100Y	99	96.5	94.7	-1.8
1992	ULT 10Y	67	96.2	94.0	-2.2
1992	ULT 25Y	89	96.5	94.5	-2
1992	ULT 100Y	140	96.7	95.7	-1
2549	EX 10Y	39	95.9	93.9	-2
2549	EX 25Y	56	96.1	94.2	-1.9
2549	EX 100Y	99	96.6	95.1	-1.5
2549	ULT 10Y	67	96.3	94.5	-1.8
2549	ULT 25Y	89	96.5	94.9	-1.6
2549	ULT 100Y	140	96.8	95.9	-0.9
2639	UTILITY			Culvert	
2780	EX 10Y	39	97.1	94.0	-3.1
2780	EX 25Y	56	97.1	94.4	-2.7
2780	EX 100Y	99	97.4	95.5	-1.9
2780	ULT 10Y	67	97.2	94.7	-2.5
2780	ULT 25Y	89	97.3	95.2	-2.1
2780	ULT 100Y	140	97.6	96.6	-1
3427	EX 10Y	39	97.2	94.0	-3.2
3427	EX 25Y	56	97.2	94.5	-2.7
3427	EX 100Y	99	97.4	95.5	-1.9
3427	ULT 10Y	67	97.2	94.7	-2.5
3427	ULT 25Y	89	97.3	95.3	-2
3427	ULT 100Y	140	97.6	96.7	-0.9
3890	EX 10Y	39	97.2	94.1	-3.1
3890	EX 25Y	56	97.2	94.5	-2.7
3890	EX 100Y	99	97.4	95.5	-1.9
3890	ULT 10Y	67	97.2	94.8	-2.4
3890	ULT 25Y	89	97.4	95.3	-2.1
3890	ULT 100Y	140	97.6	96.7	-0.9
3988	MON MACK			Culvert	
4133	EX 10Y	39	98.0	94.2	-3.8
4133	EX 25Y	56	98.2	94.7	-3.5
4133	EX 100Y	99	98.5	95.9	-2.6
4133	ULT 10Y	67	98.3	95.0	-3.3

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NM-110 RIVER STATION	PROFILE FREQUENCY	Q TOTAL (CFS)	EXISTING W.S. ELEV (FT)	PROPOSED W.S. ELEV (FT)	WS DIFF (PR-Ex) (FT)
4133	ULT 25Y	89	98.4	95.6	-2.8
4133	ULT 100Y	140	98.8	97.4	-1.4
4689	EX 10Y	17	98.0	94.3	-3.7
4689	EX 25Y	24	98.2	94.8	-3.4
4689	EX 100Y	40	98.5	96.0	-2.5
4689	ULT 10Y	25	98.3	95.1	-3.2
4689	ULT 25Y	33	98.4	95.7	-2.7
4689	ULT 100Y	51	98.8	97.5	-1.3
5361	EX 10Y	17	98.0	94.6	-3.4
5361	EX 25Y	24	98.2	95.0	-3.2
5361	EX 100Y	40	98.5	96.0	-2.5
5361	ULT 10Y	25	98.3	95.2	-3.1
5361	ULT 25Y	33	98.5	95.7	-2.8
5361	ULT 100Y	51	98.8	97.5	-1.3
5454	SAKER			Culvert	
5540	EX 10Y	17	98.2	96.4	-1.8
5540	EX 25Y	24	98.5	96.7	-1.8
5540	EX 100Y	40	99.5	97.2	-2.3
5540	ULT 10Y	25	98.7	96.7	-2
5540	ULT 25Y	33	99.1	97.0	-2.1
5540	ULT 100Y	51	100.3	97.9	-2.4
5927	EX 10Y	17	98.2	97.0	-1.2
5927	EX 25Y	24	98.6	97.2	-1.4
5927	EX 100Y	40	99.5	97.6	-1.9
5927	ULT 10Y	25	98.7	97.2	-1.5
5927	ULT 25Y	33	99.1	97.4	-1.7
5927	ULT 100Y	51	100.3	98.1	-2.2
6481	EX 10Y	17	98.3	98.3	0
6481	EX 25Y	24	98.6	98.4	-0.2
6481	EX 100Y	40	99.6	98.7	-0.9
6481	ULT 10Y	25	98.8	98.4	-0.4
6481	ULT 25Y	33	99.2	98.6	-0.6
6481	ULT 100Y	51	100.3	98.8	-1.5

TABLE 6-14. NM-112 EXISTING & PROPOSED WATER SURFACE ELEVATION COMPARISON

NM-112 RIVER STATION	PROFILE FREQUENCY	Q TOTAL (CFS)	EXISTING W.S. ELEV (FT)	PROPOSED W.S. ELEV (FT)	WS DIFF (PR-EX) (FT)
567	EX 10Y	8	90.2	90.2	0
567	EX 25Y	11	90.5	90.5	0
567	EX 100Y	18	90.9	90.9	0
567	ULT 10Y	11	90.5	90.5	0
567	ULT 25Y	14	90.7	90.7	0
567	ULT 100Y	22	91.1	91.1	0
1101	EX 10Y	8	92.1	92.1	0
1101	EX 25Y	11	92.2	92.2	0
1101	EX 100Y	18	92.5	92.5	0
1101	ULT 10Y	11	92.2	92.2	0
1101	ULT 25Y	14	92.3	92.3	0
1101	ULT 100Y	22	92.5	92.5	0
1335	MCCOLL RD /FM 2061			Culvert	
1475	EX 10Y	8	93.5	93.5	0
1475	EX 25Y	11	93.8	93.8	0
1475	EX 100Y	18	94.9	94.9	0
1475	ULT 10Y	11	93.8	93.8	0
1475	ULT 25Y	14	94.1	94.1	0
1475	ULT 100Y	22	96.0	96.0	0
2166	EX 10Y	8	93.6	93.6	0
2166	EX 25Y	11	93.9	93.9	0
2166	EX 100Y	18	94.9	94.9	0
2166	ULT 10Y	11	93.9	93.9	0
2166	ULT 25Y	14	94.2	94.2	0
2166	ULT 100Y	22	96.0	96.0	0

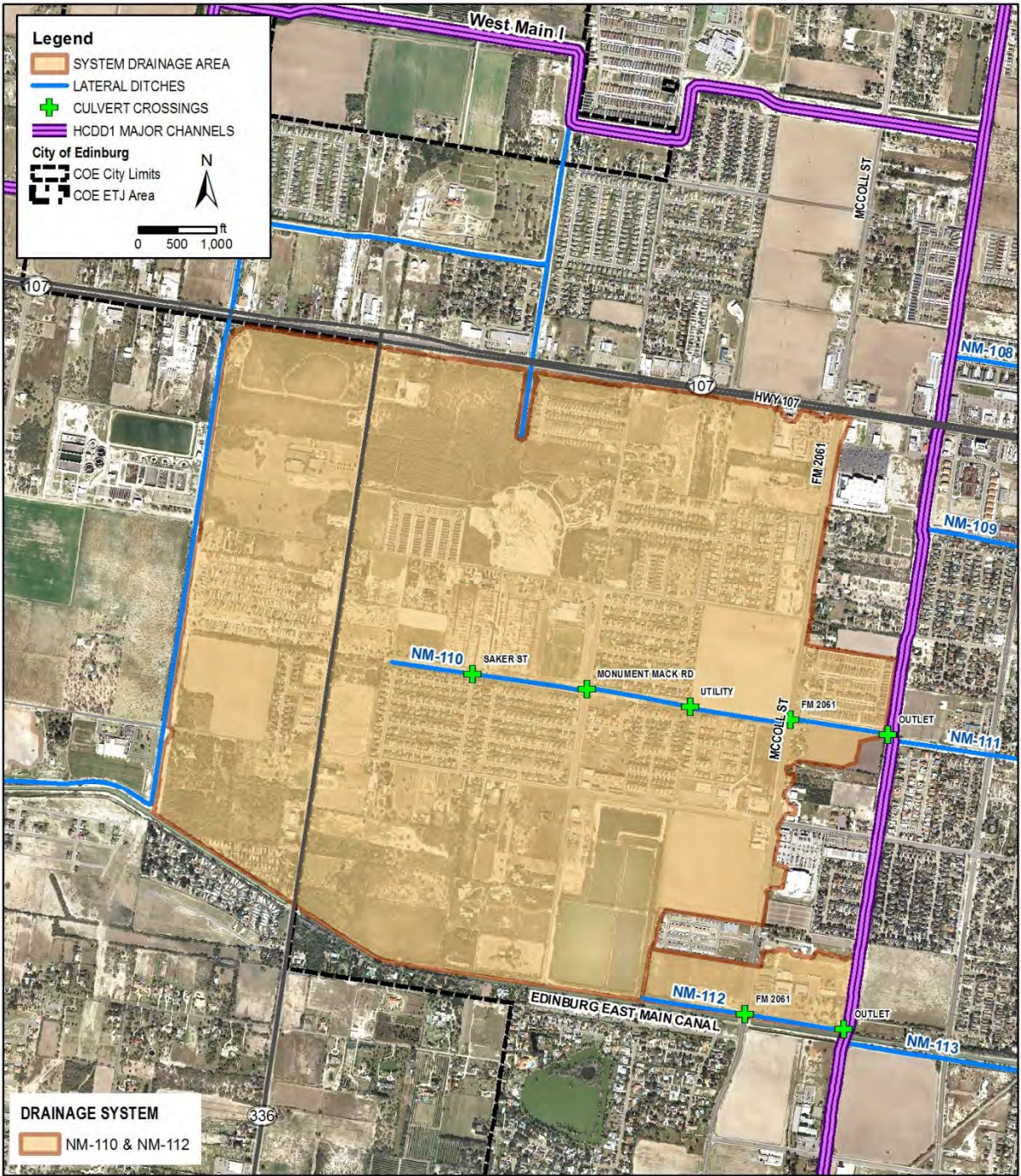


Figure 6-10. NM-110 & NM-112 Drainage Systems

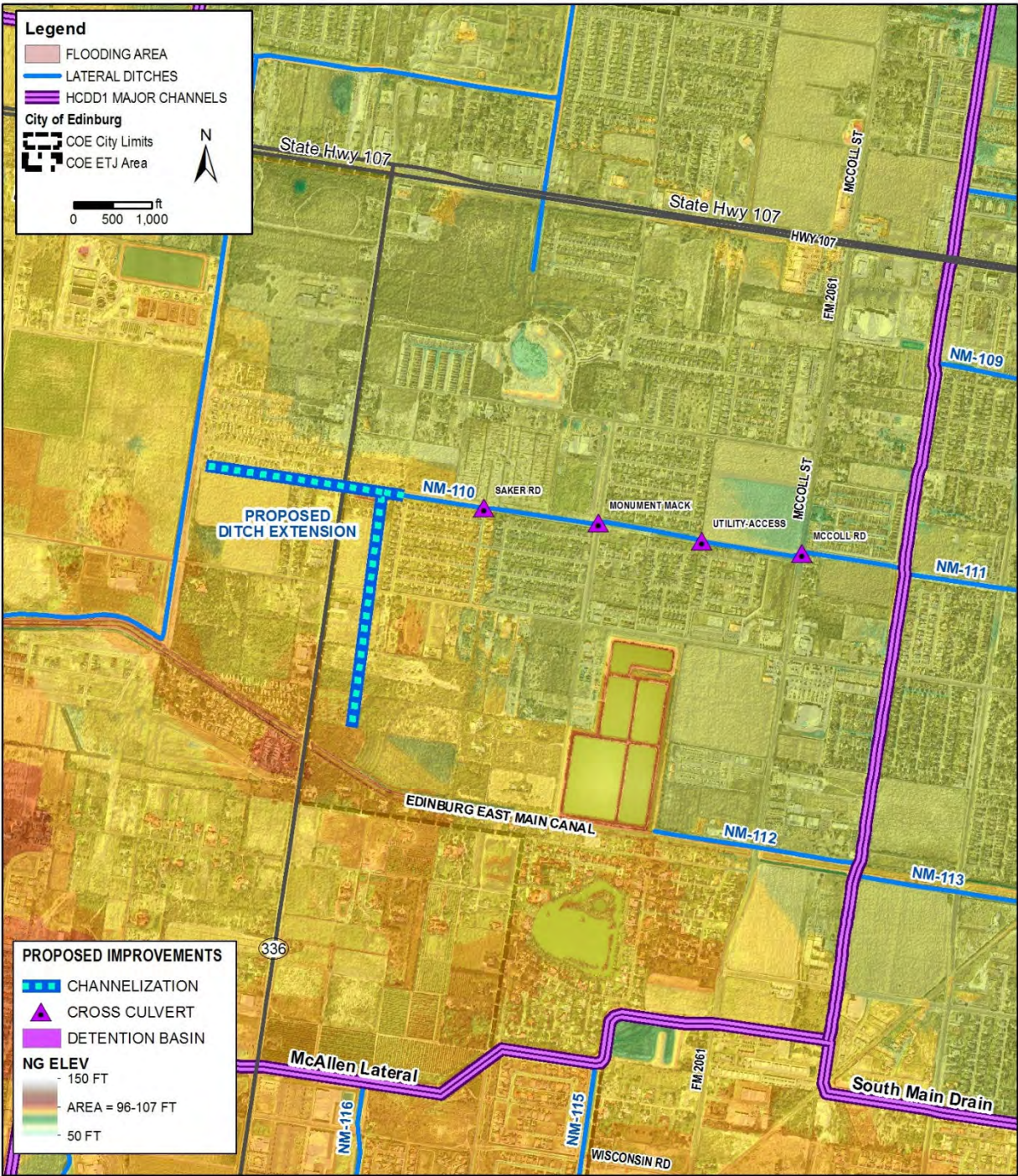


Figure 6-11. NM-110 & NM-112 Systems Improvements

SYSTEMS NM-111 & NM-113

Systems NM-111 and NM-113 represent the contributing drainage areas to North Main Drain and laterals located within the southwest portions of the City of Edinburg. The area is generally east of North Main Drain, north of South Main Drain, south of SH 107 (W. University Dr.) and west of BS 281 (S. Closner Blvd). The system drainage areas are approximately 323 and 464 acres, respectively. The drainage network consists of a single lateral ditch for each system basin with ditch lengths of 5900 (NM-111) and 8000 (NM-113) feet. The NM-111 and NM-113 system drainage area and ditch alignments are shown in **Figure 6-12**.

The NM-111 and NM-113 systems are impacted by the North Main Drain water surface elevation. The high North Main Drain water surface elevations reduce the drainage systems' efficiency to convey the study area runoff. As previously discussed, any improvements to the North Main Drain associated with the Raymondville Drain Flood Control Project will potentially be beneficial to these systems' areas by lowering the ditches' tailwater conditions.

Additionally, the NM-113 system area is affected by the water surface elevations within the South Main Drain. The South Main Drain serves as the receiving ditch for several storm sewer systems within the area. However, the area is lower than the high banks and the water surface elevations of the South Main Drain. This results in the areas adjacent to the South Main Drain to sheetflow north towards NM-113 and increase the runoff within the ditch.

The hydraulic analysis shows that the NM-111 system has greater than a 25-year capacity. The crossing structures are shown to provide adequate capacity to convey the existing and proposed flows. The hydraulic analysis shows that the NM-113 system has a 25-year capacity along the majority of the channel with some out-of-bank ponding due to low overbank areas and restrictive crossing structures. The hydraulic analysis shows that the culverts at Jackson Road and Sugar Road require improvement to provide sufficient capacity for existing and future conditions. Proposed culverts include an additional box at Jackson Road and a culvert replacement at Sugar Road. The existing and proposed structures for the NM-111 and NM-113 systems are listed in **Table 6-15**.

TABLE 6-15. NM-111 & NM-113 SYSTEM CROSS-DRAINAGE STRUCTURE INVENTORY

DITCH STATION	CROSSING NAME	EXISTING STRUCTURE	CULVERT LENGTH	PROPOSED STRUCTURE
NM-111				
1257	JACKSON	6' X 6' RCB	184	--
3978	SUGAR	72" RCP	136	--
5831	RAILROAD	36" RCP	100	--
NM-113				
1390	JACKSON	5' X 4' RCB	280	2- 5' X 4' RCB
2382	RAILROAD	5' X 4' RCB	68	--
4086	SUGAR	18" RCP	102	42" RCP

The Edinburg ISD has identified flooding concerns with regards to the Freddy Gonzalez Elementary School located along the south bank of NM-113 at S. Sugar Road and the South Middle School, located at Freddy Gonzalez Dr. and S. 4th Ave. upstream of the NM-111 ditch.

In order to provide additional drainage relief for the South Middle School, the existing NM-111 ditch is proposed to be extended east (upstream) to the school. The ditch extension would include approximately 800 feet of ditch to Geoffrey Ln. with proposed culvert under Geoffrey Ln. and across S. 4th Ave. to connect to the school campus property.

Since the drainage area at the existing upstream end of NM-111 is restricted by the railroad and the existing culvert crossing, it is recommended that a detention basin be proposed to supplement any drainage improvements upstream of the railroad. The detention basin may be proposed at either east or west of the railroad adjacent to the NM-111 alignment, based on land availability and acquisition cost, as shown in **Figure 6-12**.

A residential flood occurrence was documented within the NM-113 drainage area at 914 Tori Ln during the September 2014 storm event. This location is identified in **Figure 6-13**. Based on the overland topography, the subdivision is shown to be a localized low-lying area. There is not an overland sheetflow path from this area due to the elevated canal to the south and east, Sugar Road to the west, and the railroad to the north. The storm sewer system that serves this area drains to NM-113 south of the elevation canal. Based on the hydraulic analysis of NM-113, the ditch has sufficient capacity to convey the 100-year storm event; however the tailwater within the ditch during 25-year and higher storm events will prevent the storm sewer within this low-lying area to have sufficient hydraulic head to convey the runoff.

Based on field observations, the existing NM-113 ditch has siltation and vegetation overgrowth. It is recommended that the existing ditch be desilted and cleared to increase the ditch capacity and lower the water surface elevation within the ditch. It is also recommended that the City provide additional storm sewer capacity within the area to increase the existing system conveyance.

Comparisons of the existing and proposed condition water surface elevations for the NM-111 and NM-113 ditches are provided in **Tables 6-16** and **6-17**, respectively.

TABLE 6-16. NM-111 EXISTING & PROPOSED WATER SURFACE ELEVATION COMPARISON

NM-111 RIVER STATION	PROFILE FREQUENCY	Q TOTAL (CFS)	EXISTING W.S. ELEV (FT)	PROPOSED W.S. ELEV (FT)	WS DIFF (PR-EX) (FT)
270	EX 10Y	121	91.4	91.4	0
270	EX 25Y	155	91.8	91.8	0
270	EX 100Y	236	92.8	92.8	0
270	ULT 10Y	130	91.5	91.5	0
270	ULT 25Y	160	91.9	91.9	0
270	ULT 100Y	240	92.9	92.9	0
669	EX 10Y	121	91.6	91.6	0
669	EX 25Y	155	92.1	92.1	0
669	EX 100Y	236	93.0	93.0	0
669	ULT 10Y	130	91.7	91.7	0
669	ULT 25Y	160	92.1	92.1	0
669	ULT 100Y	240	93.1	93.1	0
1130	EX 10Y	90	91.9	91.9	0
1130	EX 25Y	115	92.4	92.4	0
1130	EX 100Y	174	93.3	93.3	0
1130	ULT 10Y	90	92.0	92.0	0
1130	ULT 25Y	120	92.4	92.4	0
1130	ULT 100Y	180	93.4	93.4	0
1257	JACKSON			Culvert	
1380	EX 10Y	90	92.3	92.3	0
1380	EX 25Y	115	93.0	93.0	0
1380	EX 100Y	174	94.4	94.4	0
1380	ULT 10Y	90	92.4	92.4	0
1380	ULT 25Y	120	93.1	93.1	0
1380	ULT 100Y	180	94.5	94.5	0
2108	EX 10Y	90	93.0	93.0	0
2108	EX 25Y	115	93.6	93.6	0
2108	EX 100Y	174	94.7	94.7	0
2108	ULT 10Y	90	93.1	93.1	0
2108	ULT 25Y	120	93.7	93.7	0
2108	ULT 100Y	180	94.8	94.8	0
2854	EX 10Y	90	93.3	93.3	0
2854	EX 25Y	115	93.8	93.8	0
2854	EX 100Y	174	94.9	94.9	0
2854	ULT 10Y	90	93.3	93.3	0
2854	ULT 25Y	120	93.9	93.9	0
2854	ULT 100Y	180	95.0	95.0	0
3860	EX 10Y	43	93.8	93.8	0
3860	EX 25Y	55	94.3	94.3	0
3860	EX 100Y	82	95.3	95.3	0
3860	ULT 10Y	50	93.9	93.9	0
3860	ULT 25Y	60	94.4	94.4	0
3860	ULT 100Y	90	95.4	95.4	0
3978	SUGAR			Culvert	
4089	EX 10Y	43	94.0	94.0	0
4089	EX 25Y	55	94.5	94.5	0
4089	EX 100Y	82	95.6	95.6	0
4089	ULT 10Y	50	94.1	94.1	0
4089	ULT 25Y	60	94.6	94.6	0
4089	ULT 100Y	90	95.8	95.8	0
4720	EX 10Y	43	94.1	94.1	0
4720	EX 25Y	55	94.6	94.6	0
4720	EX 100Y	82	95.7	95.7	0
4720	ULT 10Y	50	94.3	94.3	0
4720	ULT 25Y	60	94.8	94.8	0
4720	ULT 100Y	90	95.9	95.9	0

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5264	EX 10Y	43	94.2	94.2	0
5264	EX 25Y	55	94.7	94.7	0
5264	EX 100Y	82	95.8	95.8	0
5264	ULT 10Y	50	94.3	94.3	0
5264	ULT 25Y	60	94.8	94.8	0
5264	ULT 100Y	90	95.9	95.9	0
5727	EX 10Y	43	94.2	94.2	0
5727	EX 25Y	55	94.7	94.7	0
5727	EX 100Y	82	95.8	95.8	0
5727	ULT 10Y	50	94.4	94.4	0
5727	ULT 25Y	60	94.9	94.9	0
5727	ULT 100Y	90	96.0	96.0	0
5831	RAILROAD			Culvert	
5921	EX 10Y	43	98.7	95.5	-3.2
5921	EX 25Y	55	98.8	96.7	-2.1
5921	EX 100Y	82	98.9	99.8	0.9
5921	ULT 10Y	50	98.8	96.0	-2.8
5921	ULT 25Y	60	98.8	97.2	-1.6
5921	ULT 100Y	90	98.9	99.8	0.9
6246	EX 10Y	43	99.0	95.5	-3.5
6246	EX 25Y	55	99.1	96.7	-2.4
6246	EX 100Y	82	99.2	99.8	0.6
6246	ULT 10Y	50	99.1	96.0	-3.1
6246	ULT 25Y	60	99.1	97.2	-1.9
6246	ULT 100Y	90	99.3	99.8	0.5

TABLE 6-17. NM-113 EXISTING & PROPOSED WATER SURFACE ELEVATION COMPARISON

NM-113 RIVER STATION	PROFILE FREQUENCY	Q TOTAL (CFS)	EXISTING W.S. ELEV (FT)	PROPOSED W.S. ELEV (FT)	WS DIFF (PR-EX) (FT)
608	EX 10Y	86	93.4	93.4	0
608	EX 25Y	116	94.3	94.3	0
608	EX 100Y	183	95.2	95.2	0
608	ULT 10Y	107	94.2	94.2	0
608	ULT 25Y	140	94.7	94.7	0
608	ULT 100Y	212	95.5	95.5	0
1177	EX 10Y	69	94.1	94.1	0
1177	EX 25Y	91	94.8	94.8	0
1177	EX 100Y	145	95.7	95.7	0
1177	ULT 10Y	79	94.6	94.6	0
1177	ULT 25Y	103	95.1	95.1	0
1177	ULT 100Y	160	96.0	96.0	0
1390	JACKSON			Culvert	
1578	EX 10Y	69	95.1	94.3	-0.8
1578	EX 25Y	91	95.8	95.0	-0.8
1578	EX 100Y	145	97.7	96.1	-1.6
1578	ULT 10Y	79	95.5	94.8	-0.7
1578	ULT 25Y	103	96.2	95.3	-0.9
1578	ULT 100Y	160	98.4	96.5	-1.9
2266	EX 10Y	59	95.4	95.0	-0.4
2266	EX 25Y	78	96.0	95.5	-0.5
2266	EX 100Y	125	97.8	96.5	-1.3
2266	ULT 10Y	69	95.7	95.3	-0.4
2266	ULT 25Y	90	96.4	95.8	-0.6
2266	ULT 100Y	141	98.5	96.9	-1.6
2382	RAILROAD			Culvert	
2496	EX 10Y	28	95.4	95.1	-0.3
2496	EX 25Y	37	96.1	95.6	-0.5
2496	EX 100Y	62	98.1	96.8	-1.3
2496	ULT 10Y	38	95.8	95.4	-0.4
2496	ULT 25Y	49	96.5	96.0	-0.5
2496	ULT 100Y	77	98.9	97.3	-1.6
3118	EX 10Y	28	95.6	95.4	-0.2
3118	EX 25Y	37	96.3	95.9	-0.4
3118	EX 100Y	62	98.1	97.0	-1.1
3118	ULT 10Y	38	96.0	95.8	-0.2
3118	ULT 25Y	49	96.7	96.2	-0.5
3118	ULT 100Y	77	99.0	97.5	-1.5
3938	EX 10Y	28	96.2	96.1	-0.1
3938	EX 25Y	37	96.6	96.4	-0.2
3938	EX 100Y	62	98.3	97.3	-1
3938	ULT 10Y	38	96.5	96.4	-0.1
3938	ULT 25Y	49	97.0	96.8	-0.2
3938	ULT 100Y	77	99.1	97.8	-1.3
4086	SUGAR			Culvert	
4245	EX 10Y	15	99.6	96.2	-3.4
4245	EX 25Y	20	100.3	96.6	-3.7
4245	EX 100Y	36	100.5	97.8	-2.7
4245	ULT 10Y	25	100.4	96.8	-3.6
4245	ULT 25Y	32	100.5	97.2	-3.3
4245	ULT 100Y	51	100.7	98.7	-2
5178	EX 10Y	15	99.6	96.5	-3.1
5178	EX 25Y	20	100.3	96.9	-3.4
5178	EX 100Y	36	100.6	97.9	-2.7
5178	ULT 10Y	25	100.4	97.0	-3.4

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NM-113 RIVER STATION	PROFILE FREQUENCY	Q TOTAL (CFS)	EXISTING W.S. ELEV (FT)	PROPOSED W.S. ELEV (FT)	WS DIFF (PR-Ex) (FT)
5178	ULT 25Y	32	100.5	97.4	-3.1
5178	ULT 100Y	51	100.7	98.8	-1.9
6003	EX 10Y	3	99.6	96.6	-3
6003	EX 25Y	4	100.3	96.9	-3.4
6003	EX 100Y	7	100.6	98.0	-2.6
6003	ULT 10Y	5	100.4	97.1	-3.3
6003	ULT 25Y	6	100.5	97.5	-3
6003	ULT 100Y	10	100.7	98.8	-1.9
6838	EX 10Y	3	99.6	96.6	-3
6838	EX 25Y	4	100.3	96.9	-3.4
6838	EX 100Y	7	100.6	98.0	-2.6
6838	ULT 10Y	5	100.4	97.1	-3.3
6838	ULT 25Y	6	100.5	97.5	-3
6838	ULT 100Y	10	100.7	98.8	-1.9
7543	EX 10Y	3	101.2	101.2	0
7543	EX 25Y	4	101.2	101.2	0
7543	EX 100Y	7	101.3	101.3	0
7543	ULT 10Y	5	101.2	101.2	0
7543	ULT 25Y	6	101.3	101.3	0
7543	ULT 100Y	10	101.4	101.4	0

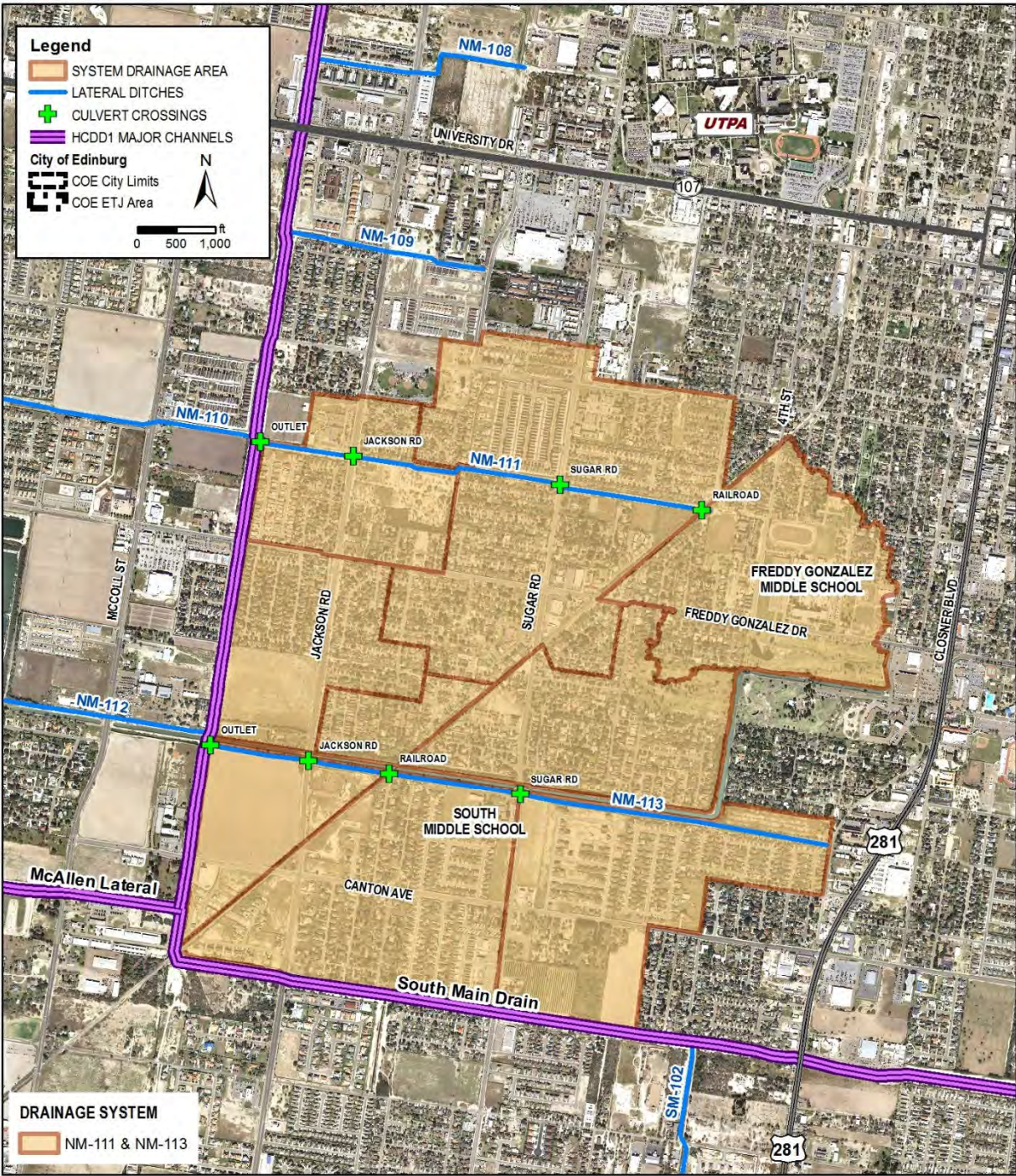


Figure 6-12. NM-111 & NM-113 Drainage Systems

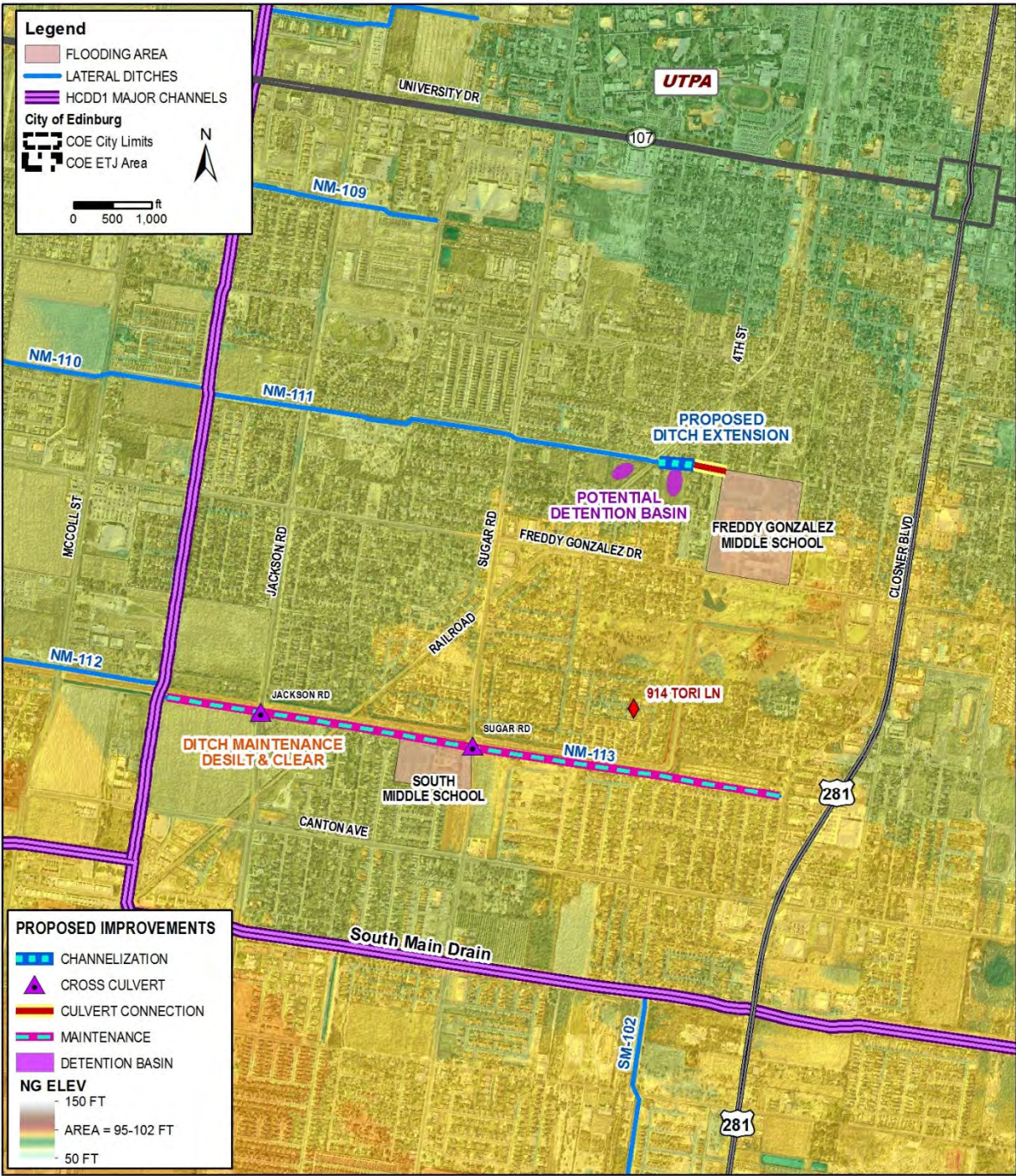


Figure 6-13. NM-111 & NM-113 Systems Improvements

SYSTEMS NM-115 & NM-116

Systems NM-115 and NM-116 represents the drainage area of lateral ditches to McAllen Lateral Drain located within the southwest portions of the City of Edinburg and its ETJ. The area is generally located east of FM 336 (N. 10th St.), west of Jackson Road, north of FM 495 (Pecan St.), and south of the McAllen Lateral. The system drainage areas are approximately 2365 and 303 acres, respectively. The drainage networks consist of a single lateral ditch with lengths of 15,600 feet (NM-115) and 4430 feet (NM-116). The systems drain from south to north into McAllen Lateral Drain. The NM-115 and NM-116 system drainage area and ditch alignments are shown in **Figure 6-14**.

The drainage areas are considered to be fully developed consisting of dense residential and commercial areas. The drainage areas slope from south to north towards the McAllen Lateral Drain. The railroad serves as the southern boundary of the NM-116 drainage area and as a subbasin divide for the NM-115 drainage area.

Both drainage ditches are affected by the McAllen Lateral Drain (a lateral of North Main Drain) backwater within the downstream reaches. The upstream reaches of the systems are not affected by the McAllen Lateral Drain tailwater; this was evaluated based on HEC-RAS modeling.

The hydraulic analysis shows that the NM-115 system has a 25-year capacity within the lower (northern) reaches and a 10-year capacity within the upper (southern) reaches. Based on the open channel (no-culvert) hydraulic analysis, the crossing structures along the channel provide cumulative losses along the channel that significantly reduces the system's capacity during extreme events. Several crossing improvements were proposed to provide adequate capacity to convey the existing and proposed 25-year and 100-year flows. These improvements typically involve the addition of a box culvert to the existing structure with a culvert replacement proposed at Violet Road. The hydraulic analysis shows that the NM-116 system has a 25-year capacity along the channel with the Wisconsin Street crossing providing significant conveyance restrictions. The culverts at Wisconsin Street are proposed for replacement to increase the capacity of the system. The existing and proposed structures for the NM-115 and NM-116 systems are listed in **Table 6-18**. The proposed culvert replacement locations are shown in **Figure 6-15**.

TABLE 6-18. NM-115 & NM-116 SYSTEM CROSS-DRAINAGE STRUCTURE INVENTORY

DITCH STATION	CROSSING NAME	EXISTING STRUCTURE	CULVERT LENGTH	PROPOSED STRUCTURE
NM-115				
1196	WISCONSIN	7' X 8' RCB	152	2- 7' X 8' RCB
3132	RAILROAD	10' X 10' RCB	212	--
3839	TRENTON	10' X 10' RCB & 48" RCP	174	--
5188	DIRT	10' X 8' RCB	48	--
6509	ALBERTA	8' X 9' RCB	178	2- 8' X 9' RCB
7827	UTILITY	8' X 7' RCB	48	2- 8' X 7' RCB
9146	DOVE	7' X 6' RCB	154	2- 7' X 6' RCB
11793	VIOLET	6' X 5' RCB	154	10' X 8' RCB
12718	UTILITY	6' X 4' RCB	36	2- 6' X 4' RCB
13110	UTILITY	6' X 4' RCB	40	2- 6' X 4' RCB
14441	NOLANA	66" RCP	188	--
NM-116				
655	WISCONSIN	2- 36" RCP	320	6' X 5' RCB
3353	TRENTON	42" RCP	620	--

Based on the development within drainage area and the conveyance capacity of the system ditches, no channel improvements are recommended within the NM-115 and NM-116 systems; however, various culvert replacements are recommended as presented in the above table. Comparisons of the existing and proposed condition water surface elevations for the NM-115 and NM-116 ditches are provided in **Tables 6-19** and **6-20**, respectively.

TABLE 6-19. NM-115 EXISTING & PROPOSED WATER SURFACE ELEVATION COMPARISON

NM-115 RIVER STATION	PROFILE FREQUENCY	Q TOTAL (CFS)	EXISTING W.S. ELEV (FT)	PROPOSED W.S. ELEV (FT)	WS DIFF (PR-EX) (FT)
514	EX 10Y	387	99.3	99.3	0
514	EX 25Y	491	99.8	99.8	0
514	EX 100Y	708	100.7	100.7	0
514	ULT 10Y	390	99.3	99.3	0
514	ULT 25Y	500	99.9	99.9	0
514	ULT 100Y	710	100.8	100.8	0
982	EX 10Y	387	99.6	99.6	0
982	EX 25Y	491	100.1	100.1	0
982	EX 100Y	708	101.0	101.0	0
982	ULT 10Y	390	99.6	99.6	0
982	ULT 25Y	500	100.1	100.1	0
982	ULT 100Y	710	101.0	101.0	0
1196	WISCONSIN			Culvert	
1366	EX 10Y	356	101.0	99.9	-1.1
1366	EX 25Y	450	102.0	100.6	-1.4
1366	EX 100Y	647	104.7	101.9	-2.8
1366	ULT 10Y	360	101.0	99.9	-1.1
1366	ULT 25Y	460	102.1	100.6	-1.5
1366	ULT 100Y	650	104.7	101.9	-2.8
2077	EX 10Y	356	101.1	100.0	-1.1
2077	EX 25Y	450	102.1	100.7	-1.4
2077	EX 100Y	647	104.7	102.1	-2.6
2077	ULT 10Y	360	101.1	100.1	-1
2077	ULT 25Y	460	102.2	100.8	-1.4
2077	ULT 100Y	650	104.8	102.1	-2.7
2898	EX 10Y	356	101.1	100.2	-0.9
2898	EX 25Y	450	102.2	100.9	-1.3
2898	EX 100Y	647	104.8	102.2	-2.6
2898	ULT 10Y	360	101.2	100.2	-1
2898	ULT 25Y	460	102.3	100.9	-1.4
2898	ULT 100Y	650	104.8	102.2	-2.6
3132	RAILROAD			Culvert	
3315	EX 10Y	356	101.6	100.8	-0.8
3315	EX 25Y	450	102.8	101.7	-1.1
3315	EX 100Y	647	105.9	103.5	-2.4
3315	ULT 10Y	360	101.7	100.9	-0.8
3315	ULT 25Y	460	102.9	101.8	-1.1
3315	ULT 100Y	650	106.0	103.5	-2.5
3656	EX 10Y	356	101.7	101.0	-0.7
3656	EX 25Y	450	102.9	101.8	-1.1
3656	EX 100Y	647	105.9	103.6	-2.3
3656	ULT 10Y	360	101.8	101.0	-0.8
3656	ULT 25Y	460	103.0	101.9	-1.1
3656	ULT 100Y	650	106.0	103.6	-2.4
3839	TRENTON			Culvert	
4037	EX 10Y	280	102.1	101.5	-0.6
4037	EX 25Y	355	103.3	102.4	-0.9
4037	EX 100Y	509	106.6	104.3	-2.3
4037	ULT 10Y	290	102.2	101.5	-0.7
4037	ULT 25Y	360	103.4	102.5	-0.9
4037	ULT 100Y	510	106.7	104.3	-2.4
4521	EX 10Y	280	102.1	101.5	-0.6
4521	EX 25Y	355	103.3	102.5	-0.8
4521	EX 100Y	509	106.6	104.4	-2.2
4521	ULT 10Y	290	102.2	101.6	-0.6

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NM-115 RIVER STATION	PROFILE FREQUENCY	Q TOTAL (CFS)	EXISTING W.S. ELEV (FT)	PROPOSED W.S. ELEV (FT)	WS DIFF (PR-Ex) (FT)
4521	ULT 25Y	360	103.4	102.5	-0.9
4521	ULT 100Y	510	106.7	104.4	-2.3
5052	EX 10Y	280	102.2	101.6	-0.6
5052	EX 25Y	355	103.3	102.5	-0.8
5052	EX 100Y	509	106.6	104.4	-2.2
5052	ULT 10Y	290	102.2	101.6	-0.6
5052	ULT 25Y	360	103.5	102.6	-0.9
5052	ULT 100Y	510	106.7	104.4	-2.3
5188	DIRT ROAD			Culvert	
5322	EX 10Y	280	102.5	101.9	-0.6
5322	EX 25Y	355	103.8	103.0	-0.8
5322	EX 100Y	509	107.6	105.4	-2.2
5322	ULT 10Y	290	102.6	102.0	-0.6
5322	ULT 25Y	360	103.9	103.1	-0.8
5322	ULT 100Y	510	107.7	105.4	-2.3
5795	EX 10Y	280	102.5	102.0	-0.5
5795	EX 25Y	355	103.8	103.0	-0.8
5795	EX 100Y	509	107.6	105.4	-2.2
5795	ULT 10Y	290	102.6	102.1	-0.5
5795	ULT 25Y	360	104.0	103.1	-0.9
5795	ULT 100Y	510	107.7	105.4	-2.3
6348	EX 10Y	280	102.6	102.1	-0.5
6348	EX 25Y	355	103.9	103.1	-0.8
6348	EX 100Y	509	107.6	105.4	-2.2
6348	ULT 10Y	290	102.7	102.2	-0.5
6348	ULT 25Y	360	104.0	103.2	-0.8
6348	ULT 100Y	510	107.7	105.4	-2.3
6509	ALBERTA			Culvert	
6641	EX 10Y	280	103.1	102.2	-0.9
6641	EX 25Y	355	104.5	103.3	-1.2
6641	EX 100Y	509	108.2	105.7	-2.5
6641	ULT 10Y	290	103.3	102.3	-1
6641	ULT 25Y	360	104.7	103.4	-1.3
6641	ULT 100Y	510	108.2	105.8	-2.4
7179	EX 10Y	280	103.2	102.3	-0.9
7179	EX 25Y	355	104.6	103.3	-1.3
7179	EX 100Y	509	108.2	105.8	-2.4
7179	ULT 10Y	290	103.3	102.4	-0.9
7179	ULT 25Y	360	104.7	103.4	-1.3
7179	ULT 100Y	510	108.2	105.8	-2.4
7728	EX 10Y	280	103.3	102.4	-0.9
7728	EX 25Y	355	104.6	103.4	-1.2
7728	EX 100Y	509	108.2	105.8	-2.4
7728	ULT 10Y	290	103.4	102.5	-0.9
7728	ULT 25Y	360	104.7	103.5	-1.2
7728	ULT 100Y	510	108.2	105.9	-2.3
7827	UTILITY			Culvert	
7926	EX 10Y	280	103.9	102.6	-1.3
7926	EX 25Y	355	105.6	103.7	-1.9
7926	EX 100Y	509	109.4	106.3	-3.1
7926	ULT 10Y	290	104.0	102.7	-1.3
7926	ULT 25Y	360	105.7	103.7	-2
7926	ULT 100Y	510	109.5	106.4	-3.1
8418	EX 10Y	280	103.9	102.7	-1.2
8418	EX 25Y	355	105.6	103.8	-1.8
8418	EX 100Y	509	109.4	106.4	-3

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NM-115 RIVER STATION	PROFILE FREQUENCY	Q TOTAL (CFS)	EXISTING W.S. ELEV (FT)	PROPOSED W.S. ELEV (FT)	WS DIFF (PR-EX) (FT)
8418	ULT 10Y	290	104.1	102.8	-1.3
8418	ULT 25Y	360	105.8	103.8	-2
8418	ULT 100Y	510	109.5	106.4	-3.1
8949	EX 10Y	280	104.0	102.8	-1.2
8949	EX 25Y	355	105.7	103.8	-1.9
8949	EX 100Y	509	109.5	106.4	-3.1
8949	ULT 10Y	290	104.1	102.9	-1.2
8949	ULT 25Y	360	105.8	103.9	-1.9
8949	ULT 100Y	510	109.5	106.4	-3.1
9146	DOVE			Culvert	
9251	EX 10Y	280	105.2	103.1	-2.1
9251	EX 25Y	355	107.7	104.3	-3.4
9251	EX 100Y	509	109.7	107.4	-2.3
9251	ULT 10Y	290	105.5	103.2	-2.3
9251	ULT 25Y	360	107.9	104.4	-3.5
9251	ULT 100Y	510	109.7	107.5	-2.2
9746	EX 10Y	149	105.2	103.1	-2.1
9746	EX 25Y	189	107.7	104.4	-3.3
9746	EX 100Y	268	109.7	107.5	-2.2
9746	ULT 10Y	150	105.5	103.3	-2.2
9746	ULT 25Y	190	107.9	104.4	-3.5
9746	ULT 100Y	270	109.7	107.5	-2.2
10378	EX 10Y	149	105.2	103.2	-2
10378	EX 25Y	189	107.7	104.4	-3.3
10378	EX 100Y	268	109.7	107.5	-2.2
10378	ULT 10Y	150	105.5	103.3	-2.2
10378	ULT 25Y	190	107.9	104.5	-3.4
10378	ULT 100Y	270	109.7	107.5	-2.2
11070	EX 10Y	149	105.3	103.3	-2
11070	EX 25Y	189	107.7	104.4	-3.3
11070	EX 100Y	268	109.7	107.5	-2.2
11070	ULT 10Y	150	105.5	103.4	-2.1
11070	ULT 25Y	190	107.9	104.5	-3.4
11070	ULT 100Y	270	109.7	107.5	-2.2
11608	EX 10Y	149	105.3	103.4	-1.9
11608	EX 25Y	189	107.7	104.5	-3.2
11608	EX 100Y	268	109.7	107.5	-2.2
11608	ULT 10Y	150	105.5	103.5	-2
11608	ULT 25Y	190	107.9	104.6	-3.3
11608	ULT 100Y	270	109.7	107.5	-2.2
11793	VIOLET			Culvert	
11908	EX 10Y	149	106.0	103.6	-2.4
11908	EX 25Y	189	108.9	104.7	-4.2
11908	EX 100Y	268	112.0	107.8	-4.2
11908	ULT 10Y	150	106.3	103.7	-2.6
11908	ULT 25Y	190	109.1	104.8	-4.3
11908	ULT 100Y	270	112.0	107.8	-4.2
12224	EX 10Y	149	106.0	103.6	-2.4
12224	EX 25Y	189	108.9	104.7	-4.2
12224	EX 100Y	268	112.0	107.8	-4.2
12224	ULT 10Y	150	106.3	103.7	-2.6
12224	ULT 25Y	190	109.1	104.8	-4.3
12224	ULT 100Y	270	112.0	107.8	-4.2
12605	EX 10Y	149	106.0	103.6	-2.4
12605	EX 25Y	189	108.9	104.7	-4.2
12605	EX 100Y	268	112.0	107.8	-4.2
12605	ULT 10Y	150	106.3	103.7	-2.6
12605	ULT 25Y	190	109.1	104.8	-4.3
12605	ULT 100Y	270	112.0	107.8	-4.2

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NM-115 RIVER STATION	PROFILE FREQUENCY	Q TOTAL (CFS)	EXISTING W.S. ELEV (FT)	PROPOSED W.S. ELEV (FT)	WS DIFF (PR-Ex) (FT)
12718	UTILITY			Culvert	
12775	EX 10Y	149	107.0	103.9	-3.1
12775	EX 25Y	189	109.7	105.1	-4.6
12775	EX 100Y	268	112.0	108.6	-3.4
12775	ULT 10Y	150	107.2	104.0	-3.2
12775	ULT 25Y	190	109.8	105.2	-4.6
12775	ULT 100Y	270	112.0	108.6	-3.4
13028	EX 10Y	149	107.0	104.0	-3
13028	EX 25Y	189	109.7	105.2	-4.5
13028	EX 100Y	268	112.0	108.6	-3.4
13028	ULT 10Y	150	107.3	104.1	-3.2
13028	ULT 25Y	190	109.8	105.3	-4.5
13028	ULT 100Y	270	112.0	108.6	-3.4
13110	UTILITY			Culvert	
13177	EX 10Y	149	108.0	104.2	-3.8
13177	EX 25Y	189	111.2	105.6	-5.6
13177	EX 100Y	268	112.9	109.4	-3.5
13177	ULT 10Y	150	108.2	104.3	-3.9
13177	ULT 25Y	190	111.4	105.6	-5.8
13177	ULT 100Y	270	112.9	109.4	-3.5
13531	EX 10Y	149	108.0	104.3	-3.7
13531	EX 25Y	189	111.2	105.6	-5.6
13531	EX 100Y	268	112.9	109.4	-3.5
13531	ULT 10Y	150	108.2	104.4	-3.8
13531	ULT 25Y	190	111.4	105.7	-5.7
13531	ULT 100Y	270	112.9	109.5	-3.4
13853	EX 10Y	149	108.0	104.3	-3.7
13853	EX 25Y	189	111.2	105.6	-5.6
13853	EX 100Y	268	112.9	109.4	-3.5
13853	ULT 10Y	150	108.3	104.4	-3.9
13853	ULT 25Y	190	111.4	105.7	-5.7
13853	ULT 100Y	270	112.9	109.5	-3.4
14243	EX 10Y	149	108.0	104.4	-3.6
14243	EX 25Y	189	111.2	105.6	-5.6
14243	EX 100Y	268	112.9	109.4	-3.5
14243	ULT 10Y	150	108.3	104.5	-3.8
14243	ULT 25Y	190	111.4	105.7	-5.7
14243	ULT 100Y	270	112.9	109.5	-3.4
14441	NOLANA			Culvert	
14595	EX 10Y	149	109.2	105.6	-3.6
14595	EX 25Y	189	112.0	107.6	-4.4
14595	EX 100Y	268	113.0	111.9	-1.1
14595	ULT 10Y	150	109.5	105.7	-3.8
14595	ULT 25Y	190	112.0	107.7	-4.3
14595	ULT 100Y	270	113.0	111.9	-1.1
15088	EX 10Y	149	109.2	105.6	-3.6
15088	EX 25Y	189	112.0	107.6	-4.4
15088	EX 100Y	268	113.0	111.9	-1.1
15088	ULT 10Y	150	109.5	105.7	-3.8
15088	ULT 25Y	190	112.0	107.7	-4.3
15088	ULT 100Y	270	113.0	112.0	-1
15505	EX 10Y	149	109.2	105.7	-3.5
15505	EX 25Y	189	112.0	107.6	-4.4
15505	EX 100Y	268	113.0	111.9	-1.1
15505	ULT 10Y	150	109.5	105.8	-3.7
15505	ULT 25Y	190	112.0	107.7	-4.3
15505	ULT 100Y	270	113.0	112.0	-1

TABLE 6-20. NM-116 EXISTING & PROPOSED WATER SURFACE ELEVATION COMPARISON

NM-116 RIVER STATION	PROFILE FREQUENCY	Q TOTAL (CFS)	EXISTING W.S. ELEV (FT)	PROPOSED W.S. ELEV (FT)	WS DIFF (PR-EX) (FT)
217	EX 10Y	71	96.2	96.2	0
217	EX 25Y	93	96.5	96.5	0
217	EX 100Y	137	97.1	97.1	0
217	ULT 10Y	80	96.4	96.4	0
217	ULT 25Y	104	96.7	96.7	0
217	ULT 100Y	150	97.2	97.2	0
472	EX 10Y	71	96.4	96.4	0
472	EX 25Y	93	96.6	96.6	0
472	EX 100Y	137	97.2	97.2	0
472	ULT 10Y	80	96.5	96.5	0
472	ULT 25Y	104	96.8	96.8	0
472	ULT 100Y	150	97.3	97.3	0
655	WISCONSIN			Culvert	
923	EX 10Y	71	98.2	97.8	-0.4
923	EX 25Y	93	99.3	98.4	-0.9
923	EX 100Y	137	102.3	99.4	-2.9
923	ULT 10Y	80	98.6	98.0	-0.6
923	ULT 25Y	104	100.0	98.6	-1.4
923	ULT 100Y	150	103.4	99.6	-3.8
1622	EX 10Y	59	98.3	97.9	-0.4
1622	EX 25Y	76	99.3	98.4	-0.9
1622	EX 100Y	109	102.3	99.4	-2.9
1622	ULT 10Y	59	98.6	98.1	-0.5
1622	ULT 25Y	76	100.0	98.7	-1.3
1622	ULT 100Y	109	103.4	99.7	-3.7
2388	EX 10Y	59	98.3	97.9	-0.4
2388	EX 25Y	76	99.3	98.5	-0.8
2388	EX 100Y	109	102.3	99.4	-2.9
2388	ULT 10Y	59	98.7	98.2	-0.5
2388	ULT 25Y	76	100.0	98.7	-1.3
2388	ULT 100Y	109	103.4	99.7	-3.7
2942	EX 10Y	13	98.3	98.0	-0.3
2942	EX 25Y	17	99.3	98.5	-0.8
2942	EX 100Y	24	102.3	99.5	-2.8
2942	ULT 10Y	13	98.7	98.2	-0.5
2942	ULT 25Y	17	100.0	98.7	-1.3
2942	ULT 100Y	24	103.4	99.7	-3.7
3353	TRENTON			Culvert	
3758	EX 10Y	13	98.6	98.5	-0.1
3758	EX 25Y	17	99.6	98.9	-0.7
3758	EX 100Y	24	102.8	99.9	-2.9
3758	ULT 10Y	13	98.9	98.6	-0.3
3758	ULT 25Y	17	100.2	99.0	-1.2
3758	ULT 100Y	24	103.9	100.2	-3.7
4375	EX 10Y	13	98.7	98.5	-0.2
4375	EX 25Y	17	99.6	98.9	-0.7
4375	EX 100Y	24	102.8	99.9	-2.9
4375	ULT 10Y	13	98.9	98.6	-0.3
4375	ULT 25Y	17	100.2	99.0	-1.2
4375	ULT 100Y	24	103.9	100.2	-3.7

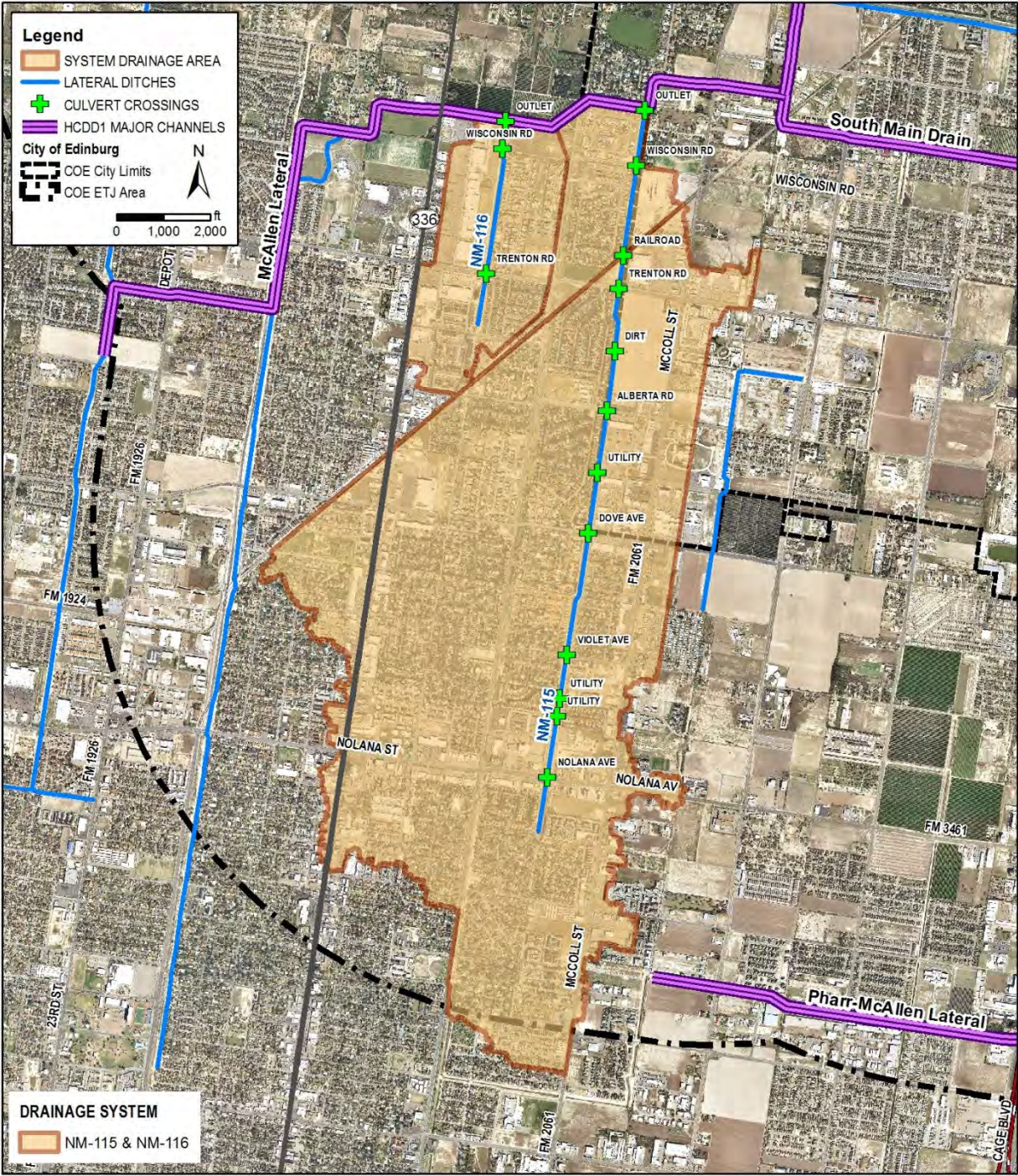


Figure 6-14. NM-115 & NM-116 Drainage Systems

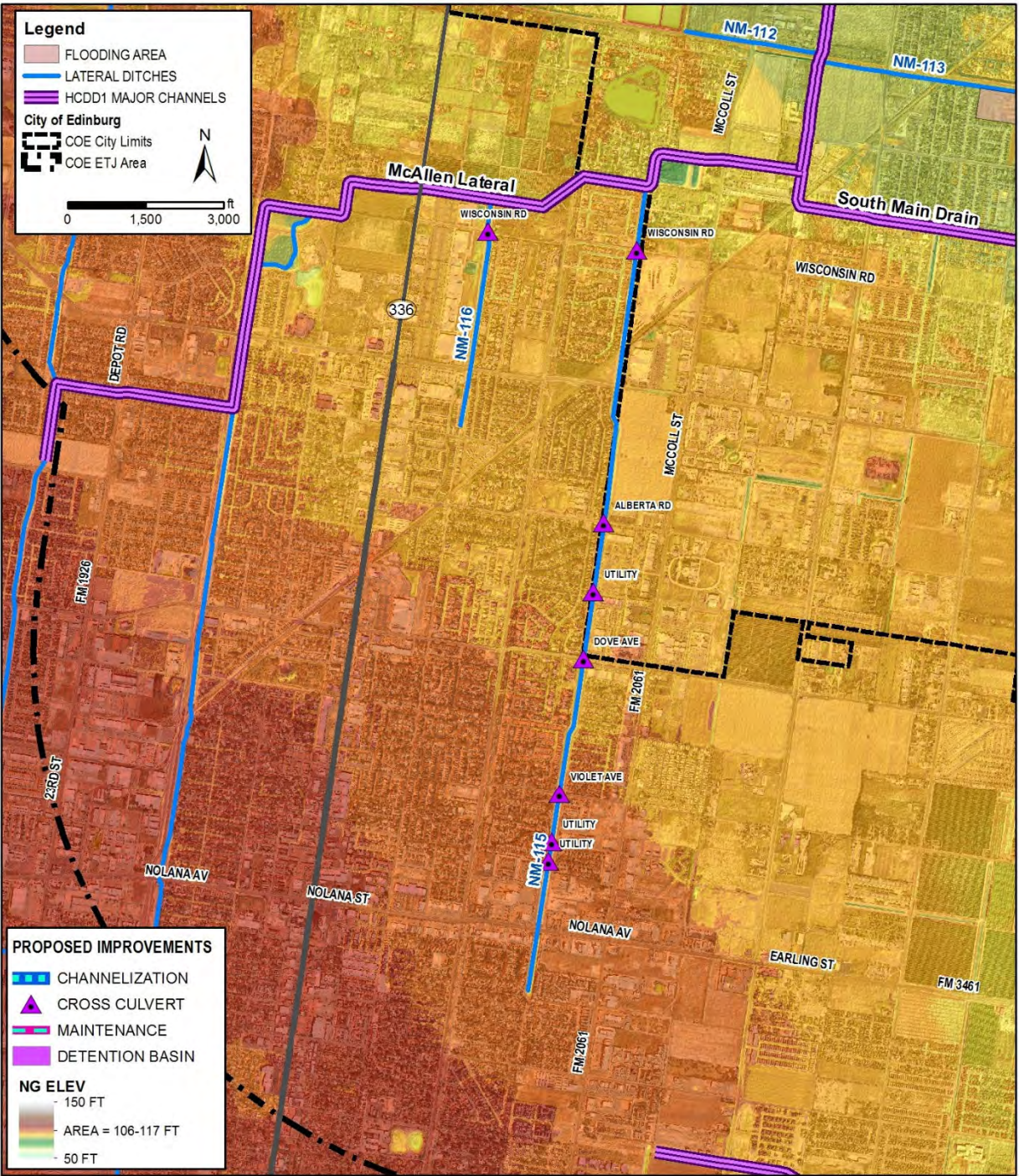


Figure 6-15. NM-115 & NM-116 Systems Topography

SYSTEMS ES-101 & ES-102

Systems ES-101 & ES-102 represents the contributing drainage areas of the lateral ditch to Edinburg Stub within the southeast portions of the City of Edinburg. The area is generally located west of BS 281 (Closner Blvd), south of Richardson Road, north of South Main Drain, and west of Raul Longoria Rd. The drainage systems receive runoff from the storm sewer systems that serve the east and southeast portions of the City central area. Based on the aerial, the system drainage area is considered to be fully developed, consisting of residential and commercial properties. The ES-101 & ES-102 system drainage areas and ditch alignments area shown in **Figure 6-16**.

The receiving ditches outfall into the Edinburg Stub, which is a tributary of the South Main Drain. Based on the topography of the Edinburg Stub shows that this ditch is extremely flat and is significantly impacted by the South Main Drain tailwater conditions.

The hydraulic analysis shows that the ES-100 system is dependent on the tailwater conditions of the receiving systems: Edinburg Stub for the COE ditches and South Main Drain for Edinburg Stub. Additionally, the low overbank areas adjacent to the ditches, especially Edinburg Stub, are susceptible to flooding and ponding even though the water surface elevations within the ditches are contained below the elevated channel banks.

The Edinburg Stub (ES-100) is a part of the HCDD1 MDP System; however, it serves as receiving drain for a large portion of the City of Edinburg eastside and downtown areas. Therefore, the ditch was considered within the hydraulic analysis of the ES-101 and ES-102 ditch systems and proposed drainage planning. Based on the hydraulic analysis, the Edinburg Stub has a 10 to 25-year capacity along its reach. However, the reach does experience out-of-bank ponding and flooding due to the low overbank areas and high channel banks. The hydraulic analysis shows that the culverts at Doolittle and Raul Longoria provide conveyance restrictions during larger storm events. In order to reduce the impacts of the Edinburg Stub tailwaters onto the upstream laterals, these two crossings are proposed for culvert replacement.

ES-101 ditch and the culvert structures are shown to have a greater than 25-year capacity without backwater effects from Edinburg Stub. With consideration of the backwater from Edinburg Stub, the ES-101 ditch system capacity is slightly reduced to a 25-year capacity.

ES-102 ditch and the culvert at Sprague Road shows to have sufficient capacity, without backwater effects from Edinburg Stub, for 25-year and greater storm events. Its lateral ES-102-01 has limited capacity, approximately 10-year, as a result of the existing culvert structures. With consideration of backwater effects from Edinburg Stub, the ES-102 ditch system capacity is reduced to a 25-year event with the ES-102-01 system capacity being reduced to less than a 10-

year event. The existing and proposed structures for the ES-100 system including the ES-101, ES-102, and ES-102-01 ditches are listed in **Table 6-21**.

TABLE 6-21. ES-100 SYSTEM CROSS-DRAINAGE STRUCTURE INVENTORY

DITCH STATION	CROSSING NAME	EXISTING STRUCTURE	CULVERT LENGTH	PROPOSED STRUCTURE
ES-100				
50	OUTLET GATE TO SMD	2- 10' X 10' RCB	60	--
1309	CESAR CHAVEZ	10' X 10' RCB	80	--
4086	DIRT RD	10' X 10' RCB	80	--
8153	DOOLITTLE	10' X 6' RCB	84	10' X 10' RCB
11181	RAUL LONGORIA	8' X 4' & 4' X 4' RCB	147	10' X 10' RCB
ES-101				
675	FREDDY GONZALEZ	84" RCP	116	--
1520	28TH ST	60" RCP	80	--
2308	US 281	60" RCP	400	--
ES-102				
2027	SPRAGUE	10' X 6' RCB	106	INVERT ADJUSTMENT
ES-102-01				
1035	ACCESS RD	UNK- 24" RCP	94	8' X 5' RCB
1701	RAUL LONGORIA	UNK- 36" RCP	157	8' X 5' RCB
4635	DOOLITTLE	UNK- 36" RCP	420	8' X 5' RCB

Based on information provided by the City and residents within the ES-101 & ES-102 drainage system, this area has experienced frequent flooding. Locations of documented flooding are shown in **Figure 6-17**. The documented flooding is mostly within areas served by storm sewer systems, which outfall into the ES-101 and ES-102 ditches. Based on the overland topography, a significant portion of the drainage system area is located within the Edinburg Low.

The drainage system has several major constraints that limit the effectiveness of any single flood relief measure. These constraints include the flat topography, receiving HCDD1 tailwater conditions, US 281 Freeway Corridor, and limited available open land within the drainage area. The flat topography, in combination with the receiving ditches' tailwater conditions, reduce the available hydraulic head needed to convey the runoff within the drainage area. The US 281 Corridor restricts drainage improvement options from west to east due to construction cost. The

limited open land within the drainage area restricts locations for proposed detention and channel ROW within the flooding areas.

In order to provide an effective and efficient system within the drainage area, a combination of detention, channel improvements, and storm sewer trunkline is proposed. For the ES-102 system, which provides outfall for the east portions of the City central area, a detention basin is proposed to provide the existing storm sewer systems an efficient outfall and storm water runoff storage. The basin will lower the tailwater condition for the existing storm sewer systems serving the City central area. Additionally, the flow diversion to the basin and storage volume will reduce the burden on the receiving ditches, which in turn will lower the tailwater conditions for other storm sewer systems within the drainage system. In order to direct runoff from the City central area to the proposed detention basin, the outfall channels ES-102 and ES-102-01 will be improved and a collection storm sewer trunkline will need to be constructed to increase the conveyance from west of US 281 to the ES-102 ditch. A potential trunkline alignment could be along University Dr. or Spague St. across the US 281 corridor. The basin outlet is proposed along Doolittle Rd. south to the Edinburg Stub. In order to provide sufficient volume within the proposed basin, either the basin will require a pump outlet structure or channel improvements to Edinburg Stub and South Main Drain (to downstream of Alamo Dr.). The channel improvements would be required to lower the ditches inverts and increase their conveyance capacity as well as provide for culvert replacements along ES-102-01 to handle the proposed flow diversion to the detention basin. The proposed improvements along ES-102 and ES-102-01 include an earthen channel with 30-foot bottom width, 3:1 side slopes, and a depth of approximately 10 feet. These improvements would also decrease the upstream tailwater conditions within the ES-101 & ES-102 drainage system. The proposed improvement reaches for ES-102 system are shown in **Figure 6-17**.

Field observations of the ES-101 ditch show that the ditch is overgrown and has standing water. It is recommended that this ditch be regularly maintained by desilting and clearing of vegetation overgrowth. Due to restricted ROW and the US 281 crossing, channel improvements to the ES-101 ditch are not recommended. In order to provide drainage relief for this drainage system, storm water detention basins are proposed. The basins will reduce the runoff into the receiving ditch and provide for a lower tailwater condition for the storm sewer systems. The basin outfall system is proposed to be connected to the ES-101 ditch as well as south into the South Main Drain upstream of US 281, providing additional relief within the ES-101 system. The proposed improvements for ES-101 system are shown in **Figure 6-17**.

Comparisons of the existing and proposed condition water surface elevations for the ES-100 system including ES-100, ES-101, and ES-102 and ES-102-01 ditches are provided in **Tables 6-22, 6-23 and 6-24**, respectively.

TABLE 6-22. ES-100 EXISTING & PROPOSED WATER SURFACE ELEVATION

ES-100 RIVER STATION	PROFILE FREQUENCY	Q TOTAL (CFS)	EXISTING W.S. ELEV (FT)	PROPOSED W.S. ELEV (FT)	WS DIFF (PR-EX) (FT)
308	EX 10Y	214	87.3	87.3	0
308	EX 25Y	279	88.1	88.1	0
308	EX 100Y	431	89.9	89.9	0
308	ULT 10Y	220	87.4	87.4	0
308	ULT 25Y	280	88.1	88.1	0
308	ULT 100Y	440	90.0	90.0	0
787	EX 10Y	214	87.5	87.5	0
787	EX 25Y	279	88.3	88.3	0
787	EX 100Y	431	90.1	90.1	0
787	ULT 10Y	220	87.6	87.6	0
787	ULT 25Y	280	88.3	88.3	0
787	ULT 100Y	440	90.2	90.2	0
1236	EX 10Y	214	87.6	87.6	0
1236	EX 25Y	279	88.4	88.4	0
1236	EX 100Y	431	90.2	90.2	0
1236	ULT 10Y	220	87.7	87.7	0
1236	ULT 25Y	280	88.5	88.5	0
1236	ULT 100Y	440	90.3	90.3	0
1309	CESAR CHAVEZ			Culvert	
1384	EX 10Y	214	87.9	87.9	0
1384	EX 25Y	279	88.8	88.8	0
1384	EX 100Y	431	90.7	90.7	0
1384	ULT 10Y	220	88.0	88.0	0
1384	ULT 25Y	280	88.8	88.8	0
1384	ULT 100Y	440	90.9	90.9	0
1936	EX 10Y	214	88.0	88.0	0
1936	EX 25Y	279	88.9	88.9	0
1936	EX 100Y	431	90.8	90.8	0
1936	ULT 10Y	220	88.1	88.1	0
1936	ULT 25Y	280	88.9	88.9	0
1936	ULT 100Y	440	91.0	91.0	0
2515	EX 10Y	214	88.1	88.1	0
2515	EX 25Y	279	89.0	89.0	0
2515	EX 100Y	431	90.9	90.9	0
2515	ULT 10Y	220	88.2	88.2	0
2515	ULT 25Y	280	89.0	89.0	0
2515	ULT 100Y	440	91.1	91.1	0
3244	EX 10Y	214	88.3	88.3	0
3244	EX 25Y	279	89.2	89.2	0
3244	EX 100Y	431	91.1	91.1	0
3244	ULT 10Y	220	88.4	88.4	0
3244	ULT 25Y	280	89.3	89.3	0
3244	ULT 100Y	440	91.2	91.2	0
3683	EX 10Y	214	88.5	88.5	0
3683	EX 25Y	279	89.4	89.4	0
3683	EX 100Y	431	91.3	91.3	0
3683	ULT 10Y	220	88.6	88.6	0
3683	ULT 25Y	280	89.4	89.4	0
3683	ULT 100Y	440	91.4	91.4	0
3991	EX 10Y	214	88.6	88.6	0
3991	EX 25Y	279	89.5	89.5	0
3991	EX 100Y	431	91.4	91.4	0
3991	ULT 10Y	220	88.7	88.7	0
3991	ULT 25Y	280	89.5	89.5	0
3991	ULT 100Y	440	91.5	91.5	0
4086	DIRT RD			Culvert	

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ES-100 RIVER STATION	PROFILE FREQUENCY	Q TOTAL (CFS)	EXISTING W.S. ELEV (FT)	PROPOSED W.S. ELEV (FT)	WS DIFF (PR-EX) (FT)
4186	EX 10Y	214	88.8	88.8	0
4186	EX 25Y	279	89.8	89.8	0
4186	EX 100Y	431	91.8	91.8	0
4186	ULT 10Y	220	88.9	88.9	0
4186	ULT 25Y	280	89.8	89.8	0
4186	ULT 100Y	440	91.9	91.9	0
4608	EX 10Y	214	88.9	88.9	0
4608	EX 25Y	279	89.9	89.9	0
4608	EX 100Y	431	91.9	91.9	0
4608	ULT 10Y	220	89.0	89.0	0
4608	ULT 25Y	280	89.9	89.9	0
4608	ULT 100Y	440	92.0	92.0	0
5158	EX 10Y	214	89.0	89.0	0
5158	EX 25Y	279	89.9	89.9	0
5158	EX 100Y	431	91.9	91.9	0
5158	ULT 10Y	220	89.1	89.1	0
5158	ULT 25Y	280	89.9	89.9	0
5158	ULT 100Y	440	92.0	92.0	0
5846	EX 10Y	214	89.1	89.1	0
5846	EX 25Y	279	90.0	90.0	0
5846	EX 100Y	431	92.0	92.0	0
5846	ULT 10Y	220	89.2	89.2	0
5846	ULT 25Y	280	90.0	90.0	0
5846	ULT 100Y	440	92.1	92.1	0
6753	EX 10Y	214	89.2	89.2	0
6753	EX 25Y	279	90.1	90.1	0
6753	EX 100Y	431	92.1	92.1	0
6753	ULT 10Y	220	89.3	89.3	0
6753	ULT 25Y	280	90.2	90.2	0
6753	ULT 100Y	440	92.2	92.2	0
7508	EX 10Y	214	89.3	89.3	0
7508	EX 25Y	279	90.3	90.3	0
7508	EX 100Y	431	92.1	92.1	0
7508	ULT 10Y	220	89.4	89.4	0
7508	ULT 25Y	280	90.3	90.3	0
7508	ULT 100Y	440	92.2	92.2	0
8051	EX 10Y	214	89.4	89.4	0
8051	EX 25Y	279	90.4	90.4	0
8051	EX 100Y	431	92.2	92.2	0
8051	ULT 10Y	220	89.5	89.5	0
8051	ULT 25Y	280	90.4	90.4	0
8051	ULT 100Y	440	92.4	92.4	0
8153	DOOLITTLE			Culvert	
8275	EX 10Y	214	89.7	89.6	-0.1
8275	EX 25Y	279	90.9	90.6	-0.3
8275	EX 100Y	431	93.6	92.7	-0.9
8275	ULT 10Y	220	89.8	89.7	-0.1
8275	ULT 25Y	280	90.9	90.7	-0.3
8275	ULT 100Y	440	93.7	92.8	-0.9
8727	EX 10Y	214	89.8	89.7	-0.1
8727	EX 25Y	279	91.0	90.7	-0.3
8727	EX 100Y	431	93.6	92.7	-0.9
8727	ULT 10Y	220	89.9	89.8	-0.1
8727	ULT 25Y	280	91.0	90.7	-0.3
8727	ULT 100Y	440	93.7	92.9	-0.9
9208	EX 10Y	214	89.9	89.8	-0.1
9208	EX 25Y	279	91.0	90.8	-0.3

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ES-100 RIVER STATION	PROFILE FREQUENCY	Q TOTAL (CFS)	EXISTING W.S. ELEV (FT)	PROPOSED W.S. ELEV (FT)	WS DIFF (PR-Ex) (FT)
9208	EX 100Y	431	93.7	92.8	-0.8
9208	ULT 10Y	220	90.0	89.9	-0.1
9208	ULT 25Y	280	91.1	90.8	-0.3
9208	ULT 100Y	440	93.8	93.0	-0.8
9850	EX 10Y	187	90.0	89.9	-0.1
9850	EX 25Y	242	91.1	90.9	-0.2
9850	EX 100Y	368	93.7	92.9	-0.8
9850	ULT 10Y	190	90.1	90.0	-0.1
9850	ULT 25Y	250	91.2	90.9	-0.2
9850	ULT 100Y	370	93.9	93.1	-0.8
10472	EX 10Y	187	90.0	90.0	-0.1
10472	EX 25Y	242	91.2	91.0	-0.2
10472	EX 100Y	368	93.8	93.0	-0.8
10472	ULT 10Y	190	90.2	90.1	-0.1
10472	ULT 25Y	250	91.2	91.0	-0.2
10472	ULT 100Y	370	93.9	93.1	-0.8
11071	EX 10Y	187	90.1	90.1	-0.1
11071	EX 25Y	242	91.3	91.1	-0.2
11071	EX 100Y	368	93.8	93.1	-0.8
11071	ULT 10Y	190	90.2	90.2	-0.1
11071	ULT 25Y	250	91.3	91.1	-0.2
11071	ULT 100Y	370	94.0	93.2	-0.8
11181	RAUL LONGORIA			Culvert	
11298	EX 10Y	187	90.6	90.3	-0.3
11298	EX 25Y	242	92.1	91.4	-0.7
11298	EX 100Y	368	95.3	93.6	-1.7
11298	ULT 10Y	190	90.7	90.4	-0.3
11298	ULT 25Y	250	92.1	91.4	-0.7
11298	ULT 100Y	370	95.4	93.8	-1.6
11934	EX 10Y	187	90.7	90.4	-0.3
11934	EX 25Y	242	92.1	91.4	-0.7
11934	EX 100Y	368	95.3	93.7	-1.7
11934	ULT 10Y	190	90.8	90.5	-0.3
11934	ULT 25Y	250	92.2	91.5	-0.7
11934	ULT 100Y	370	95.4	93.8	-1.6
12315	EX 10Y	187	90.7	90.4	-0.3
12315	EX 25Y	242	92.1	91.5	-0.7
12315	EX 100Y	368	95.4	93.7	-1.6
12315	ULT 10Y	190	90.8	90.5	-0.3
12315	ULT 25Y	250	92.2	91.5	-0.7
12315	ULT 100Y	370	95.4	93.8	-1.6
12785	EX 10Y	187	90.7	90.4	-0.3
12785	EX 25Y	242	92.2	91.5	-0.7
12785	EX 100Y	368	95.4	93.7	-1.6
12785	ULT 10Y	190	90.8	90.5	-0.3
12785	ULT 25Y	250	92.2	91.5	-0.7
12785	ULT 100Y	370	95.4	93.9	-1.6

TABLE 6-23. ES-101 EXISTING & PROPOSED WATER SURFACE ELEVATION

ES-101 RIVER STATION	PROFILE FREQUENCY	Q TOTAL (CFS)	EXISTING W.S. ELEV (FT)	PROPOSED W.S. ELEV (FT)	WS DIFF (PR-EX) (FT)
298	EX 10Y	50	90.7	90.5	-0.3
298	EX 25Y	66	92.2	91.5	-0.7
298	EX 100Y	101	95.4	93.8	-1.6
298	ULT 10Y	50	90.9	90.6	-0.3
298	ULT 25Y	70	92.3	91.6	-0.7
298	ULT 100Y	110	95.5	93.9	-1.6
538	EX 10Y	50	90.8	90.5	-0.3
538	EX 25Y	66	92.2	91.5	-0.7
538	EX 100Y	101	95.4	93.8	-1.6
538	ULT 10Y	50	90.9	90.6	-0.3
538	ULT 25Y	70	92.3	91.6	-0.7
538	ULT 100Y	110	95.5	93.9	-1.6
675	FREDDY GONZALEZ			Culvert	
830	EX 10Y	50	91.0	91.0	0.0
830	EX 25Y	66	92.4	91.7	-0.7
830	EX 100Y	101	95.7	94.0	-1.8
830	ULT 10Y	50	91.0	91.0	0.0
830	ULT 25Y	70	92.5	91.7	-0.7
830	ULT 100Y	110	95.9	94.1	-1.8
1182	EX 10Y	50	92.5	92.5	0.0
1182	EX 25Y	66	92.8	92.7	-0.1
1182	EX 100Y	101	95.8	94.1	-1.7
1182	ULT 10Y	50	92.5	92.5	0.0
1182	ULT 25Y	70	92.9	92.8	-0.1
1182	ULT 100Y	110	95.9	94.3	-1.6
1450	EX 10Y	50	92.8	92.8	0.0
1450	EX 25Y	66	93.1	93.0	-0.1
1450	EX 100Y	101	95.8	94.2	-1.6
1450	ULT 10Y	50	92.8	92.8	0.0
1450	ULT 25Y	70	93.2	93.1	-0.1
1450	ULT 100Y	110	95.9	94.4	-1.6
1520	28TH ST			Culvert	
1619	EX 10Y	50	93.0	93.0	0.0
1619	EX 25Y	66	93.4	93.3	-0.1
1619	EX 100Y	101	95.8	94.8	-1.0
1619	ULT 10Y	50	93.0	93.0	0.0
1619	ULT 25Y	70	93.5	93.4	-0.1
1619	ULT 100Y	110	95.9	95.0	-1.0
2043	EX 10Y	50	93.1	93.1	0.0
2043	EX 25Y	66	93.5	93.5	0.0
2043	EX 100Y	101	95.8	94.9	-0.9
2043	ULT 10Y	50	93.1	93.1	0.0
2043	ULT 25Y	70	93.6	93.6	-0.1
2043	ULT 100Y	110	96.0	95.1	-0.9
2308	US 281			Culvert	
2603	EX 10Y	50	93.5	93.5	0.0
2603	EX 25Y	66	94.0	94.0	-0.1
2603	EX 100Y	101	97.0	96.0	-0.9
2603	ULT 10Y	50	93.5	93.5	0.0
2603	ULT 25Y	70	94.2	94.1	0.0
2603	ULT 100Y	110	97.3	96.4	-0.9
3230	EX 10Y	50	93.5	93.5	0.0
3230	EX 25Y	66	94.1	94.1	0.0
3230	EX 100Y	101	97.0	96.0	-0.9

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ES-101 RIVER STATION	PROFILE FREQUENCY	Q TOTAL (CFS)	EXISTING W.S. ELEV (FT)	PROPOSED W.S. ELEV (FT)	WS DIFF (PR-Ex) (FT)
3230	ULT 10Y	50	93.5	93.5	0.0
3230	ULT 25Y	70	94.3	94.2	-0.1
3230	ULT 100Y	110	97.3	96.4	-0.9
3652	EX 10Y	50	93.5	93.5	0.0
3652	EX 25Y	66	94.1	94.1	0.0
3652	EX 100Y	101	97.0	96.1	-0.9
3652	ULT 10Y	50	93.5	93.5	0.0
3652	ULT 25Y	70	94.3	94.2	-0.1
3652	ULT 100Y	110	97.3	96.4	-0.9
4064	EX 10Y	50	93.6	93.6	0.0
4064	EX 25Y	66	94.2	94.1	0.0
4064	EX 100Y	101	97.0	96.1	-0.9
4064	ULT 10Y	50	93.6	93.6	0.0
4064	ULT 25Y	70	94.3	94.3	0.0
4064	ULT 100Y	110	97.3	96.4	-0.9

TABLE 6-24. ES-102 EXISTING & PROPOSED WATER SURFACE ELEVATION

ES-102 RIVER STATION	PROFILE FREQUENCY	Q TOTAL (CFS)	EXISTING W.S. ELEV (FT)	PROPOSED W.S. ELEV (FT)	WS DIFF (PR-EX) (FT)
410	EX 10Y	138	90.7	90.5	-0.3
410	EX 25Y	178	92.2	91.5	-0.7
410	EX 100Y	269	95.4	93.8	-1.6
410	ULT 10Y	140	90.9	90.6	-0.3
410	ULT 25Y	180	92.3	91.6	-0.7
410	ULT 100Y	270	95.5	93.9	-1.6
956	EX 10Y	138	90.9	90.5	-0.4
956	EX 25Y	178	92.2	91.5	-0.7
956	EX 100Y	269	95.4	93.8	-1.6
956	ULT 10Y	140	91.0	90.6	-0.4
956	ULT 25Y	180	92.3	91.6	-0.8
956	ULT 100Y	270	95.5	93.9	-1.6
1522	EX 10Y	138	90.9	90.5	-0.5
1522	EX 25Y	178	92.3	91.5	-0.8
1522	EX 100Y	269	95.4	93.8	-1.7
1522	ULT 10Y	140	91.0	90.6	-0.5
1522	ULT 25Y	180	92.4	91.6	-0.8
1522	ULT 100Y	270	95.5	93.9	-1.6
1920	EX 10Y	138	91.0	90.5	-0.5
1920	EX 25Y	178	92.3	91.5	-0.8
1920	EX 100Y	269	95.4	93.8	-1.7
1920	ULT 10Y	140	91.1	90.6	-0.5
1920	ULT 25Y	180	92.4	91.6	-0.8
1920	ULT 100Y	270	95.5	93.9	-1.6
2027	SPRAGUE			Culvert	
2160	EX 10Y	138	91.2	90.8	-0.4
2160	EX 25Y	178	92.5	91.8	-0.7
2160	EX 100Y	269	95.7	94.3	-1.4
2160	ULT 10Y	140	91.3	90.9	-0.5
2160	ULT 25Y	180	92.6	91.9	-0.7
2160	ULT 100Y	270	95.8	94.4	-1.4
2666	EX 10Y	138	91.3	90.8	-0.5
2666	EX 25Y	178	92.6	91.8	-0.7
2666	EX 100Y	269	95.7	94.3	-1.4
2666	ULT 10Y	140	91.3	90.9	-0.5
2666	ULT 25Y	180	92.6	91.9	-0.7
2666	ULT 100Y	270	95.8	94.4	-1.4
3110	EX 10Y	138	91.3	90.8	-0.5
3110	EX 25Y	178	92.6	91.9	-0.7
3110	EX 100Y	269	95.7	94.3	-1.4
3110	ULT 10Y	140	91.4	90.9	-0.5
3110	ULT 25Y	180	92.7	91.9	-0.8
3110	ULT 100Y	270	95.8	94.4	-1.4
3552	EX 10Y	85	91.3	90.8	-0.5
3552	EX 25Y	109	92.6	91.9	-0.7
3552	EX 100Y	165	95.8	94.3	-1.4
3552	ULT 10Y	90	91.4	90.9	-0.5
3552	ULT 25Y	110	92.7	91.9	-0.8
3552	ULT 100Y	170	95.8	94.4	-1.4
3926	EX 10Y	85	91.3	90.8	-0.5
3926	EX 25Y	109	92.6	91.9	-0.8
3926	EX 100Y	165	95.8	94.3	-1.4
3926	ULT 10Y	90	91.4	90.9	-0.5
3926	ULT 25Y	110	92.7	91.9	-0.8
3926	ULT 100Y	170	95.8	94.5	-1.4

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ES-102 RIVER STATION	PROFILE FREQUENCY	Q TOTAL (CFS)	EXISTING W.S. ELEV (FT)	PROPOSED W.S. ELEV (FT)	WS DIFF (PR-Ex) (FT)
4248	EX 10Y	85	91.4	90.8	-0.5
4248	EX 25Y	109	92.6	91.9	-0.8
4248	EX 100Y	165	95.8	94.3	-1.4
4248	ULT 10Y	90	91.5	90.9	-0.6
4248	ULT 25Y	110	92.7	91.9	-0.8
4248	ULT 100Y	170	95.8	94.5	-1.4
ES-102-01 TRIBUTARY					
470	EX 10Y	20	91.3	90.8	-0.5
470	EX 25Y	26	92.6	91.9	-0.8
470	EX 100Y	41	95.8	94.3	-1.4
470	ULT 10Y	20	91.4	90.9	-0.5
470	ULT 25Y	30	92.7	91.9	-0.8
470	ULT 100Y	50	95.8	94.4	-1.4
899	EX 10Y	20	91.3	90.8	-0.5
899	EX 25Y	26	92.6	91.9	-0.8
899	EX 100Y	41	95.8	94.3	-1.4
899	ULT 10Y	20	91.4	90.9	-0.6
899	ULT 25Y	30	92.7	91.9	-0.8
899	ULT 100Y	50	95.8	94.4	-1.4
1035	ACCESS RD			Culvert	
1152	EX 10Y	20	92.9	90.8	-2.1
1152	EX 25Y	26	95.0	91.9	-3.1
1152	EX 100Y	41	95.8	94.4	-1.4
1152	ULT 10Y	20	93.0	90.9	-2.1
1152	ULT 25Y	30	95.1	91.9	-3.2
1152	ULT 100Y	50	95.8	94.5	-1.3
1581	EX 10Y	20	92.9	90.8	-2.1
1581	EX 25Y	26	95.0	91.9	-3.1
1581	EX 100Y	41	95.8	94.4	-1.4
1581	ULT 10Y	20	93.0	90.9	-2.1
1581	ULT 25Y	30	95.1	91.9	-3.2
1581	ULT 100Y	50	95.8	94.5	-1.3
1701	RAUL GONZALEZ			Culvert	
1904	EX 10Y	20	93.2	90.8	-2.4
1904	EX 25Y	26	95.0	91.9	-3.1
1904	EX 100Y	41	95.8	94.4	-1.4
1904	ULT 10Y	20	93.3	90.9	-2.4
1904	ULT 25Y	30	95.1	91.9	-3.2
1904	ULT 100Y	50	95.8	94.5	-1.3
2464	EX 10Y	20	93.2	90.8	-2.4
2464	EX 25Y	26	95.0	91.9	-3.1
2464	EX 100Y	41	95.8	94.4	-1.4
2464	ULT 10Y	20	93.3	90.9	-2.4
2464	ULT 25Y	30	95.1	91.9	-3.2
2464	ULT 100Y	50	95.8	94.5	-1.3
3180	EX 10Y	20	93.2	90.8	-2.4
3180	EX 25Y	26	95.0	91.9	-3.1
3180	EX 100Y	41	95.8	94.4	-1.4
3180	ULT 10Y	20	93.3	90.9	-2.4
3180	ULT 25Y	30	95.1	91.9	-3.2
3180	ULT 100Y	50	95.8	94.5	-1.3
3865	EX 10Y	20	93.2	90.8	-2.4
3865	EX 25Y	26	95.0	91.9	-3.1
3865	EX 100Y	41	95.8	94.4	-1.4
3865	ULT 10Y	20	93.3	90.9	-2.4
3865	ULT 25Y	30	95.1	91.9	-3.2
3865	ULT 100Y	50	95.8	94.5	-1.4

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ES-102 RIVER STATION	PROFILE FREQUENCY	Q TOTAL (CFS)	EXISTING W.S. ELEV (FT)	PROPOSED W.S. ELEV (FT)	WS DIFF (PR-Ex) (FT)
4243	EX 10Y	20	93.2	90.8	-2.4
4243	EX 25Y	26	95.0	91.9	-3.1
4243	EX 100Y	41	95.8	94.4	-1.4
4243	ULT 10Y	20	93.3	90.9	-2.4
4243	ULT 25Y	30	95.1	91.9	-3.2
4243	ULT 100Y	50	95.8	94.5	-1.4
4635	DOOLITTE			Culvert	
4848	EX 10Y	20	93.5	90.8	-2.6
4848	EX 25Y	26	95.0	91.9	-3.1
4848	EX 100Y	41	95.8	94.4	-1.4
4848	ULT 10Y	20	93.5	90.9	-2.6
4848	ULT 25Y	30	95.1	92.0	-3.2
4848	ULT 100Y	50	95.8	94.5	-1.4
5391	EX 10Y	20	93.5	90.8	-2.6
5391	EX 25Y	26	95.0	91.9	-3.1
5391	EX 100Y	41	95.8	94.4	-1.4
5391	ULT 10Y	20	93.5	90.9	-2.6
5391	ULT 25Y	30	95.1	92.0	-3.2
5391	ULT 100Y	50	95.8	94.5	-1.4

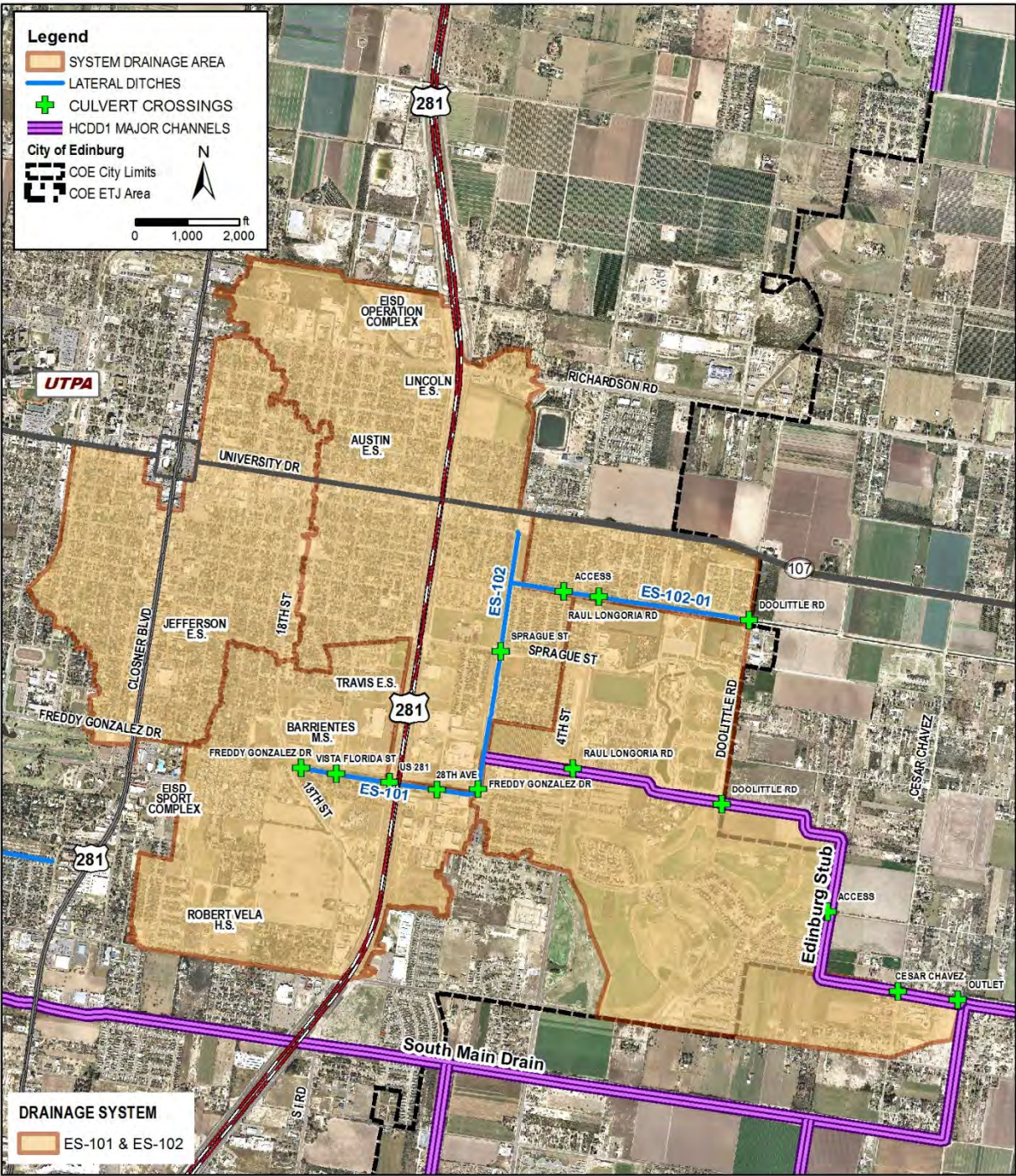


Figure 6-16. ES-101 & ES-102 Drainage Systems

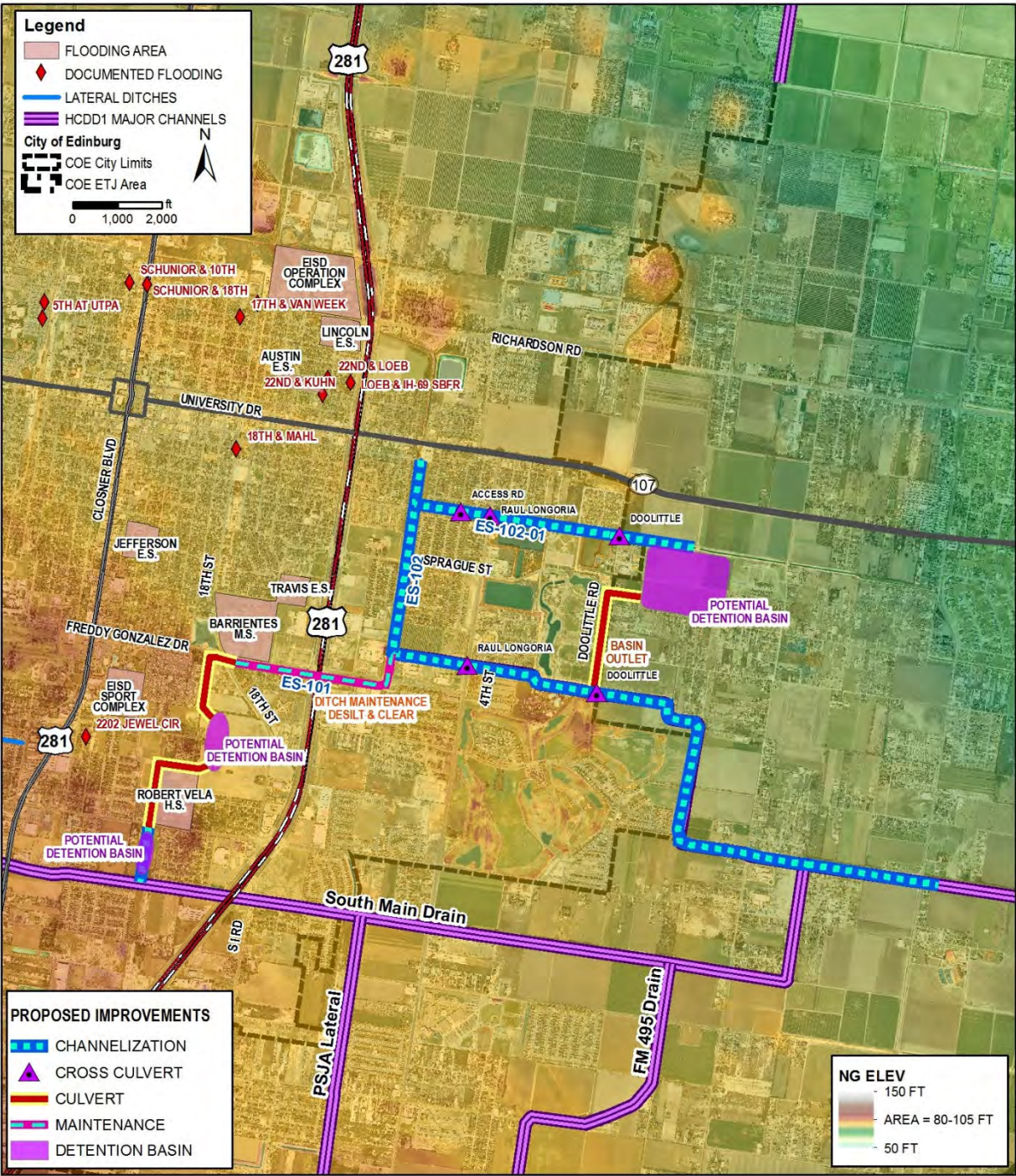


Figure 6-17. ES-101 & ES-102 Proposed System Improvements

SYSTEMS SM-101, SM-102, & SM-103

Systems SM-101, SM-102, and SM-103 represent the contributing drainage areas of a lateral ditch and storm sewer systems that outfall into South Main Drain within the southern portions of the City of Edinburg. The area is generally located east of the railroad and west of US 281 within the BS 281 (Closner Blvd.) reach of South Main Drain. See **Figure 6-18** for the drainage system areas.

The drainage system SM-101 includes storm sewer system collection areas that outfall directly into South Main Drain. The area is located south of South Main Drain, between Jackson Road and Sugar Road. The drainage system SM-102 includes the systems that are received a lateral ditch to South Main Drain. This area is located south of South Main Drain, mostly west of BS 281. The drainage system SM-103 includes the collection areas for storm sewer systems north of South Main Drain, upstream of US 281 (IH-69), specifically for the system along Closner Blvd. The area north of South Main Drain is considered to be mostly developed, consisting of commercial along Closner Blvd and dense residential areas. The area south of South Main Drain consist partially of residential areas.

The drainage system areas adjacent the South Main Drain are subjected to high water surface elevations within the channel, which influence the conveyance capability of the internal storm systems during 10-year and greater storm events. These systems included the SM-101 and SM-103 storm sewer systems and the SM-102 drainage ditch.

The hydraulic analysis of the SM-102, shows the ditch and cross-culverts have sufficient capacity for 25-year storm events. However as previously mentioned, the ditch is affected by the tailwater from South Main Drain, which results in flooding along the channel during 10-year and greater events. The existing and proposed structures for the SM-102 system are listed in **Table 6-25**. The existing water surface elevations for the SM-102 ditch are provided in **Table 6-26**.

TABLE 6-25. SM-102 SYSTEM CROSS-DRAINAGE STRUCTURE INVENTORY

DITCH STATION	CROSSING NAME	EXISTING STRUCTURE	CULVERT LENGTH	PROPOSED STRUCTURE
SM-102				
1319	WISCONSIN	48" RCP	220	--
3316	ACCESS	60" RCP	86	--

In order to provide drainage infrastructure for future development within the drainage system area, the SM-102 system is proposed to be extended south, as shown in **Figure 6-19**. The proposed ditch configuration should consist of a 10-foot bottom trapezoidal, earthen section with 3:1 (H:V) side slopes and an approximate deep of 8 feet.

The Edinburg ISD has identified a potential flooding concern for the sport complex and stadium located along Closner Blvd., south of Freddy Gonzalez Dr. Additionally, the City has provided a documented flooding location east of Closner Blvd., just south of the Edinburg ISD sport complex. Based on the topography, these areas are within a localized low-lying area. These identified locations are within the SM-103 area and are shown in **Figure 6-19**.

In order to provide protection and relief for these low-lying areas east of Closner Blvd, either a localized detention basin would be required or connection be provided to the proposed ES-101 detention basin as described in the previous section and shown in **Figure 6-19**.

TABLE 6-26. SM-102 EXISTING WATER SURFACE ELEVATION

SM-102 RIVER STATION	PROFILE FREQUENCY	Q TOTAL (CFS)	EXISTING W.S. ELEV (FT)	PROPOSED W.S. ELEV (FT)	WS DIFF (PR-EX) (FT)
348	EX 10Y	37	91.7	91.7	0
348	EX 25Y	53	92.1	92.1	0
348	EX 100Y	85	92.7	92.7	0
348	ULT 10Y	55	92.1	92.1	0
348	ULT 25Y	73	92.5	92.5	0
348	ULT 100Y	110	93.1	93.1	0
821	EX 10Y	37	91.9	91.9	0
821	EX 25Y	53	92.3	92.3	0
821	EX 100Y	85	92.9	92.9	0
821	ULT 10Y	55	92.3	92.3	0
821	ULT 25Y	73	92.7	92.7	0
821	ULT 100Y	110	93.3	93.3	0
1152	EX 10Y	37	92.1	92.1	0
1152	EX 25Y	53	92.4	92.4	0
1152	EX 100Y	85	93.0	93.0	0
1152	ULT 10Y	55	92.5	92.5	0
1152	ULT 25Y	73	92.8	92.8	0
1152	ULT 100Y	110	93.4	93.4	0
1319	WISCONSIN			Culvert	
1440	EX 10Y	18	92.4	92.4	0
1440	EX 25Y	25	92.8	92.8	0
1440	EX 100Y	41	93.6	93.6	0
1440	ULT 10Y	27	92.9	92.9	0
1440	ULT 25Y	35	93.3	93.3	0
1440	ULT 100Y	53	94.2	94.2	0
1882	EX 10Y	18	92.5	92.5	0
1882	EX 25Y	25	92.9	92.9	0
1882	EX 100Y	41	93.7	93.7	0
1882	ULT 10Y	27	93.0	93.0	0
1882	ULT 25Y	35	93.4	93.4	0
1882	ULT 100Y	53	94.2	94.2	0

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SM-102 RIVER STATION	PROFILE FREQUENCY	Q TOTAL (CFS)	EXISTING W.S. ELEV (FT)	PROPOSED W.S. ELEV (FT)	WS DIFF (PR-Ex) (FT)
2399	EX 10Y	18	92.5	92.5	0
2399	EX 25Y	25	92.9	92.9	0
2399	EX 100Y	41	93.7	93.7	0
2399	ULT 10Y	27	93.0	93.0	0
2399	ULT 25Y	35	93.4	93.4	0
2399	ULT 100Y	53	94.3	94.3	0
2776	EX 10Y	18	92.5	92.5	0
2776	EX 25Y	25	92.9	92.9	0
2776	EX 100Y	41	93.7	93.7	0
2776	ULT 10Y	27	93.0	93.0	0
2776	ULT 25Y	35	93.4	93.4	0
2776	ULT 100Y	53	94.3	94.3	0
3208	EX 10Y	18	92.6	92.6	0
3208	EX 25Y	25	93.0	93.0	0
3208	EX 100Y	41	93.8	93.8	0
3208	ULT 10Y	27	93.1	93.1	0
3208	ULT 25Y	35	93.5	93.5	0
3208	ULT 100Y	53	94.3	94.3	0
3316	ACCESS RD			Culvert	
3416	EX 10Y	18	92.8	92.8	0
3416	EX 25Y	25	93.2	93.2	0
3416	EX 100Y	41	94.1	94.1	0
3416	ULT 10Y	27	93.3	93.3	0
3416	ULT 25Y	35	93.7	93.7	0
3416	ULT 100Y	53	94.6	94.6	0
3753	EX 10Y	18	92.8	92.8	0
3753	EX 25Y	25	93.3	93.3	0
3753	EX 100Y	41	94.1	94.1	0
3753	ULT 10Y	27	93.4	93.4	0
3753	ULT 25Y	35	93.8	93.8	0
3753	ULT 100Y	53	94.7	94.7	0

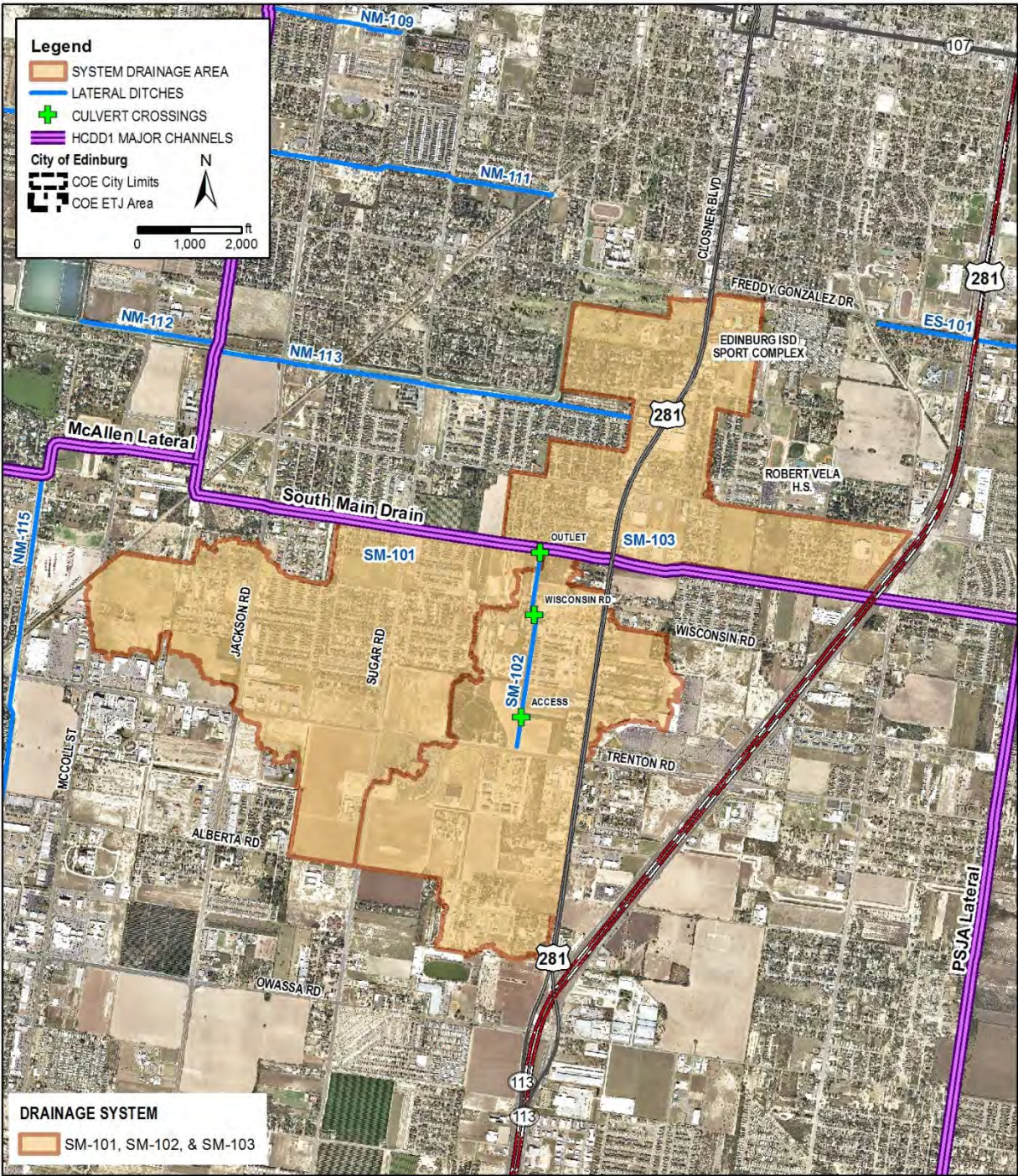


Figure 6-18. SM-101, SM-102, & SM-103 Drainage Systems

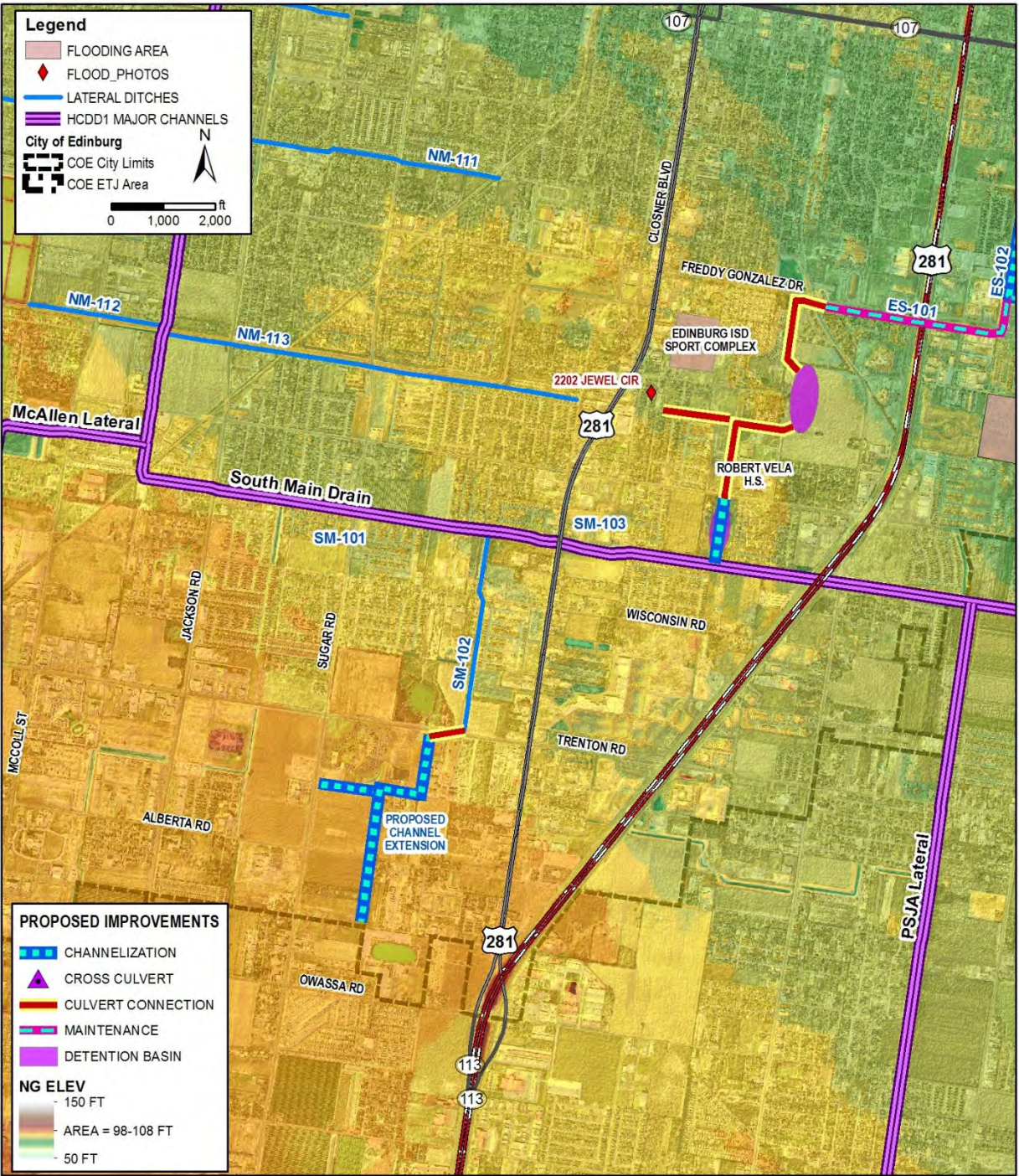


Figure 6-19. SM-101, SM-102, & SM-103 Proposed System Improvements

SYSTEM SM-104

System SM-104 represents a drainage area within the south-eastern portions of the City that drains via overland sheetflow and storm sewer to the South Main Drain. The area is generally located east of US 281 (IH-69), west of S. Raul Longoria Road, south of Los Lagos Drive, and north of South Main Drain. This area has been identified by the City through public meeting comments with having flooding issues. Based on the overland topography, the area is a natural depressed area located between US 281 and S. Raul Longoria Road. The identified location of flooding is within two subdivisions located within this depressed area. There is no outfall channel within this area or overland flow paths to provide an effective drainage outlet.

Based on the hydraulic analysis for South Main Drain, the computed 10-year water surface elevation at S. Raul Longoria Road is approximately 97.7 feet. This represents approximately 3 feet in ponding depth at the identified flooding subdivision. The South Main Drain high water surface elevation limits the conveyance of any drainage system outfalling into at this location.

The high water surface elevation within South Main Drain complicates a proposed solution to the drainage problems within the area. However, to provide positive relief to this area during frequent storm events, a drainage ditch system is recommended to convey the runoff for the existing development and adjacent future developable areas to South Main Drain. Based on the aerial photo, topography, and undeveloped areas, a proposed ditch system alignment is presented in **Figure 6-20**. This alignment is preliminary and will require land acquisition investigation prior to finalization of design alignment. The ditch configuration is based on a typical minimum ditch size of 10-foot bottom, 3:1 (H:V) side slopes, and an approximate depth of 8 feet.

An alternative proposed improvement is a detention basin that will provide outfall and runoff storage volume for the problematic areas until peak water surface elevations along the South Main Drain have receded.

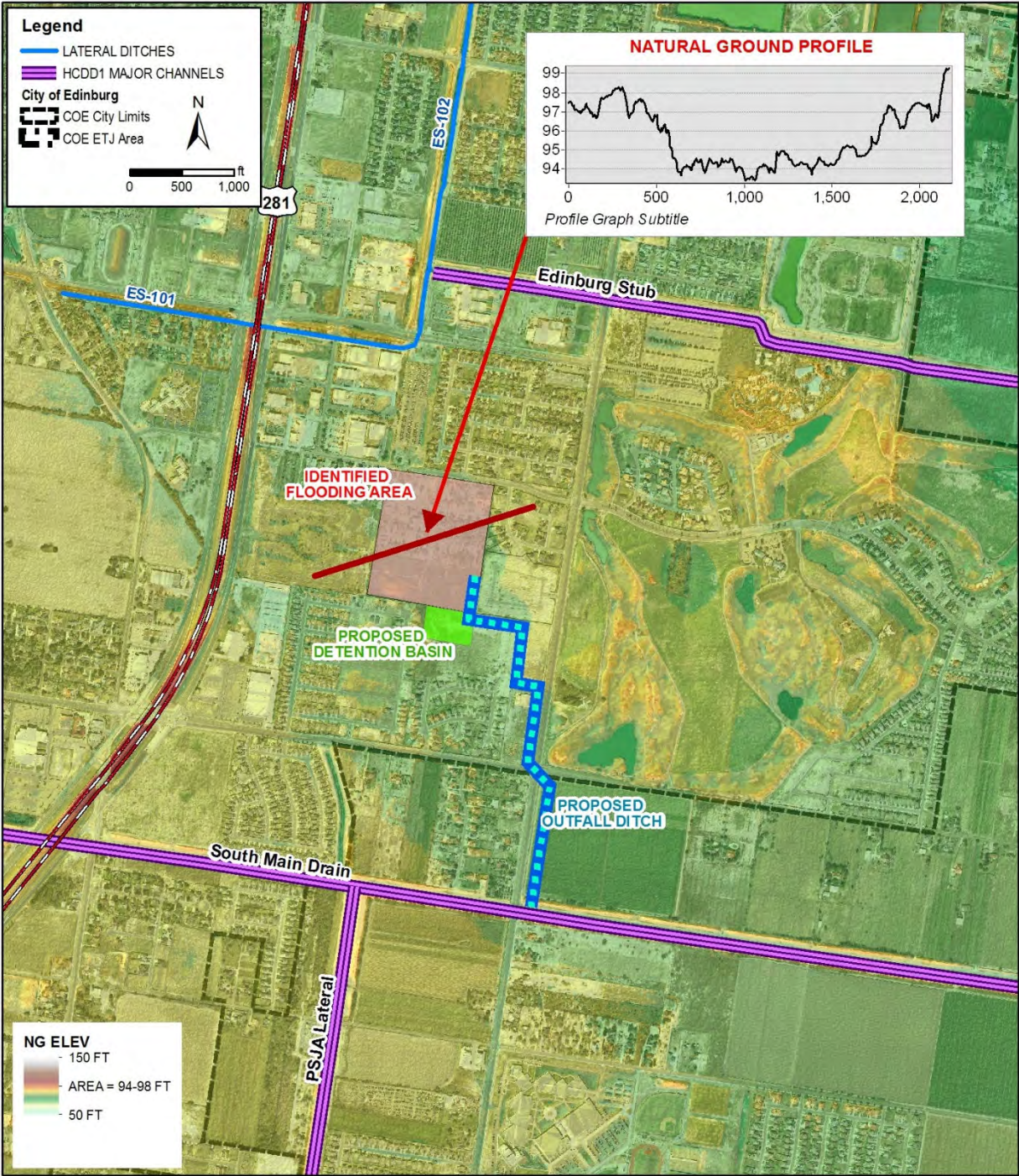


Figure 6-20. SM-104 Drainage System

SYSTEMS MC-100 & MC-101

Systems MC-100 & MC-101 represent the contributing drainage areas of a lateral ditch of Monte Cristo Drain and the contributing drainage area to the upstream end of Monte Cristo Drain within the north-east portions of the City of Edinburg. The area is generally located east of the railroad and west of US 281 within the BS 281 (Closner Blvd.) reach of South Main Drain. See **Figure 6-21** for the drainage system areas.

The lateral has been recently constructed from east of US 281 (IH-69) to its confluence into Monte Cristo Drain at Monte Cristo Road by the City of Edinburg in partnership with the U.S. Department of Housing and Urban Development as part of a Community Development Block Grant. The improvements included a new channel alignment to collect the system area runoff and convey it to the Monte Cristo Drain. The channel configuration consists of an earthen trapezoidal section, and the road cross-culverts were sized based on the channel reconstruction project. The upstream ditches to the MC-101 lateral ditch have been developed as part of a recent development located at the northeast corner of the US 281 and Monte Cristo Road intersection. The hydraulic analysis of the MC-101 system shows the ditch and cross-culverts have a greater than 25-year capacity. The existing and proposed structures for the MC-101 system are listed in **Table 6-27**.

TABLE 6-27. MC-101 SYSTEM CROSS-DRAINAGE STRUCTURE INVENTORY

DITCH STATION	CROSSING NAME	EXISTING STRUCTURE	CULVERT LENGTH	PROPOSED STRUCTURE
MC-101				
	MONTE CRISTO ST	2- 60" RCP	320	--
	DOOLITTLE RD	2- 72" RCP	2120	--
	GWIN RD	2- 60" RCP	360	--
MC-101-01				
3316	ACCESS RD	36" RCP	86	--

HCDD1 currently has proposed improvements planned for the Monte Cristo Drain (HCDD1 #J-09) main ditch system. The proposed improvements are designed for a 25-year storm event capacity. These improvements will provide increase conveyance capacity for the Monte Cristo Drain Watershed drainage systems.

The City has identified flooding concerns for the existing residential area along Doolittle Road, north of Monte Cristo Road. However the new drainage ditch along the MC-101 alignment

constructed by the City, intersects this area. This new drainage ditch should provide drainage relief to this flooding concern area.

The City has also identified flooding concerns south of Monte Cristo Road within subdivisions between Doolittle Road and M Road. Also included within this area are two Edinburg ISD campuses. In order to provide storm water relief for the existing and future development within this area, it is recommended that a drainage system be extended upstream from Monte Cristo Drain to serve this area. The system should include a combination of drainage ditch and storm trunkline to convey the runoff to Monte Cristo Drain. The proposed components are shown in **Figure 6-22**. The drainage ditch is proposed to run from Russell Road to north of Rogers Road, consisting of an earthen, trapezoidal section with 10-foot bottom width, 3:1 (H:V) side slopes, and an approximate depth of 8 feet.

The Edinburg ISD has identified flooding concerns for several campuses within the Monte Cristo Drain Watershed. The previously discussed MC-101 system construction and the proposed Monte Cristo Drain improvements will provide a higher level of flood protection for these locations. These areas are shown in **Figure 6-22**.

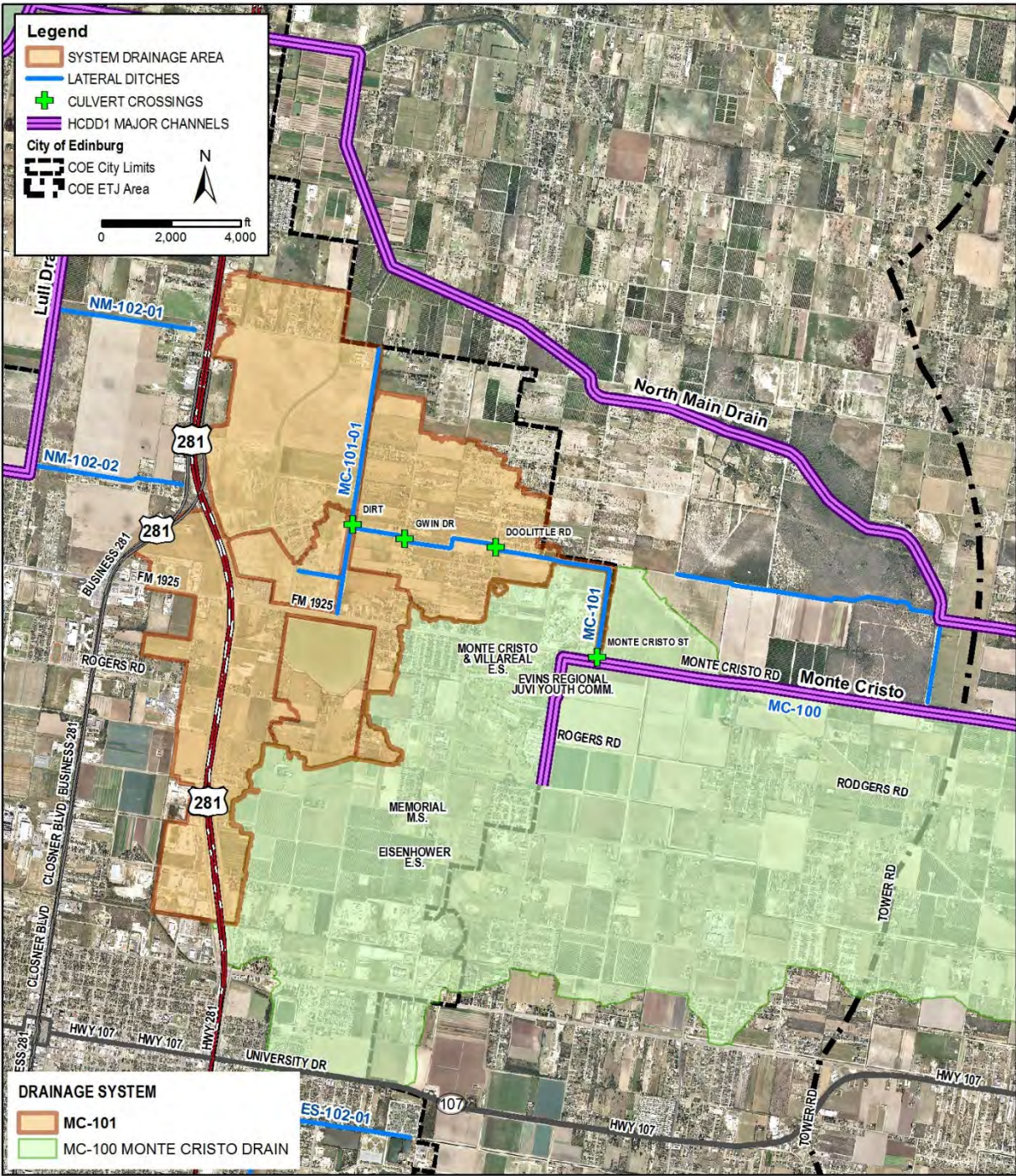


Figure 6-21. MC-100 & MC-101 Drainage Systems

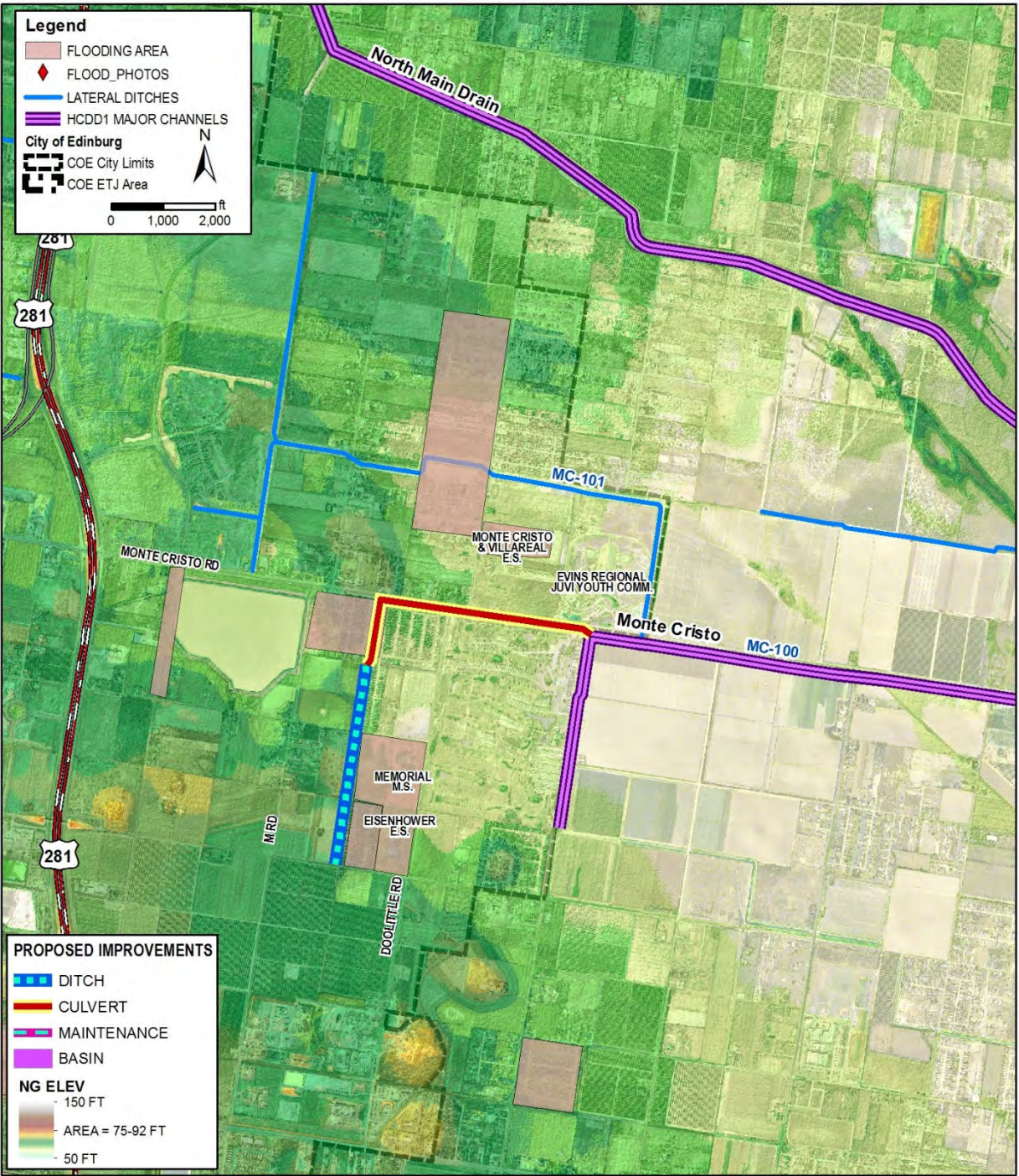


Figure 6-22. MC-100 & MC-101 Proposed System Improvements

7.0 PRIORITIZATION & COST SUMMARY

A master drainage plan presents potential projects for future implementation to reduce existing flooding and provide for future development drainage needs. To prioritize future projects and provide a plan for funding of those projects, a prioritization criteria should be adopted by the City. A set of prioritization criteria should be developed to select future drainage projects that provide a regional flood control benefit, contribute to the improvement of the community’s well-being, support the development of the community, maintain the benefits of existing drainage systems, help protect natural habitat and landscapes, and provide multiple-use opportunities for flood control facilities. The prioritization criteria should generally consider basic criteria such as: historical flooding, public concerns & support, system inadequacy, downstream improvements independency, regional benefits, cost, and funding sources.

7.1 Prioritization

The master drainage plan presents a prioritization criteria for the proposed projects and provides potential plans for funding of those projects. However, a project's relative prioritization ranking can change based on a number of factors, such as lack of funding and other resources, reduction in priority, construction of adjacent projects, and lack of public support. The City should attempt to support and recommend flood control projects that, whenever possible, will provide a regional flood control benefit. In addition, the proposed projects should contribute to the improvement of the community’s well-being, support the development of the community, maintain the benefits of existing drainage systems, help protect natural habitat and landscapes, and provide multiple-use opportunities for flood control facilities.

To assist in prioritizing of the potential projects, a ranking matrix was developed based on three criteria. Relative weight values are assigned for each criterion. The proposed projects were prioritized according to the recommended prioritization criteria ranking values. **Table 7-1** presents the prioritization criteria and respective relative weight values. Based on prioritization criteria, each proposed lateral system project priority weighted value was computed; these relative values are presented in **Table 7-2**.

TABLE 7-1. PROJECT PRIORITIZATION CRITERIA

CRITERION	CRITERION DESCRIPTIONS	RELATIVE WEIGHT VALUE
1	Is the system hydraulically inadequate?	2
2	Have there been any flooding complaints?	3
3	Are project benefits independent of downstream improvements?	1

TABLE 7-2. PROJECT PRIORITY WEIGHTED VALUE

LATERAL SYSTEM	PRIORITIZATION CRITERIA			PRIORITY WEIGHTED VALUE
	1	2	3	
NM-102	Y	Y	Y	6
NM-103	Y	Y	N	5
NM-104	Y	Y	Y	6
NM-105	Y	N	N	2
NM-106	N	N	N	0
NM-108	Y	Y	Y	6
NM-109	Y	Y	Y	6
NM-110	Y	N	Y	3
NM-111	N	Y	Y	4
NM-112	N	N	N	0
NM-113	Y	Y	N	5
NM-115	Y	N	N	2
NM-116	Y	N	N	2
ES-102	Y	Y	Y	6
ES-101	Y	Y	Y	6
SM-102	N	N	Y	1
SM-103	Y	Y	N	5
SM-104	Y	Y	Y	6
MC-100	Y	Y	N	5
MC-101	N	N	N	0

7.2 Proposed Project Cost Estimates

The cost for the proposed improvements for the lateral drainage systems were estimated based on unit cost rates and quantity estimations of proposed improvement elements. Probable construction costs associated with the proposed improvements were estimated based on project bid unit cost information obtained from Texas Department of Transportation Department (TxDOT). The unit costs obtained include such items as: channel and detention excavation, culvert pipes and boxes, culvert end treatments, concrete paving, and etc. The itemized unit cost is provided within **Appendix E**.

The proposed improvement elements, as presented within Section 6, were detailed and quantified to estimate proposed project cost. A summary of cost for the lateral system proposed recommended plans are presented in **Table 7-3**. The detailed estimated cost for lateral systems

proposed improvements, recommended and any optional alternative, are presented within **Appendix E.**

TABLE 7-3. LATERAL SYSTEMS COST ESTIMATE SUMMARY

LATERAL SYSTEM	RECOMMENDED ALT. COST
NM-102	\$2,252,940
NM-103	\$714,690
NM-104	\$192,800
NM-105	\$316,053
NM-106	\$252,623
NM-108	\$631,950
NM-109	\$883,893
NM-110	\$452,263
NM-111	\$258,228
NM-112	\$0
NM-113	\$143,313
NM-115	\$596,720
NM-116	\$134,467
ES-102	\$8,820,196
ES-101	\$3,324,410
SM-102	\$880,927
SM-103	\$440,020
SM-104	\$913,504
MC-100	\$1,742,893
MC-101	\$0

The unit costs do not include any cost allowance for utility relocations, additional pavement replacement beyond the alignment of the proposed system, miscellaneous cost associated with construction, seeding/sod establishment, or acquisition of additional rights-of-way; therefore a 25-percent contingency of the proposed project subtotal cost should be considered to account for the aforementioned expenditures. The master drainage plan total cost and contingency is provided in **Table 7-4.**

TABLE 7-4. LATERAL SYSTEMS COST ESTIMATE SUMMARY

SUBTOTAL	\$22,951,890
25% CONTINGENCY	\$5,737,972
COE MDP TOTAL	\$28,689,862

7.3 Benefit-Cost Analysis

A benefit-cost analysis was performed for each individual drainage system and the entire project using FEMA Benefit-Cost Analysis (BCA) Tool (v5.0). The BCR values for the project systems ranged from 0.58 to 8.10 with a resulting overall Benefit-Cost Ratio (BCR) for the entire Master Drainage Plan project computed as 2.99. The economic benefits are defined as the expected flood loss reduction due to the flood water surface elevation reduction from the proposed drainage improvements based on 10-, 50-, 100-, and 500-year storm events. The U.S. Army Corps of Engineers' generic depth-damage curves were utilized for this analysis. Since this project is in the planning stage, representative structures were used in the model with the cost per square foot applied to the total number of structures multiplied by the average structure square footage. The BCA results for each drainage system are summarized in **Table 7-5**. A detailed BCA model report is provided in **Appendix F**.

TABLE 7-5. BENEFIT COST ANALYSIS SUMMARY

LATERAL SYSTEM	PROJECT BENEFITS	PROJECT COSTS	BCR
ES-100	\$ 37,235,543	\$ 12,144,606	3.07
NM-102	\$ 2,587,637	\$ 2,252,940	1.15
NM-103	\$ 1,888,765	\$ 714,690	2.64
NM-105	\$ 372,305	\$ 316,053	1.18
NM-106	\$ 1,069,435	\$ 252,623	4.23
NM-108	\$ 5,103,509	\$ 631,950	8.08
NM-109	\$ 787,070	\$ 883,893	0.89
NM-110	\$ 2,962,055	\$ 452,263	6.55
NM-111	\$ 387,074	\$ 258,228	1.50
NM-113	\$ 1,160,902	\$ 143,313	8.10
NM-115	\$ 2,033,922	\$ 596,720	3.41
NM-116	\$ 538,217	\$ 134,467	4.00

8.0 CONCLUSION & SUMMARY

A Master Drainage Plan (MDP) was prepared to provide the City of Edinburg a planning tool to guide and prioritize future capital expenditures for the City's drainage systems within its boundaries and ETJ. Many of the City's drainage outfall systems are in need of improvements to alleviate flooding that have historically occurred throughout the City and to meet drainage needs of future development.

The Master Drainage Plan was developed to define various projects consisting of channel improvements, hydraulic structure improvements, and detention. The master drainage plan was developed to establish conceptual designs only, and does not include sufficient details for final design or construction. A total of twenty-one (21) City drainage systems were studied with detailed modeling analyses. Detailed hydrologic and hydraulic analyses were performed to identify drainage system inadequacies and develop drainage improvement opportunities required to alleviate existing flooding problems and upgrade the existing systems to provide drainage infrastructure needs for existing and future development.

The City of Edinburg central area is located within the low-lying topographic area that is a natural flow path, identified as the "Edinburg Low", between the North Main Drain and South Main Drain Watersheds. The natural topography and limited grade relief complicates the planning and development of an effective and efficient drainage improvement plan. Additionally, the efficiency of the existing and proposed drainage systems is dependent on the HCDD1 Master Drainage System tailwater conditions. In order to maximize the benefit of potential improvements to the City's drainage system, coordination between the City and HCDD1 is recommended. Additionally, HCDD1 has current discharge requirements that should be considered within any improvement project. It is recommended for the City to adopt a "no-adverse impact" policy to prevent project induced flooding to adjacent properties.

8.1 Stormwater Management

It has been generally recognized by local communities for the need of a "no adverse impact" drainage policy. The no-adverse impact policy requires that the action of the property owner or community does not adversely affect the flood risks of other properties of communities. These impacts are measured as increased runoff volume, increased flow rates, increased flood stages, increased flood velocity, or increased erosion and sedimentation. With the no-adverse impact policy, the land owner is responsible for mitigating the impacts by either physical measures or as provided for in a community or regional watershed based plan. The no-adverse impact is currently adopted by many communities and agencies, such as the City of Houston, City of San Antonio, and Texas Department of Transportation. All developments inside or outside of the

floodplain require drainage impact analysis and mitigation of potential adverse hydrologic/hydraulic impacts. Mitigations measures include channel control structures, detention basins, oversized underground storm sewer systems, and modification of human occupancy of floodplain (a nonstructural measure). To minimize future flood damages within the city limits, it is recommended that the City adopt and enforce a “no adverse impact” policy through its permit procedures.

8.2 Financing Alternatives

Financing alternatives should be investigated by the City for the proposed drainage improvements. Below are potential alternative sources for funding of the proposed drainage projects, including grants or fees from external and local funding sources.

8.2.1 Federal or State Grants

The Flood Mitigation Assistance (FMA) Program is a federal grant program administered by the Texas Water Development Board (TWDB), under an Agreement with the Federal Emergency Management Agency (FEMA). This program provides federal funding to assist States and communities in implementing measures to reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes, and other structures insurable under the National Flood Insurance Program (NFIP). The FMA program was created as part of the National Flood Insurance Reform Act of 1994 (42 U.S.C. 4101) with the goal of reducing or eliminating claims under the NFIP. The FMA is a pre-disaster grant program. There are two types of work that can be funded: Planning Grants and Project Grants. The proposed drainage improvements would need to meet the specific grant standards to be eligible.

The Federal Emergency Management Agency (FEMA), through the Texas Division of Emergency Management, has provided substantial federal funding for the purchase of flooded homes through FEMA's Pre-Disaster Mitigation (PDM) program and Hazard Mitigation Grant Program (HMGP). Federal funding for home buyout usually requires local matching funds of at least 25%. It is important to note that, although some grant funds are made available only after a disaster declaration, these buyout grants do not provide immediate flood recovery assistance. These programs typically take eight to twelve months after the flood event to even get started, and then may take place over a period of many years following a flood event.

8.2.2 Local Funding Sources

The primary source of funds for any identified drainage projects is local. The following is a list of potential local funding sources.

GENERAL FUND

General fund is the primary source of funds for capital improvement projects within the City and is typically generated by tax revenues and other income to the City. A shortcoming for this type of funding is that all City departments are in need of these funds and drainage issues tend to be overlooked during dry periods due to the high cost and often long time frame to achieve a final resolution to the problem.

IMPACT FEES

Impact fee regulations are described in Chapter 395 of the local government code which authorizes cities and drainage districts, organized under to Article III, Section 52 or Article XVI, Section 59 of the Texas Constitution, to impose an impact fee to cover the cost of improvements that are necessitated by new development. The act requires that the entity have in place a Capital Improvement Plan and is relatively stringent in its application. Upon a completion of a City Drainage CIP, impact fees would be a viable method for the City within its city limits to provide funding support for potential projects.

UTILITY FEES

Local storm water projects can be funded by the assessment of a drainage utility fee for potential projects based upon the amount of impervious cover, living units or site area.

GENERAL OBLIGATION BONDS

This is a bond issued by a municipality or a drainage district which is repaid by Ad Valorem taxes collected by the issuing entity rather than by revenues generated by the project funded by the bonds. This is a proper mechanism to use in order to fund capital improvement projects and can be used to fund improvements on which some of the cost can be recaptured by the mechanisms noted above.

REVENUE BONDS

This is a bond which is retired through revenue derived from the income generated by a facility constructed by the bond proceeds. Typically, water and sewer improvements are often financed by revenue bonds and paid for by the water and sewer sales income. Since revenue bonds are not supported by Ad Valorem taxes, it does not count against the issuing entity's mandated bond limit. Since storm runoff is not metered or charged for, hence no revenue income, this is seldom used for drainage improvements, although it has been used in limited cases by utility districts.

SPECIAL ASSESSMENT BONDS

Special Assessment Bonds are used to fund development projects within a specified area and is paid for through property tax assessments or special assessments on properties located within the defined area. This is often used for special road assessments but can be used for drainage.

TAX INCREMENT BONDS

Tax Increment Bonds are bond which are paid by the increase in value of properties located within a defined district or area which results from the capital improvements constructed within the area paid for by the bonds.

TWDB LOAN FINANCING ASSISTANCE PROGRAM

Financial assistance, in the form of low-interest rate loans administrated by TWDB through the Texas Water Development Fund, is potentially available as a funding source to the City of Edinburg for flood control improvement projects. Potential loan repayment sources may include taxes, fees, and/or bond issuances.

OTHER LOCAL FUNDS

Local funds are not limited to the City of Edinburg funds. It can also include funding from the area Drainage Districts, County, and adjoining cities where a shared benefit can be realized. Particularly, on the open drains that lie within adjacent municipalities and/or HCDD1 as well as the City, the adjacent agency may wish to partner with the City and assist in funding and/or construction of the necessary improvements.

APPENDIX A HYDROLOGY

PARAMETERS & HEC-HMS

CITY OF EDINBURG MDP - LATERAL SUBAREAS RUNOFF COMPUTATIONS

(COE3_MDP_HMS.HMS)

(BASIN=COE_EXIST_SUBAREAS)

ELEMENT	DAREA	EXISTING CONDITION						ULTIMATE CONDITION					
		10Y PKQ	10Y VOL	25Y PKQ	25Y VOL	100Y PKQ	100Y VOL	10Y PKQ	10Y VOL	25Y PKQ	25Y VOL	100Y PKQ	100Y VOL
ES-100	7.908	41.5	391.9	63.2	597.1	113.7	1073.3	86.8	818.5	116.9	1103.8	180.9	1707.4
ES-100A	0.6505	27.3	58.2	37.8	82.9	64.6	138	40.6	86	53	116	84.1	179.4
ES-101A	1.2641	49.7	180.9	65.5	241	100.6	366.6	49.7	180.9	65.5	241	100.6	366.6
ES-102A	1.3676	85.1	227.9	109.2	298.7	164.9	443.8	85.1	227.9	109.2	298.7	164.9	443.8
ES-102B	0.9124	36.6	162.7	47.5	212.2	70.3	312.6	36.6	162.7	47.5	212.2	70.3	312.6
ES-102-01A	0.2294	19.9	30.9	25.9	41.6	41	64.2	19.9	30.9	25.9	41.6	41	64.2
JES-100A	4.424	213.8	660.4	278.9	876.4	431.2	1325.3	226.6	688.3	293.7	909.4	450.1	1366.6
JES-100B	3.7735	186.8	602.3	241.8	793.4	367.5	1187.2	186.8	602.3	241.8	793.4	367.5	1187.2
JES-100C	2.5094	138.1	421.4	177.6	552.5	269.1	820.6	138.1	421.4	177.6	552.5	269.1	820.6
JMC-100A	5.989	106.8	469.2	152.8	676.1	259.2	1143.4	174.7	775.4	233.3	1041.9	361.3	1605.5
JMC-100B	4.0158	87.6	370.8	122.5	520.8	202.3	852.7	124.8	521.4	166.6	700.7	258.2	1079.8
JMC-100C	2.448	60.9	191.2	87	275.3	149.9	465.4	104.8	318.2	138.2	427.2	215.7	657.6
JNM-102A	0.7784	13.4	43.3	20.2	66	37	119.4	31.1	100.3	41.1	134.4	63.8	206.5
JNM-102B	4.241	134.3	328.5	185.6	476.1	320.6	810	211.4	553.5	275.9	744.6	436.1	1148.8
JNM-102C	3.2018	115.4	268.5	157.5	384.3	268.1	643.5	167.5	418	218.3	562.6	346	868.4
JNM-102D	2.4441	86.8	209.6	117.3	298.3	197.3	496.1	119.5	317.8	155.7	427.4	246.6	659.3
JNM-102E	0.5795	44.9	73.8	58.9	100.2	94.5	156.2	46.9	77	61.2	103.9	97.4	160.9
JNM-102F	0.3708	26.2	46.6	34.2	62.9	54.5	97.7	27.2	48.3	35.4	65	56	100.3
JNM-103A	1.5671	107.6	127.7	149.7	184.7	260.9	312.9	172.9	205.7	225.2	277.4	356.3	429
JNM-103B	1.285	97.4	108.8	135	156.4	234.2	263	152.4	168.7	198.6	227.6	314.3	352
JNM-103C	0.812	56.3	68.9	78.5	99.5	136.6	167.9	88.7	107.4	115.7	145	183.7	224.7
JNM-103D	0.1724	11.5	14.4	16.1	20.9	28.3	35.4	18.5	22.8	24.1	30.8	38.3	47.8
JNM-104	1.2779	15.1	134.6	20.5	182.3	31.9	283.8	15.7	139.6	21.1	188.3	32.7	291.2
JNM-104A	1.2779	15.1	134.6	20.5	182.3	31.9	283.8	15.7	139.6	21.1	188.3	32.7	291.2
JNM-105A	1.4727	41.6	89.4	60.2	135.5	110.4	242.9	85.9	191.8	111.8	257.8	176.7	397.3
JNM-105C	0.9841	18.5	50.2	28.5	79	54.4	147.5	47.7	128.1	62.5	172.1	98.1	265.1
JNM-105D	0.3072	6.3	17.7	9.4	27	17.3	49	14.2	39.9	18.7	53.6	29.2	82.6
JNM-106A	0.8088	22	63.2	31.3	91.5	54.2	155.6	37.1	106	48.9	142.6	76.6	220
JNM-107A	10.3233	174.7	713.5	250.9	1052.5	433.2	1828.2	299.6	1316.2	399	1770.7	620.6	2732.3
JNM-107B	9.668	151.8	648.1	219.7	962.4	381.9	1680.8	269.7	1230.3	359.5	1655.2	558.7	2554.1
JNM-107C	8.9464	128.3	576.8	187.6	862.3	329.3	1520.5	238.8	1136.3	318.8	1528.9	495	2359.5
JNM-107D	6.6404	109.1	421.7	158.4	635.3	279.9	1129.6	203.1	856.4	269.8	1153	420.7	1780.4
JNM-10704	4.2987	40.9	240.1	63.2	372	116	681.3	93.6	549.9	125.7	740.7	194.6	1144.3
JNM-10705	1.1121	51.1	109.2	68.7	152.4	114.2	247.3	67.2	145.3	87.4	195.5	138.3	301.6
JNM-108A	0.8234	36.9	129.2	48.6	170	75.4	254.1	39.4	130.8	51.5	172	78.9	256.5
JNM-108B	0.6832	20.2	112.9	26.4	147.8	39.2	219.1	20.2	112.9	26.4	147.8	39.2	219.1
JNM-109A	0.2075	21.4	23.7	28.2	32.2	45.2	50.6	24.2	26.6	31.4	35.8	49.3	55.1
JNM-11D	0.4879	27.5	51.1	37	70.6	61.7	112.8	37.6	65.5	48.7	87.7	76.7	134.5
JNM-110A	2.1304	62.9	169.6	89.5	246.3	156	419.5	106.1	281.3	139.6	379	219.8	585.8
JNM-110B	1.386	39.2	110.5	56.4	161.3	98.9	276	67.1	184.4	88.6	248.8	139.7	385.2
JNM-110C	0.623	17.1	56.8	24	80.5	40	133	24.8	82.2	32.9	110.7	51.4	171
JNM-111A	0.8811	120.9	134.8	155.2	177.9	235.6	267	120.9	134.8	155.2	177.9	235.6	267
JNM-111B	0.7237	89.8	112.5	114.6	148.3	174.2	222.1	89.8	112.5	114.6	148.3	174.2	222.1
JNM-111C	0.2586	42.8	42.3	54.5	55.5	82	82.4	42.8	42.3	54.5	55.5	82	82.4
JNM-112A	0	0	0	0	0	0	0	0	0	0	0	0	0
JNM-113A	0.9476	86.1	107.8	116	147	182.8	231.3	106.5	127.1	139.9	170	212	260.4
JNM-113B	0.8367	69	98.8	90.6	134.1	144.5	209.8	79.4	113.1	102.7	151.2	160	231.4
JNM-113C	0.7825	58.9	90.5	77.6	123.2	125.3	193.5	69.3	104.8	89.7	140.4	140.7	215.2
JNM-113E	0.2711	14.5	20.8	20.3	30	35.6	51	24.9	35.1	32.3	47.1	50.9	72.6
JNM-115A	3.7009	387.2	182.8	491.1	240.5	707.7	359	387.2	182.8	491.1	240.5	707.7	359
JNM-115B	3.4141	355.5	143.2	450.3	187.6	646.9	278.6	355.5	143.2	450.3	187.6	646.9	278.6
JNM-115C	2.332	280.2	98.2	355.1	128.7	508.6	191	280.2	98.2	355.1	128.7	508.6	191
JNM-115D	0.9664	148.7	40.8	188.9	53.5	268	79.4	148.7	40.8	188.9	53.5	268	79.4
JNM-116A	0.4523	70.6	13.5	92.7	18.3	136.8	28.5	80.4	15.5	104	20.7	149.9	31.6
JNM-116B	0.307	59.1	10.8	76	14.4	108.9	21.8	59.1	10.8	76	14.4	108.9	21.8
JNM-116C	0.0857	13.1	3.3	16.8	4.3	23.9	6.5	13.1	3.3	16.8	4.3	23.9	6.5
JNM-117A	3.6947	99.1	149.4	128.6	195.3	186.8	288.9	99.1	149.4	128.6	195.3	186.8	288.9
JNM-117B	3.1639	68.1	128.1	86.3	167.3	130.3	247.2	68.1	128.1	86.3	167.3	130.3	247.2
JNM105B	1.1605	25.4	61.1	38.3	95.4	72.8	176.7	62.3	150.8	81.2	202.6	128	312.2
JSM-101A	1.9516	74.5	45.1	104	63.3	168.3	103.6	113.3	63.1	149	84.8	222.7	130.7
JSM-101B	0.8689	14.5	22.1	19.4	30.5	31.9	48.9	18.3	27.7	23.8	37.3	37.6	57.4
JSM-102A	0.8451	37.4	19	52.5	26.8	84.5	44.3	55.3	27.6	73.3	37.1	110.1	57.2
JSM-103A	0.4777	35.5	18	46.3	24	68.8	36.5	35.5	18	46.3	24	68.8	36.5
MC-100A	1.9732	19.5	98.4	30.7	155.3	57.6	290.7	50.3	254	67.3	341.2	104	525.7
MC-100B	3.1012	64.4	297.1	89.5	414.6	145.9	673.3	87	401.5	116.4	539.3	180	830.9
MC-101A	0.9146	23.8	73.7	33.8	106.2	57.8	179.4	38.8	120	51.4	161.4	80.3	248.9
MC-101B	1.0747	16.6	46.5	26.8	76.3	53.1	148.5	50.4	140.1	66.3	188.2	103.7	289.9
MC-101C	1.3733	44.3	144.7	60.2	199	96.9	316.9	54.6	178.2	72.4	239	112.4	367.7
MC-101-POND	0.3501	69.4	59.5	89.1	77.8	130.6	115.1	69.4	59.5	89.1	77.8	130.6	115.1
MC-102A	1.6271	49.2	204.4	70	292.9	115.4	479.9	60.2	250.4	82.3	344.5	129.6	539.3
NMD05	0.2633	14.1	23	19.3	32.6	33.1	54.1	21.2	34.3	27.6	46.1	43.6	71.2
NMD13	0.1736	6.2	15	8.6	21.3	14.6	35.2	9.4	22.5	12.3	30.2	19.3	46.6
NM-101A	2.007	12	81.6	19.7	134.1	38.4	261	36.1	246.2	48.4	330.7	74.7	509.5
NM-102A	0.7784	13.4	43.3	20.2	66	37	119.4	31.1	100.3	41.1	134.4	63.8	206.5
NM-102B	1.0392	19.9	60	30.1	91.8	55.3	166.4	45.2	135.5	59.6	182	93.2	280.4
NM-102C	0.409	10.7	25.5	15.7	38.4	28.7	68.3	22.6	53.2	29.5	71.4	46.4	110
NM-102D	0.7084	29.2	56.1	40.5	80.8	70.6	136.3	48.2	92	62.5	123.6	98.9	190.4
NM-102E	0.2087	18.7	27.2	24.8	37.2	40.1	58.6	19.8	28.6	26	38.9	41.5	60.6
NM-102F	0.3708	26.2	46.6	34.2	62.9	54.5	97.7	27.2	48.3	35.4	65	56	100.3
NM-102-01	0.3487	18.1	33.3	24.9	47.6	42.8	79.1	25.6	47.1	33.5	63.8	53.6	99.1
NM-102-02	1.1562	15.7	79.7	23	117.4	40.1	203.6	29.3	148.8	39.2	199.9	60.6	307.9
NM-103A	0.2821	10.6	18.8	15.3	28.2	28.1	49.8	21	37	27.4	49.8	43.4	77
NM-103B	0.473	41.2	39.9	56.8	57	97.7	95.2	64.1	61.4	83.5	82.5	131.1	127.3
NM-103C	0.6396	44.8	54.5	62.3	78.6	108.3	132.4	70.3	84.6	91.6	114.2	145.4	176.9
NM-103D	0.1724	11.5	14.4	16.1	20.9	28.3	35.4	18.5	22.8	24.1	30.8	38.3	47.8
NM-104A	1.2779	15.1	134.6	20.5	182.3	31.9	283.8	15.7	139.6	21.1	188.3	32.7	291.2
NM-104_POND	1.2779	15.1	134.6	20.5	182.3	31.9	283.8	15.7	139.6	21.1	188.3</		

CITY OF EDINBURG MDP - LATERAL SUBAREAS RUNOFF COMPUTATIONS

(COE3_MDP_HMS.HMS)

(BASIN=COE_EXIST_SUBAREAS)

ELEMENT	DAREA	EXISTING CONDITION					
		10Y PKQ	10Y VOL	25Y PKQ	25Y VOL	100Y PKQ	100Y VOL
NM-106A	0.8088	22	63.2	31.3	91.5	54.2	155.6
NM-107A	0.6553	23.1	65.4	31.6	91.1	52	147.4
NM-107B	0.7216	23.5	71.3	32.2	99.2	52.7	160.3
NM-107C	2.306	22	155.2	32.2	227	55.5	390.8
NM-107D	1.2296	23.7	72.4	35.8	110.9	65.8	201
NM-107E	0.5503	32.1	58.6	42.7	80.8	70.3	129.1
NM-107-04	4.2987	40.9	240.1	63.2	372	116	681.3
NM-107-05	0.5618	19.4	50.6	26.7	71.6	45.1	118.2
NM-108A	0.1402	25.3	16.3	33.9	22.3	52.5	35
NM-108B	0.6832	20.2	112.9	26.4	147.8	39.2	219.1
NM-109A	0.2075	21.4	23.7	28.2	32.2	45.2	50.6
NM-110A	0.7444	23.7	59.1	33.2	85.1	57.3	143.5
NM-110B	0.763	22.3	53.7	32.7	80.8	59.4	142.9
NM-110C	0.623	17.1	56.8	24	80.5	40	133
NM-111A	0.1574	32.8	22.2	42.9	29.6	64	44.9
NM-111B	0.4651	48.2	70.2	61.7	92.8	94.8	139.7
NM-111C	0.2586	42.8	42.3	54.5	55.5	82	82.4
NM-112A	0.0735	8.1	7.1	11.1	9.9	17.9	15.9
NM-113A	0.1109	19.3	9.1	27.4	12.9	44.9	21.5
NM-113B	0.0542	13.3	8.2	17.4	10.9	25.4	16.3
NM-113C	0.2946	32	39.4	41.3	52.7	64.8	80.7
NM-113D	0.2168	13.3	30.4	17.2	40.6	26.9	61.9
NM-113E	0.2711	14.5	20.8	20.3	30	35.6	51
NM-115A	0.2868	37.4	39.6	48.3	52.8	74.8	80.5
NM-115B	1.0821	77.7	45	100.2	58.9	145.2	87.6
NM-115C	1.3656	134.6	57.5	171.6	75.2	246.9	111.6
NM-115D	0.9664	148.7	40.8	188.9	53.5	268	79.4
NM-116A	0.1453	11.7	2.6	16.9	3.9	28.3	6.7
NM-116B	0.2213	45.9	7.6	59.2	10.1	85	15.3
NM-116C	0.0857	13.1	3.3	16.8	4.3	23.9	6.5
NM-117A	0.5308	52.4	21.3	66.6	28	96.3	41.8
NM-117B	3.1639	68.1	128.1	86.3	167.3	130.3	247.2
NM-118A	1.6544	24.1	26.9	34.7	40.1	63.3	70.8
NM-119A	5.4297	104.6	184.7	134.8	246.1	210.3	374.4
NM-121A	0.7407	19.3	15.8	27	22.5	45.4	37.6
NM-131A	0.4263	33.1	15.6	42.7	20.6	62.8	31.2
N-W700	13.106	19.4	19.1	31.2	31.9	64.7	63
N-W710	1.1785	19.9	56.2	27.6	79.6	46.4	131.7
N-W720	2.9667	5	3.2	7.5	4.9	13.4	8.6
N-W730	0.8881	15.8	37.4	21.6	52.5	36.2	86.2
N-W740	1.5788	23.1	66.3	32.5	94.8	55.4	159.1
N-W750	10.1256	13.3	32.1	21.3	52.7	42.6	102.6
N-W760	4.8465	13.4	16.8	19.7	25.7	37.2	46.6
N-W770	1.0354	19.8	47.6	24.5	60.2	35	84.5
N-W840	4.0456	53.9	378.8	75.8	533.8	118.5	833.7
N-W870	9.0712	11.8	5.7	18.9	9	35.2	16.8
N-W920	1.1895	31.1	156.9	44.6	226.1	75.7	382.1
SM-101A	1.0827	63.8	23	89.7	32.8	146	54.8
SM-101B	0.8689	14.5	22.1	19.4	30.5	31.9	48.9
SM-102A	0.8451	37.4	19	52.5	26.8	84.5	44.3
SM-103A	0.4777	35.5	18	46.3	24	68.8	36.5
S-W1000	2.896	8.9	20.3	15.5	36	32.6	74.8
S-W1100	1.413	8	11.7	13.5	20.7	29.5	43
S-W1550	1.844	8.3	14.8	14.2	26.1	30.8	54.3
S-W5200	1.491	8.1	12.3	13.6	21.8	29.8	45.2
S-W5300	0.344	5.3	2.9	9.7	5.1	20	10.5
S-W5450	1.406	8	11.6	13.4	20.6	29.4	42.8
S-W5500	2.345	8.6	17.7	14.9	31.4	31.8	65.3
S-W900	1.88	8.4	15	14.3	26.6	31	55.2

ULTIMATE CONDITION							
10Y PKQ	10Y VOL	25Y PKQ	25Y VOL	100Y PKQ	100Y VOL	100Y PKQ	100Y VOL
37.1	106	48.9	142.6	76.6	220	76.6	220
30.4	85.9	40.1	115.5	62.9	178.2	62.9	178.2
31	94	41	126.3	64	194.6	64	194.6
39.7	279.8	53.3	375.9	82.2	579.2	82.2	579.2
53.1	161.2	70.1	216.8	109.7	334.5	109.7	334.5
39.4	71.8	51.2	96.5	81.1	148.9	81.1	148.9
93.6	549.9	125.7	740.7	194.6	1144.3	194.6	1144.3
28.3	73.6	37.1	99	58.4	152.7	58.4	152.7
27.9	18	37	24.2	56.2	37.4	56.2	37.4
20.2	112.9	26.4	147.8	39.2	219.1	39.2	219.1
24.2	26.6	31.4	35.8	49.3	55.1	49.3	55.1
38.9	96.9	51	130.2	80.2	200.6	80.2	200.6
42.8	102.2	56.3	138.2	89.2	214.2	89.2	214.2
24.8	82.2	32.9	110.7	51.4	171	51.4	171
32.8	22.2	42.9	29.6	64	44.9	64	44.9
48.2	70.2	61.7	92.8	94.8	139.7	94.8	139.7
42.8	42.3	54.5	55.5	82	82.4	82	82.4
10.8	9.4	14.3	12.6	21.9	19.4	21.9	19.4
30.2	14	40.1	18.8	60.4	28.9	60.4	28.9
13.3	8.2	17.4	10.9	25.4	16.3	25.4	16.3
32	39.4	41.3	52.7	64.8	80.7	64.8	80.7
13.3	30.4	17.2	40.6	26.9	61.9	26.9	61.9
24.9	35.1	32.3	47.1	50.9	72.6	50.9	72.6
37.4	39.6	48.3	52.8	74.8	80.5	74.8	80.5
77.7	45	100.2	58.9	145.2	87.6	145.2	87.6
134.6	57.5	171.6	75.2	246.9	111.6	246.9	111.6
148.7	40.8	188.9	53.5	268	79.4	268	79.4
21.4	4.7	28	6.3	41	9.8	41	9.8
45.9	7.6	59.2	10.1	85	15.3	85	15.3
13.1	3.3	16.8	4.3	23.9	6.5	23.9	6.5
52.4	21.3	66.6	28	96.3	41.8	96.3	41.8
68.1	128.1	86.3	167.3	130.3	247.2	130.3	247.2
49.3	53.9	64.2	72.4	100.6	111.6	100.6	111.6
104.6	184.7	134.8	246.1	210.3	374.4	210.3	374.4
30.2	24.3	39.8	32.6	61.2	50.3	61.2	50.3
33.1	15.6	42.7	20.6	62.8	31.2	62.8	31.2
63.8	61	82.9	82	130	126.3	130	126.3
30.1	84.9	39.6	113.9	61.8	175.3	61.8	175.3
10.8	6.7	14.3	9	21.7	13.9	21.7	13.9
22.6	53.2	29.5	71.4	46.4	110	46.4	110
36.9	105.4	48.6	141.6	76	218.2	76	218.2
41.4	98.8	54	132.5	84.8	203.9	84.8	203.9
30.8	38	40	51	63	78.6	63	78.6
19.8	47.6	24.5	60.2	35	84.5	35	84.5
65	457.2	87	612.9	129.8	913.4	129.8	913.4
30.5	14.1	40.7	19.1	61.5	29.4	61.5	29.4
50.6	255.4	67.8	343.6	104.9	530.1	104.9	530.1
99.8	35.3	131	47.5	195.7	73.3	195.7	73.3
18.3	27.7	23.8	37.3	37.6	57.4	37.6	57.4
55.3	27.6	73.3	37.1	110.1	57.2	110.1	57.2
35.5	18	46.3	24	68.8	36.5	68.8	36.5
34.6	78.9	45.5	106	71.2	163.3	71.2	163.3
31.4	45.4	40.8	61	64.3	94	64.3	94
32.9	57.3	42.7	77	67.5	118.6	67.5	118.6
31.8	47.7	41.2	64.1	65.1	98.7	65.1	98.7
22.5	11.1	29.6	14.9	44.4	23	44.4	23
31.4	45.2	40.7	60.7	64.3	93.5	64.3	93.5
33.9	68.9	44.2	92.6	69.7	142.7	69.7	142.7
33	58.2	42.8	78.2	67.8	120.5	67.8	120.5

WATERSHED & HYDROLOGIC PARAMETERS

Name	WSHED	ACRE (AC)	AREA (S.MI)	SystemName	CN_EXIST	IMPER_EXST	CN_BASE	IMPER_ULI	LFP_SLOPE	LPF_SL_PCT	LFP_LENGTH	PRF & LAGTIME CALCS				SUBBASIN	PRF	LAG		
												PRF	PRF1	Lag (min)	Lag(hr)					
N-NM-101-A	NM	1284	2.0070	N-NM-101		60	4	34	40	0.00074	0.074	17330		76.3	150	1188.5	19.8	NM-101-A	150	19.81
N-NM-102-F	NM	237	0.3708	N-NM-102		78	38	43	40	0.00064	0.064	4069		43.1	150	246.2	4.1	NM-102-F	150	4.10
N-NM-102-E	NM	134	0.2087	N-NM-102		73	37	37	40	0.00163	0.163	4311		84.5	150	186.8	3.1	NM-102-E	150	3.11
N-NM-102-B	NM	665	1.0392	N-NM-102		64	10	36	40	0.00056	0.056	5028		50.2	150	458.4	7.6	NM-102-B	150	7.64
N-NM-102-A	NM	498	0.7784	N-NM-102		65	10	36	40	0.00056	0.056	5765		46.5	150	498.3	8.3	NM-102-A	150	8.31
N-NM-102-C	NM	262	0.4090	N-NM-102		65	12	36	40	0.00131	0.131	6251		83.1	150	347.6	5.8	NM-102-C	150	5.79
N-NM-102-D	NM	453	0.7084	N-NM-102		74	19	46	40	0.00186	0.186	7698		130.9	150	270.3	4.5	NM-102-D	150	4.51
N-NM-102-01	NM	223	0.3487	N-NM-102-01		69	23	36	40	0.00186	0.186	6088		108.6	150	257.1	4.3	NM-102-01	150	4.28
N-NM-102-02	NM	740	1.1562	N-NM-102-02		67	15	38	40	0.00025	0.025	7064		25.4	150	832.8	13.9	NM-102-02	150	13.88
N-NM-103-D	NM	110	0.1724	N-NM-103		70	19	39	40	0.00323	0.323	4597		146.8	150	151.7	2.5	NM-103-D	150	2.53
N-NM-103-B	NM	303	0.4730	N-NM-103		71	21	40	40	0.00341	0.341	4933		200.9	201	152.0	2.5	NM-103-B	201	2.53
N-NM-103-C	NM	409	0.6396	N-NM-103		72	20	41	40	0.00259	0.259	5003		170.6	171	171.6	2.9	NM-103-C	171	2.86
N-NM-103-A	NM	181	0.2821	N-NM-103		68	13	37	40	0.00195	0.195	5641		107.1	150	242.6	4.0	NM-103-A	150	4.04
N-NM-104	NM	818	1.2779	N-NM-104		75	38	38	40	0.00010	0.010	13701		11.6	150	1796.9	29.9	NM-104	150	29.95
N-NM-105-B	NM	113	0.1764	N-NM-105		66	12	36	40	0.00250	0.250	4296		117.8	150	181.6	3.0	NM-105-B	150	3.03
N-NM-105-D	NM	197	0.3072	N-NM-105		67	10	37	40	0.00064	0.064	5573		41.0	150	430.6	7.2	NM-105-D	150	7.18
N-NM-105-A	NM	200	0.3122	N-NM-105		69	23	36	40	0.00199	0.199	5700		112.0	150	235.8	3.9	NM-105-A	150	3.93
N-NM-105-C	NM	433	0.6769	N-NM-105		65	6	36	40	0.00093	0.093	5924		70.2	150	395.2	6.6	NM-105-C	150	6.59
N-NM-106-A	NM	518	0.8088	N-NM-106		69	18	37	40	0.00074	0.074	6595		60.1	150	434.5	7.2	NM-106-A	150	7.24
N-NM-107-D	NM	787	1.2296	N-NM-107		66	10	37	40	0.00100	0.100	7870		87.5	150	466.0	7.8	NM-107-D	150	7.77
N-NM-107-A	NM	419	0.6553	N-NM-107		71	27	36	40	0.00100	0.100	8380		74.2	150	428.9	7.1	NM-107-A	150	7.15
N-NM-107-B	NM	462	0.7216	N-NM-107		71	27	36	40	0.00100	0.100	9240		76.1	150	463.7	7.7	NM-107-B	150	7.73
N-NM-107-05	NM	360	0.5618	N-NM-107		70	23	38	40	0.00100	0.100	7200		71.2	150	390.3	6.5	NM-107-05	150	6.50
N-NM-107-E	NM	352	0.5503	N-NM-107		71	30	38	40	0.00208	0.208	6887		135.2	150	254.2	4.2	NM-107-E	150	4.24
N-NM-107-C	NM	1476	2.3060	N-NM-107		67	16	37	40	0.00053	0.053	18705		59.0	150	1246.5	20.8	NM-107-C	150	20.77
N-NM-107-04	NM	2751	4.2987	N-NM-107-04		64	9	37	40	0.00118	0.118	20917		140.8	150	987.7	16.5	NM-107-04	150	16.46
N-NM-108-A	NM	90	0.1402	N-NM-108		74	35	36	40	0.00491	0.491	3323		201.2	201	85.0	1.4	NM-108-A	201	1.42
N-NM-108-B	NM	437	0.6832	N-NM-108		80	56	36	56	0.00013	0.013	8571		12.4	150	932.5	15.5	NM-108-B	150	15.54
N-NM-109-A	NM	133	0.2075	N-NM-109		72	34	36	40	0.00253	0.253	3440		124.3	150	128.7	2.1	NM-109-A	150	2.14
N-NM-110-B	NM	488	0.7630	N-NM-110		66	13	38	40	0.00085	0.085	5005		66.9	150	351.9	5.9	NM-110-B	150	5.87
N-NM-110-C	NM	399	0.6230	N-NM-110		69	23	37	40	0.00042	0.042	5720		34.1	150	514.6	8.6	NM-110-C	150	8.58
N-NM-110-A	NM	476	0.7444	N-NM-110		67	19	41	40	0.00115	0.115	6653		86.8	150	370.1	6.2	NM-110-A	150	6.17
N-NM-111-A	NM	101	0.1574	N-NM-111		77	46	36	46	0.00442	0.442	3491		189.1	189	85.4	1.4	NM-111-A	189	1.42
N-NM-111-C	NM	166	0.2586	N-NM-111		80	55	36	55	0.00294	0.294	4226		150.4	150	111.4	1.9	NM-111-C	150	1.86
N-NM-111-B	NM	298	0.4651	N-NM-111		78	49	36	49	0.00119	0.119	4337		79.0	150	190.0	3.2	NM-111-B	150	3.17
N-NM-112-A	NM	47	0.0735	N-NM-112		70	27	36	40	0.00427	0.427	2807		150.1	150	88.9	1.5	NM-112-A	150	1.48
N-NM-113-B	NM	35	0.0542	N-NM-113		80	52	36	52	0.00209	0.209	1277		73.8	150	50.7	0.8	NM-113-B	150	0.85
N-NM-113-A	NM	71	0.1109	N-NM-113		70	21	37	40	0.00653	0.653	2383		243.3	243	63.1	1.1	NM-113-A	243	1.05
N-NM-113-D	NM	139	0.2168	N-NM-113		76	44	36	44	0.00027	0.027	3255		17.5	150	336.5	5.6	NM-113-D	150	5.61
N-NM-113-E	NM	173	0.2711	N-NM-113		68	18	36	40	0.00237	0.237	4426		125.9	150	181.2	3.0	NM-113-E	150	3.02
N-NM-113-C	NM	189	0.2946	N-NM-113		77	42	37	42	0.00241	0.241	4859		130.6	150	150.7	2.5	NM-113-C	150	2.51
N-NM-115-A	NM	184	0.2868	N-NM-115		76	44	36	44	0.00323	0.323	5169		167.9	168	140.8	2.3	NM-115-A	168	2.35
N-NM-115-D	NM	618	0.9664	N-NM-115		81	56	38	56	0.00332	0.332	7047		236.7	237	152.9	2.5	NM-115-D	237	2.55
N-NM-115-C	NM	874	1.3656	N-NM-115		81	56	38	56	0.00239	0.239	9661		194.0	194	231.9	3.9	NM-115-C	194	3.87
N-NM-115-B	NM	693	1.0821	N-NM-115		80	55	36	55	0.00208	0.208	10916		161.5	161	282.9	4.7	NM-115-B	161	4.71
N-NM-116-C	NM	55	0.0857	N-NM-116		79	51	36	51	0.00154	0.154	1537		63.6	150	70.7	1.2	NM-116-C	150	1.18
N-NM-116-A	NM	93	0.1453	N-NM-116		66	16	36	40	0.00538	0.538	3072		220.2	220	94.7	1.6	NM-116-A	220	1.58
N-NM-116-B	NM	142	0.2213	N-NM-116		77	44	37	44	0.00566	0.566	3148		257.2	257	69.5	1.2	NM-116-B	257	1.16
N-NM-117-A	NM	340	0.5308	N-NM-117		80	53	36	53	0.00271	0.271	7483		169.1	169	183.2	3.1	NM-117-A	169	3.05
N-NM-117-B	NM	2025	3.1639	N-NM-117		82	58	36	58	0.00016	0.016	15173		22.3	150	1245.3	20.8	NM-117-B	150	20.76
N-NM-118-A	NM	1059	1.6544	N-NM-118		66	13	37	40	0.00100	0.100	10590		94.6	150	591.0	9.8	NM-118-A	150	9.85
N-NM-119-A	NM	3475	5.4297	N-NM-119		77	45	37	45	0.00100	0.100	34750		129.3	150	1128.7	18.8	NM-119-A	150	18.81
N-NM-121-A	NM	474	0.7407	N-NM-121		68	21	36	40	0.00100	0.100	6884		76.6	150	397.2	6.6	NM-121-A	150	6.62
N-NM-131-A	NM	273	0.4263	N-NM-131		76	47	36	47	0.00123	0.123	4240		79.5	150	194.8	3.2	NM-131-A	150	3.25
S-ES-100	SM	5061	7.9080	S-ES-100		67	11	39	40	0.00100	0.100	50610		142.8	150	2012.1	33.5	ES-100	150	33.53
S-ES-100-A	SM	416	0.6505	S-ES-100		71	22	37	40	0.00055	0.055	3776		43.7	150	305.6	5.1	ES-100-A	150	5.09
S-ES-101-A	SM	809	1.2641	S-ES-101		77	45	36	45	0.00066	0.066	11460		61.1	150	572.0	9.5	ES-101-A	150	9.53
S-ES-102-B	NM	584	0.9124	S-ES-102		82	60	40	60	0.00016	0.016	7583		16.1	150	715.0	11.9	ES-102-B	150	11.92

WATERSHED & HYDROLOGIC PARAMETERS

Name	WATERSHED & HYDROLOGIC PARAMETERS											PRF & LAGTIME CALCS				HMS INPUT		
	WSHED	ACRE (AC)	AREA (S.MI)	SystemName	CN_EXIST	IMPER_EXST	CN_BASE	IMPER_ULST	LFP_SLOPE	LPF_SL_PCT	LFP_LENGTH	PRF	PRF1	Lag (min)	Lag(hr)	SUBBASIN	PRF	LAG
S-ES-102-A	SM	875	1.3676	S-ES-102	80	55	37	55	0.00117	0.117	11863	103.4	150	403.1	6.7	ES-102-A	150	6.72
S-ES-102-01-A	SM	147	0.2294	S-ES-102-01	75	41	36	41	0.00166	0.166	5285	88.0	150	205.8	3.4	ES-102-01-A	150	3.43
MCD	MC	2844	9.6550	S-MC-100	66	12	37	40	0.00100	0.100	28440	150.5	150	1302.5	21.7	MCD	150	21.71
S-MC-100-A	MC	1263	1.9732	S-MC-100	63	7	36	40	0.00100	0.100	14628	99.1	150	827.0	13.8	MC-100-A	150	13.78
S-MC-100-B	MC	1985	3.1012	S-MC-100	71	26	37	40	0.00099	0.099	16651	110.6	150	746.6	12.4	MC-100-B	150	12.44
S-MC-101-POND	MC	224	0.3501	S-MC-101	83	58	62	58	0.00254	0.254	3290	143.1	150	89.0	1.5	MC-101-POND	150	1.48
S-MC-101-B	MC	688	1.0747	S-MC-101	62	4	35	40	0.00191	0.191	9137	149.5	150	421.3	7.0	MC-101-B	150	7.02
S-MC-101-A	MC	585	0.9146	S-MC-101	67	19	36	40	0.00202	0.202	13002	150.5	151	477.3	8.0	MC-101-A	151	7.95
S-MC-101-C	MC	879	1.3733	S-MC-101	71	30	37	40	0.00176	0.176	14620	148.3	150	504.6	8.4	MC-101-C	150	8.41
S-MC-102-A	MC	1041	1.6271	S-MC-102	71	26	37	40	0.00067	0.067	11264	66.2	150	663.8	11.1	MC-102-A	150	11.06
S-SM-101-A	SM	693	1.0827	S-SM-101	68	21	36	40	0.00311	0.311	6435	230.2	230	213.4	3.6	SM-101-A	230	3.56
S-SM-101-B	SM	556	0.8689	S-SM-101	71	29	37	40	0.00029	0.029	9833	26.8	150	905.1	15.1	SM-101-B	150	15.08
S-SM-102-A	SM	541	0.8451	S-SM-102B	73	23	42	40	0.00255	0.255	8666	181.1	181	261.0	4.4	SM-102-A	181	4.35
S-SM-103-A	SM	306	0.4777	S-SM-103	77	47	36	47	0.00080	0.080	3776	56.1	150	213.7	3.6	SM-103-A	150	3.56
W700	NM	8388	13.1060	W700	61	3	35	40	0.00100	0.100	83880	163.1	163	3519.4	58.7	W700	163	58.66
W710	NM	754	1.1785	W710	69	22	36	40	0.00100	0.100	7540	86.5	150	416.0	6.9	W710	150	6.93
W720	NM	1899	2.9667	W720	65	12	36	40	0.00100	0.100	18990	110.3	150	967.8	16.1	W720	150	16.13
W730	NM	568	0.8881	W730	69	24	36	40	0.00073	0.073	7711	60.9	150	495.7	8.3	W730	150	8.26
W740	NM	1010	1.5788	W740	67	20	35	40	0.00100	0.100	10100	93.5	150	554.3	9.2	W740	150	9.24
W750	NM	6480	10.1256	W750	62	4	36	40	0.00100	0.100	64800	152.4	152	2790.8	46.5	W750	152	46.51
W760	NM	3102	4.8465	W760	63	10	34	40	0.00100	0.100	31020	125.5	150	1508.9	25.1	W760	150	25.15
W770	NM	663	1.0354	W770	100	100	95	100	0.00100	0.100	6630	83.7	150	113.9	1.9	W770	150	1.90
W840	NM	2589	4.0456	W840	66	5	38	40	0.00100	0.100	25890	119.7	150	1208.2	20.1	W840	150	20.14
W870	NM	5806	9.0712	W870	65	7	37	40	0.00100	0.100	58060	148.0	150	2366.2	39.4	W870	150	39.44
W920	NM	761	1.1895	W920	70	19	37	40	0.00100	0.100	9620	86.8	150	492.1	8.2	W920	150	8.20
NMD05	NM	169	0.2633	NMD05	68	22	36	40	0.00107	0.107	3380	61.9	150	217.4	3.6	NMD05	150	3.62
NMD13	NM	111	0.1736	NMD13	68	22	36	40	0.00027	0.027	2664	16.5	150	357.7	6.0	NMD13	150	5.96

**COE LATERAL SUBAREAS
UNIT HYDROGRAPH CALCULATION
FOR HEC-HMS INPUT (USER-SPECIFIED UHG)**

Time	ES-100	ES-100-A	ES-101-A	ES-102-A	ES-102-B	ES-102-01-A	MC-100-A	MC-100-B	MC-101-A	MC-101-B	MC-101-C
DA (SM)	7.9080	0.6505	1.2641	1.3676	0.9124	0.2294	1.9732	3.1012	0.9146	1.0747	1.3733
PRF	150	150	150	150	150	150	150	150	151	150	150
Tc (hr)	55.89	8.49	15.89	11.20	19.86	5.72	22.97	20.74	13.26	11.70	14.02
Tlag (hr)	33.53	5.09	9.53	6.72	11.92	3.43	13.78	12.44	7.95	7.02	8.41
Drecom (hr)	7.43	1.13	2.11	1.49	2.64	0.76	3.06	2.76	1.76	1.56	1.86
Dmax (hr)	9.50	1.44	2.70	1.90	3.38	0.97	3.91	3.53	2.25	1.99	2.38
Dchosen (hr)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Φ	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23
α	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47
Tp (hr)	34.03	5.59	10.03	7.22	12.42	3.93	14.28	12.94	8.45	7.52	8.91
Qp	34.85	17.44	18.90	28.42	11.02	8.76	20.72	35.94	16.28	21.43	23.12
TIME (HR)											
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1.0	10.5	11.4	9.8	16.9	5.2	6.5	9.2	16.7	9.0	12.5	12.6
2.0	14.4	14.6	12.9	21.9	6.9	8.0	12.4	22.3	11.8	16.3	16.5
3.0	17.1	16.2	14.9	24.8	8.1	8.6	14.5	26.0	13.6	18.5	19.0
4.0	19.3	17.0	16.3	26.6	8.9	8.8	16.0	28.7	14.7	19.9	20.6
5.0	21.2	17.4	17.3	27.6	9.5	8.6	17.2	30.7	15.4	20.7	21.7
6.0	22.8	17.4	17.9	28.2	10.0	8.3	18.1	32.2	15.9	21.2	22.4
7.0	24.1	17.2	18.4	28.4	10.3	8.0	18.8	33.4	16.2	21.4	22.8
8.0	25.3	16.9	18.7	28.3	10.6	7.5	19.4	34.3	16.3	21.4	23.1
9.0	26.4	16.4	18.8	28.1	10.8	7.1	19.8	35.0	16.3	21.3	23.1
10.0	27.3	15.8	18.9	27.6	10.9	6.6	20.2	35.4	16.2	21.0	23.0
11.0	28.2	15.2	18.9	27.1	11.0	6.1	20.4	35.7	16.0	20.6	22.9
12.0	29.0	14.6	18.7	26.4	11.0	5.7	20.6	35.9	15.8	20.2	22.6
13.0	29.7	13.9	18.6	25.7	11.0	5.2	20.7	35.9	15.5	19.7	22.3
14.0	30.3	13.3	18.4	25.0	11.0	4.8	20.7	35.9	15.2	19.2	21.9
15.0	30.9	12.6	18.1	24.2	10.9	4.4	20.7	35.8	14.8	18.6	21.4
16.0	31.4	11.9	17.8	23.3	10.8	4.0	20.7	35.5	14.4	18.0	21.0
17.0	31.8	11.3	17.5	22.5	10.7	3.7	20.6	35.3	14.1	17.4	20.5
18.0	32.3	10.7	17.1	21.7	10.6	3.3	20.4	34.9	13.7	16.8	19.9
19.0	32.6	10.1	16.8	20.8	10.5	3.0	20.3	34.6	13.3	16.2	19.4
20.0	33.0	9.5	16.4	20.0	10.4	2.8	20.1	34.1	12.8	15.6	18.9
21.0	33.3	8.9	16.0	19.2	10.2	2.5	19.9	33.7	12.4	15.0	18.3
22.0	33.5	8.4	15.6	18.4	10.0	2.3	19.7	33.2	12.0	14.4	17.8
23.0	33.8	7.9	15.2	17.6	9.9	2.1	19.5	32.7	11.6	13.8	17.2
24.0	34.0	7.4	14.8	16.8	9.7	1.9	19.2	32.2	11.2	13.2	16.6
25.0	34.2	6.9	14.4	16.1	9.5	1.7	19.0	31.6	10.8	12.7	16.1
26.0	34.3	6.5	14.0	15.3	9.3	1.5	18.7	31.1	10.4	12.1	15.6
27.0	34.5	6.1	13.6	14.6	9.2	1.4	18.4	30.5	10.0	11.6	15.0
28.0	34.6	5.7	13.2	13.9	9.0	1.3	18.1	29.9	9.6	11.1	14.5
29.0	34.7	5.3	12.8	13.3	8.8	1.1	17.8	29.3	9.3	10.6	14.0
30.0	34.7	5.0	12.4	12.6	8.6	1.0	17.5	28.8	8.9	10.1	13.5
31.0	34.8	4.6	12.1	12.0	8.4	0.9	17.2	28.2	8.6	9.7	13.0
32.0	34.8	4.3	11.7	11.5	8.2	0.8	16.9	27.6	8.2	9.2	12.5
33.0	34.8	4.0	11.3	10.9	8.0	0.7	16.6	27.0	7.9	8.8	12.0
34.0	34.9	3.8	10.9	10.4	7.8	0.7	16.3	26.4	7.6	8.4	11.6
35.0	34.8	3.5	10.6	9.8	7.6	0.6	16.0	25.8	7.3	8.0	11.1
36.0	34.8	3.3	10.2	9.3	7.5	0.5	15.7	25.2	7.0	7.6	10.7
37.0	34.8	3.1	9.9	8.9	7.3	0.5	15.4	24.6	6.7	7.2	10.3
38.0	34.8	2.8	9.6	8.4	7.1	0.4	15.1	24.1	6.4	6.9	9.9
39.0	34.7	2.7	9.2	8.0	6.9	0.4	14.8	23.5	6.1	6.5	9.5
40.0	34.6	2.5	8.9	7.6	6.7	0.4	14.5	22.9	5.9	6.2	9.1
41.0	34.6	2.3	8.6	7.2	6.6	0.3	14.1	22.4	5.6	5.9	8.8
42.0	34.5	2.1	8.3	6.8	6.4	0.3	13.8	21.8	5.4	5.6	8.4
43.0	34.4	2.0	8.0	6.4	6.2	0.3	13.6	21.3	5.1	5.3	8.1
44.0	34.3	1.8	7.7	6.1	6.1	0.2	13.3	20.7	4.9	5.1	7.7
45.0	34.2	1.7	7.5	5.8	5.9	0.2	13.0	20.2	4.7	4.8	7.4
46.0	34.0	1.6	7.2	5.5	5.7	0.2	12.7	19.7	4.5	4.6	7.1
47.0	33.9	1.5	6.9	5.2	5.6	0.2	12.4	19.2	4.3	4.3	6.8
48.0	33.8	1.4	6.7	4.9	5.4	0.1	12.1	18.7	4.1	4.1	6.5
49.0	33.6	1.3	6.5	4.6	5.3	0.1	11.8	18.2	3.9	3.9	6.3
50.0	33.5	1.2	6.2	4.4	5.1	0.1	11.6	17.7	3.7	3.7	6.0
51.0	33.4	1.1	6.0	4.2	5.0	0.1	11.3	17.3	3.6	3.5	5.7
52.0	33.2	1.0	5.8	3.9	4.9	0.1	11.0	16.8	3.4	3.3	5.5
53.0	33.0	0.9	5.6	3.7	4.7	0.1	10.8	16.3	3.2	3.2	5.3
54.0	32.9	0.9	5.4	3.5	4.6	0.1	10.5	15.9	3.1	3.0	5.0
55.0	32.7	0.8	5.2	3.3	4.4	0.1	10.3	15.5	3.0	2.8	4.8
56.0	32.5	0.8	5.0	3.1	4.3	0.1	10.0	15.0	2.8	2.7	4.6
57.0	32.4	0.7	4.8	3.0	4.2	0.1	9.8	14.6	2.7	2.6	4.4
58.0	32.2	0.7	4.6	2.8	4.1	0.0	9.5	14.2	2.6	2.4	4.2
59.0	32.0	0.6	4.4	2.7	4.0	0.0	9.3	13.8	2.4	2.3	4.0
60.0	31.8	0.6	4.2	2.5	3.8	0.0	9.1	13.5	2.3	2.2	3.9
61.0	31.6	0.5	4.1	2.4	3.7	0.0	8.9	13.1	2.2	2.1	3.7
62.0	31.4	0.5	3.9	2.2	3.6	0.0	8.6	12.7	2.1	1.9	3.5
63.0	31.2	0.4	3.8	2.1	3.5	0.0	8.4	12.3	2.0	1.8	3.4
64.0	31.0	0.4	3.6	2.0	3.4	0.0	8.2	12.0	1.9	1.7	3.2
65.0	30.8	0.4	3.5	1.9	3.3	0.0	8.0	11.7	1.8	1.6	3.1
66.0	30.6	0.4	3.4	1.8	3.2	0.0	7.8	11.3	1.7	1.6	2.9
67.0	30.4	0.3	3.2	1.7	3.1	0.0	7.6	11.0	1.7	1.5	2.8
68.0	30.2	0.3	3.1	1.6	3.0	0.0	7.4	10.7	1.6	1.4	2.7
69.0	30.0	0.3	3.0	1.5	2.9	0.0	7.2	10.4	1.5	1.3	2.6
70.0	29.8	0.3	2.9	1.4	2.8	0.0	7.0	10.1	1.4	1.3	2.5
71.0	29.6	0.2	2.8	1.3	2.7	0.0	6.9	9.8	1.4	1.2	2.3
72.0	29.4	0.2	2.6	1.3	2.7	0.0	6.7	9.5	1.3	1.1	2.2
73.0	29.2	0.2	2.5	1.2	2.6	0.0	6.5	9.2	1.2	1.1	2.1
74.0	28.9	0.2	2.4	1.1	2.5	0.0	6.3	8.9	1.2	1.0	2.0
75.0	28.7	0.2	2.3	1.1	2.4	0.0	6.2	8.7	1.1	0.9	2.0
76.0	28.5	0.2	2.3	1.0	2.3	0.0	6.0	8.4	1.1	0.9	1.9

**COE LATERAL SUBAREAS
UNIT HYDROGRAPH CALCULATION
FOR HEC-HMS INPUT (USER-SPECIFIED UHG)**

Time	ES-100	ES-100-A	ES-101-A	ES-102-A	ES-102-B	ES-102-01-A	MC-100-A	MC-100-B	MC-101-A	MC-101-B	MC-101-C
DA (SM)	7.9080	0.6505	1.2641	1.3676	0.9124	0.2294	1.9732	3.1012	0.9146	1.0747	1.3733
PRF	150	150	150	150	150	150	150	150	151	150	150
Tc (hr)	55.89	8.49	15.89	11.20	19.86	5.72	22.97	20.74	13.26	11.70	14.02
Tlag (hr)	33.53	5.09	9.53	6.72	11.92	3.43	13.78	12.44	7.95	7.02	8.41
Drecom (hr)	7.43	1.13	2.11	1.49	2.64	0.76	3.06	2.76	1.76	1.56	1.86
Dmax (hr)	9.50	1.44	2.70	1.90	3.38	0.97	3.91	3.53	2.25	1.99	2.38
Dchosen (hr)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Φ	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23
α	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47
Tp (hr)	34.03	5.59	10.03	7.22	12.42	3.93	14.28	12.94	8.45	7.52	8.91
Qp	34.85	17.44	18.90	28.42	11.02	8.76	20.72	35.94	16.28	21.43	23.12
TIME (HR)											
77.0	28.3	0.2	2.2	0.9	2.3	0.0	5.8	8.2	1.0	0.8	1.8
78.0	28.1	0.1	2.1	0.9	2.2	0.0	5.7	7.9	1.0	0.8	1.7
79.0	27.9	0.1	2.0	0.8	2.1	0.0	5.5	7.7	0.9	0.8	1.6
80.0	27.6	0.1	1.9	0.8	2.1	0.0	5.4	7.5	0.9	0.7	1.5
81.0	27.4	0.1	1.8	0.7	2.0	0.0	5.3	7.2	0.8	0.7	1.5
82.0	27.2	0.1	1.8	0.7	1.9	0.0	5.1	7.0	0.8	0.6	1.4
83.0	27.0	0.1	1.7	0.7	1.9	0.0	5.0	6.8	0.8	0.6	1.3
84.0	26.8	0.1	1.6	0.6	1.8	0.0	4.8	6.6	0.7	0.6	1.3
85.0	26.5	0.1	1.6	0.6	1.8	0.0	4.7	6.4	0.7	0.5	1.2
86.0	26.3	0.1	1.5	0.6	1.7	0.0	4.6	6.2	0.6	0.5	1.2
87.0	26.1	0.1	1.4	0.5	1.7	0.0	4.5	6.0	0.6	0.5	1.1
88.0	25.9	0.1	1.4	0.5	1.6	0.0	4.3	5.9	0.6	0.5	1.1
89.0	25.7	0.1	1.3	0.5	1.5	0.0	4.2	5.7	0.6	0.4	1.0
90.0	25.5	0.1	1.3	0.4	1.5	0.0	4.1	5.5	0.5	0.4	1.0
91.0	25.2	0.1	1.2	0.4	1.5	0.0	4.0	5.3	0.5	0.4	0.9
92.0	25.0	0.0	1.2	0.4	1.4	0.0	3.9	5.2	0.5	0.4	0.9
93.0	24.8	0.0	1.1	0.4	1.4	0.0	3.8	5.0	0.5	0.3	0.8
94.0	24.6	0.0	1.1	0.3	1.3	0.0	3.7	4.9	0.4	0.3	0.8
95.0	24.4	0.0	1.0	0.3	1.3	0.0	3.6	4.7	0.4	0.3	0.8
96.0	24.2	0.0	1.0	0.3	1.2	0.0	3.5	4.6	0.4	0.3	0.7
97.0	23.9	0.0	0.9	0.3	1.2	0.0	3.4	4.4	0.4	0.3	0.7
98.0	23.7	0.0	0.9	0.3	1.2	0.0	3.3	4.3	0.4	0.3	0.7
99.0	23.5	0.0	0.9	0.3	1.1	0.0	3.2	4.2	0.3	0.2	0.6
100.0	23.3	0.0	0.8	0.2	1.1	0.0	3.1	4.0	0.3	0.2	0.6
101.0	23.1	0.0	0.8	0.2	1.0	0.0	3.0	3.9	0.3	0.2	0.6
102.0	22.9	0.0	0.8	0.2	1.0	0.0	2.9	3.8	0.3	0.2	0.5
103.0	22.7	0.0	0.7	0.2	1.0	0.0	2.9	3.7	0.3	0.2	0.5
104.0	22.5	0.0	0.7	0.2	0.9	0.0	2.8	3.5	0.3	0.2	0.5
105.0	22.3	0.0	0.7	0.2	0.9	0.0	2.7	3.4	0.2	0.2	0.5
106.0	22.1	0.0	0.7	0.2	0.9	0.0	2.6	3.3	0.2	0.2	0.5
107.0	21.9	0.0	0.6	0.2	0.9	0.0	2.6	3.2	0.2	0.2	0.4
108.0	21.6	0.0	0.6	0.1	0.8	0.0	2.5	3.1	0.2	0.1	0.4
109.0	21.4	0.0	0.6	0.1	0.8	0.0	2.4	3.0	0.2	0.1	0.4
110.0	21.2	0.0	0.5	0.1	0.8	0.0	2.3	2.9	0.2	0.1	0.4
111.0	21.0	0.0	0.5	0.1	0.7	0.0	2.3	2.8	0.2	0.1	0.4
112.0	20.8	0.0	0.5	0.1	0.7	0.0	2.2	2.8	0.2	0.1	0.3
113.0	20.6	0.0	0.5	0.1	0.7	0.0	2.2	2.7	0.2	0.1	0.3
114.0	20.4	0.0	0.5	0.1	0.7	0.0	2.1	2.6	0.2	0.1	0.3
115.0	20.2	0.0	0.4	0.1	0.7	0.0	2.0	2.5	0.1	0.1	0.3
116.0	20.1	0.0	0.4	0.1	0.6	0.0	2.0	2.4	0.1	0.1	0.3
117.0	19.9	0.0	0.4	0.1	0.6	0.0	1.9	2.3	0.1	0.1	0.3
118.0	19.7	0.0	0.4	0.1	0.6	0.0	1.9	2.3	0.1	0.1	0.3
119.0	19.5	0.0	0.4	0.1	0.6	0.0	1.8	2.2	0.1	0.1	0.2
120.0	19.3	0.0	0.4	0.1	0.6	0.0	1.8	2.1	0.1	0.1	0.2
121.0	19.1	0.0	0.3	0.1	0.5	0.0	1.7	2.1	0.1	0.1	0.2
122.0	18.9	0.0	0.3	0.1	0.5	0.0	1.7	2.0	0.1	0.1	0.2
123.0	18.7	0.0	0.3	0.1	0.5	0.0	1.6	1.9	0.1	0.1	0.2
124.0	18.5	0.0	0.3	0.1	0.5	0.0	1.6	1.9	0.1	0.1	0.2
125.0	18.4	0.0	0.3	0.1	0.5	0.0	1.5	1.8	0.1	0.1	0.2
126.0	18.2	0.0	0.3	0.0	0.5	0.0	1.5	1.8	0.1	0.1	0.2
127.0	18.0	0.0	0.3	0.0	0.4	0.0	1.4	1.7	0.1	0.0	0.2
128.0	17.8	0.0	0.3	0.0	0.4	0.0	1.4	1.6	0.1	0.0	0.2
129.0	17.6	0.0	0.2	0.0	0.4	0.0	1.4	1.6	0.1	0.0	0.1
130.0	17.5	0.0	0.2	0.0	0.4	0.0	1.3	1.5	0.1	0.0	0.1
131.0	17.3	0.0	0.2	0.0	0.4	0.0	1.3	1.5	0.1	0.0	0.1
132.0	17.1	0.0	0.2	0.0	0.4	0.0	1.2	1.4	0.1	0.0	0.1
133.0	16.9	0.0	0.2	0.0	0.4	0.0	1.2	1.4	0.1	0.0	0.1
134.0	16.8	0.0	0.2	0.0	0.3	0.0	1.2	1.4	0.1	0.0	0.1
135.0	16.6	0.0	0.2	0.0	0.3	0.0	1.1	1.3	0.1	0.0	0.1
136.0	16.4	0.0	0.2	0.0	0.3	0.0	1.1	1.3	0.0	0.0	0.1
137.0	16.2	0.0	0.2	0.0	0.3	0.0	1.1	1.2	0.0	0.0	0.1
138.0	16.1	0.0	0.2	0.0	0.3	0.0	1.0	1.2	0.0	0.0	0.1
139.0	15.9	0.0	0.2	0.0	0.3	0.0	1.0	1.1	0.0	0.0	0.1
140.0	15.7	0.0	0.2	0.0	0.3	0.0	1.0	1.1	0.0	0.0	0.1
141.0	15.6	0.0	0.1	0.0	0.3	0.0	1.0	1.1	0.0	0.0	0.1
142.0	15.4	0.0	0.1	0.0	0.3	0.0	0.9	1.0	0.0	0.0	0.1
143.0	15.3	0.0	0.1	0.0	0.3	0.0	0.9	1.0	0.0	0.0	0.1
144.0	15.1	0.0	0.1	0.0	0.2	0.0	0.9	1.0	0.0	0.0	0.1
145.0	14.9	0.0	0.1	0.0	0.2	0.0	0.8	0.9	0.0	0.0	0.1
146.0	14.8	0.0	0.1	0.0	0.2	0.0	0.8	0.9	0.0	0.0	0.1
147.0	14.6	0.0	0.1	0.0	0.2	0.0	0.8	0.9	0.0	0.0	0.1
148.0	14.5	0.0	0.1	0.0	0.2	0.0	0.8	0.9	0.0	0.0	0.1
149.0	14.3	0.0	0.1	0.0	0.2	0.0	0.8	0.8	0.0	0.0	0.1
150.0	14.2	0.0	0.1	0.0	0.2	0.0	0.7	0.8	0.0	0.0	0.1
151.0	14.0	0.0	0.1	0.0	0.2	0.0	0.7	0.8	0.0	0.0	0.1
152.0	13.9	0.0	0.1	0.0	0.2	0.0	0.7	0.7	0.0	0.0	0.0
153.0	13.7	0.0	0.1	0.0	0.2	0.0	0.7	0.7	0.0	0.0	0.0
154.0	13.6	0.0	0.1	0.0	0.2	0.0	0.7	0.7	0.0	0.0	0.0
155.0	13.4	0.0	0.1	0.0	0.2	0.0	0.6	0.7	0.0	0.0	0.0
156.0	13.3	0.0	0.1	0.0	0.2	0.0	0.6	0.7	0.0	0.0	0.0

Time	VC-101-PONE	MC-102-A	NMD05	NMD13	NM-101-A	NM-102-A	NM-102-B	NM-102-C	NM-102-D	NM-102-E	NM-102-F	NM-102-01
DA (SM)	0.3501	1.6271	0.2633	0.1736	2.0070	0.7784	1.0392	0.4090	0.7084	0.2087	0.3708	0.3487
PRF	150	150	150	150	150	150	150	150	150	150	150	150
Tc (hr)	2.47	18.44	6.03	9.93	33.01	13.84	12.73	9.66	7.51	5.19	6.84	7.14
Tlag (hr)	1.48	11.06	3.62	5.96	19.81	8.31	7.64	5.79	4.51	3.11	4.10	4.28
Drecom (hr)	0.33	2.45	0.80	1.32	4.39	1.84	1.69	1.28	1.00	0.69	0.91	0.95
Dmax (hr)	0.42	3.13	1.03	1.69	5.61	2.35	2.16	1.64	1.28	0.88	1.16	1.21
Dchosen (hr)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Φ	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23
α	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47
Tp (hr)	1.98	11.56	4.12	6.46	20.31	8.81	8.14	6.29	5.01	3.61	4.60	4.78
Qp	26.47	21.11	9.59	4.03	14.82	13.26	19.15	9.75	21.23	8.67	12.08	10.93
TIME (HR)												
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1.0	24.2	10.3	7.0	2.5	5.7	7.3	10.8	6.1	14.5	6.7	8.5	7.6
2.0	26.5	13.7	8.7	3.2	7.6	9.5	14.1	7.8	18.3	8.1	10.7	9.5
3.0	25.3	15.9	9.4	3.6	9.0	10.9	16.1	8.8	20.2	8.6	11.6	10.5
4.0	22.8	17.4	9.6	3.9	10.1	11.8	17.4	9.4	21.0	8.6	12.0	10.9
5.0	20.0	18.6	9.5	4.0	11.0	12.5	18.3	9.6	21.2	8.4	12.1	10.9
6.0	17.2	19.4	9.2	4.0	11.7	12.9	18.8	9.7	21.1	8.1	11.9	10.8
7.0	14.6	20.1	8.9	4.0	12.2	13.1	19.1	9.7	20.6	7.6	11.5	10.5
8.0	12.3	20.5	8.4	4.0	12.7	13.2	19.1	9.6	20.0	7.1	11.1	10.2
9.0	10.3	20.8	7.9	3.9	13.1	13.3	19.1	9.4	19.2	6.6	10.6	9.7
10.0	8.5	21.0	7.4	3.8	13.5	13.2	18.9	9.2	18.4	6.1	10.0	9.3
11.0	7.0	21.1	7.0	3.7	13.8	13.1	18.7	8.9	17.5	5.6	9.5	8.8
12.0	5.8	21.1	6.5	3.6	14.0	12.9	18.4	8.6	16.6	5.1	8.9	8.3
13.0	4.8	21.0	6.0	3.5	14.2	12.7	18.0	8.3	15.7	4.7	8.4	7.8
14.0	3.9	20.9	5.5	3.4	14.4	12.5	17.6	8.0	14.8	4.3	7.8	7.3
15.0	3.2	20.7	5.1	3.2	14.5	12.2	17.2	7.7	13.9	3.9	7.3	6.9
16.0	2.6	20.5	4.7	3.1	14.6	12.0	16.7	7.3	13.1	3.5	6.8	6.4
17.0	2.1	20.3	4.3	3.0	14.7	11.7	16.2	7.0	12.3	3.2	6.3	6.0
18.0	1.7	20.0	4.0	2.8	14.8	11.4	15.8	6.7	11.5	2.9	5.9	5.6
19.0	1.4	19.7	3.6	2.7	14.8	11.1	15.3	6.4	10.7	2.6	5.4	5.2
20.0	1.1	19.4	3.3	2.6	14.8	10.7	14.8	6.0	10.0	2.3	5.0	4.8
21.0	0.9	19.0	3.0	2.4	14.8	10.4	14.2	5.7	9.3	2.1	4.6	4.5
22.0	0.7	18.7	2.8	2.3	14.8	10.1	13.8	5.4	8.7	1.9	4.3	4.1
23.0	0.6	18.3	2.5	2.2	14.8	9.8	13.3	5.2	8.1	1.7	4.0	3.8
24.0	0.5	18.0	2.3	2.1	14.7	9.5	12.8	4.9	7.5	1.5	3.6	3.6
25.0	0.4	17.6	2.1	2.0	14.7	9.1	12.3	4.6	7.0	1.3	3.4	3.3
26.0	0.3	17.2	1.9	1.9	14.6	8.8	11.8	4.4	6.5	1.2	3.1	3.0
27.0	0.2	16.8	1.7	1.8	14.5	8.5	11.4	4.1	6.0	1.1	2.8	2.8
28.0	0.2	16.4	1.6	1.7	14.4	8.2	10.9	3.9	5.5	1.0	2.6	2.6
29.0	0.2	16.0	1.4	1.6	14.3	7.9	10.5	3.7	5.1	0.9	2.4	2.4
30.0	0.1	15.6	1.3	1.5	14.2	7.6	10.0	3.5	4.7	0.8	2.2	2.2
31.0	0.1	15.3	1.2	1.4	14.1	7.3	9.6	3.3	4.4	0.7	2.0	2.0
32.0	0.1	14.9	1.1	1.3	14.0	7.1	9.2	3.1	4.1	0.6	1.9	1.9
33.0	0.1	14.5	1.0	1.3	13.9	6.8	8.8	2.9	3.8	0.5	1.7	1.7
34.0	0.1	14.1	0.9	1.2	13.8	6.5	8.5	2.7	3.5	0.5	1.6	1.6
35.0	0.0	13.7	0.8	1.1	13.6	6.3	8.1	2.6	3.2	0.4	1.4	1.4
36.0	0.0	13.4	0.7	1.1	13.5	6.0	7.7	2.4	3.0	0.4	1.3	1.3
37.0	0.0	13.0	0.6	1.0	13.4	5.8	7.4	2.3	2.7	0.3	1.2	1.2
38.0	0.0	12.6	0.6	0.9	13.2	5.6	7.1	2.1	2.5	0.3	1.1	1.1
39.0	0.0	12.3	0.5	0.9	13.1	5.4	6.8	2.0	2.3	0.3	1.0	1.0
40.0	0.0	11.9	0.5	0.8	12.9	5.1	6.5	1.9	2.1	0.2	0.9	0.9
41.0	0.0	11.6	0.4	0.8	12.8	4.9	6.2	1.8	2.0	0.2	0.8	0.9
42.0	0.0	11.3	0.4	0.7	12.6	4.7	5.9	1.7	1.8	0.2	0.8	0.8
43.0	0.0	10.9	0.3	0.7	12.5	4.5	5.6	1.6	1.7	0.2	0.7	0.7
44.0	0.0	10.6	0.3	0.7	12.3	4.3	5.4	1.5	1.5	0.1	0.6	0.7
45.0	0.0	10.3	0.3	0.6	12.2	4.2	5.1	1.4	1.4	0.1	0.6	0.6
46.0	0.0	10.0	0.3	0.6	12.0	4.0	4.9	1.3	1.3	0.1	0.5	0.6
47.0	0.0	9.7	0.2	0.5	11.9	3.8	4.7	1.2	1.2	0.1	0.5	0.5
48.0	0.0	9.4	0.2	0.5	11.7	3.7	4.4	1.1	1.1	0.1	0.4	0.5
49.0	0.0	9.1	0.2	0.5	11.6	3.5	4.2	1.1	1.0	0.1	0.4	0.4
50.0	0.0	8.8	0.2	0.4	11.4	3.4	4.0	1.0	0.9	0.1	0.4	0.4
51.0	0.0	8.6	0.2	0.4	11.2	3.2	3.9	0.9	0.9	0.1	0.3	0.4
52.0	0.0	8.3	0.1	0.4	11.1	3.1	3.7	0.9	0.8	0.1	0.3	0.3
53.0	0.0	8.1	0.1	0.4	10.9	2.9	3.5	0.8	0.7	0.1	0.3	0.3
54.0	0.0	7.8	0.1	0.3	10.8	2.8	3.3	0.8	0.7	0.0	0.3	0.3
55.0	0.0	7.6	0.1	0.3	10.6	2.7	3.2	0.7	0.6	0.0	0.2	0.3
56.0	0.0	7.3	0.1	0.3	10.5	2.6	3.0	0.7	0.6	0.0	0.2	0.2
57.0	0.0	7.1	0.1	0.3	10.3	2.5	2.9	0.6	0.5	0.0	0.2	0.2
58.0	0.0	6.9	0.1	0.3	10.2	2.3	2.7	0.6	0.5	0.0	0.2	0.2
59.0	0.0	6.6	0.1	0.3	10.0	2.2	2.6	0.6	0.4	0.0	0.2	0.2
60.0	0.0	6.4	0.1	0.2	9.9	2.1	2.5	0.5	0.4	0.0	0.1	0.2
61.0	0.0	6.2	0.1	0.2	9.7	2.1	2.4	0.5	0.4	0.0	0.1	0.1
62.0	0.0	6.0	0.0	0.2	9.6	2.0	2.2	0.5	0.3	0.0	0.1	0.1
63.0	0.0	5.8	0.0	0.2	9.4	1.9	2.1	0.4	0.3	0.0	0.1	0.1
64.0	0.0	5.6	0.0	0.2	9.3	1.8	2.0	0.4	0.3	0.0	0.1	0.1
65.0	0.0	5.5	0.0	0.2	9.1	1.7	1.9	0.4	0.3	0.0	0.1	0.1
66.0	0.0	5.3	0.0	0.2	9.0	1.6	1.8	0.3	0.2	0.0	0.1	0.1
67.0	0.0	5.1	0.0	0.2	8.8	1.6	1.7	0.3	0.2	0.0	0.1	0.1
68.0	0.0	4.9	0.0	0.1	8.7	1.5	1.7	0.3	0.2	0.0	0.1	0.1
69.0	0.0	4.8	0.0	0.1	8.6	1.4	1.6	0.3	0.2	0.0	0.1	0.1
70.0	0.0	4.6	0.0	0.1	8.4	1.4	1.5	0.3	0.2	0.0	0.1	0.1
71.0	0.0	4.5	0.0	0.1	8.3	1.3	1.4	0.2	0.2	0.0	0.1	0.1
72.0	0.0	4.3	0.0	0.1	8.1	1.2	1.4	0.2	0.1	0.0	0.0	0.1
73.0	0.0	4.2	0.0	0.1	8.0	1.2	1.3	0.2	0.1	0.0	0.0	0.0
74.0	0.0	4.0	0.0	0.1	7.9	1.1	1.2	0.2	0.1	0.0	0.0	0.0
75.0	0.0	3.9	0.0	0.1	7.8	1.1	1.2	0.2	0.1	0.0	0.0	0.0
76.0	0.0	3.8	0.0	0.1	7.6	1.0	1.1	0.2	0.1	0.0	0.0	0.0

Time	VC-101-PONE	MC-102-A	NMD05	NMD13	NM-101-A	NM-102-A	NM-102-B	NM-102-C	NM-102-D	NM-102-E	NM-102-F	NM-102-01
DA (SM)	0.3501	1.6271	0.2633	0.1736	2.0070	0.7784	1.0392	0.4090	0.7084	0.2087	0.3708	0.3487
PRF	150	150	150	150	150	150	150	150	150	150	150	150
Tc (hr)	2.47	18.44	6.03	9.93	33.01	13.84	12.73	9.66	7.51	5.19	6.84	7.14
Tlag (hr)	1.48	11.06	3.62	5.96	19.81	8.31	7.64	5.79	4.51	3.11	4.10	4.28
Drecom (hr)	0.33	2.45	0.80	1.32	4.39	1.84	1.69	1.28	1.00	0.69	0.91	0.95
Dmax (hr)	0.42	3.13	1.03	1.69	5.61	2.35	2.16	1.64	1.28	0.88	1.16	1.21
Dchosen (hr)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Φ	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23
α	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47
Tp (hr)	1.98	11.56	4.12	6.46	20.31	8.81	8.14	6.29	5.01	3.61	4.60	4.78
Qp	26.47	21.11	9.59	4.03	14.82	13.26	19.15	9.75	21.23	8.67	12.08	10.93
TIME (HR)												
77.0	0.0	3.6	0.0	0.1	7.5	1.0	1.0	0.2	0.1	0.0	0.0	0.0
78.0	0.0	3.5	0.0	0.1	7.4	0.9	1.0	0.2	0.1	0.0	0.0	0.0
79.0	0.0	3.4	0.0	0.1	7.2	0.9	0.9	0.1	0.1	0.0	0.0	0.0
80.0	0.0	3.3	0.0	0.1	7.1	0.8	0.9	0.1	0.1	0.0	0.0	0.0
81.0	0.0	3.2	0.0	0.1	7.0	0.8	0.9	0.1	0.1	0.0	0.0	0.0
82.0	0.0	3.1	0.0	0.1	6.9	0.8	0.8	0.1	0.1	0.0	0.0	0.0
83.0	0.0	3.0	0.0	0.1	6.8	0.7	0.8	0.1	0.1	0.0	0.0	0.0
84.0	0.0	2.9	0.0	0.0	6.6	0.7	0.7	0.1	0.0	0.0	0.0	0.0
85.0	0.0	2.8	0.0	0.0	6.5	0.7	0.7	0.1	0.0	0.0	0.0	0.0
86.0	0.0	2.7	0.0	0.0	6.4	0.6	0.7	0.1	0.0	0.0	0.0	0.0
87.0	0.0	2.6	0.0	0.0	6.3	0.6	0.6	0.1	0.0	0.0	0.0	0.0
88.0	0.0	2.5	0.0	0.0	6.2	0.6	0.6	0.1	0.0	0.0	0.0	0.0
89.0	0.0	2.4	0.0	0.0	6.1	0.6	0.6	0.1	0.0	0.0	0.0	0.0
90.0	0.0	2.3	0.0	0.0	6.0	0.5	0.5	0.1	0.0	0.0	0.0	0.0
91.0	0.0	2.2	0.0	0.0	5.9	0.5	0.5	0.1	0.0	0.0	0.0	0.0
92.0	0.0	2.2	0.0	0.0	5.8	0.5	0.5	0.1	0.0	0.0	0.0	0.0
93.0	0.0	2.1	0.0	0.0	5.7	0.5	0.5	0.1	0.0	0.0	0.0	0.0
94.0	0.0	2.0	0.0	0.0	5.6	0.4	0.4	0.1	0.0	0.0	0.0	0.0
95.0	0.0	1.9	0.0	0.0	5.5	0.4	0.4	0.0	0.0	0.0	0.0	0.0
96.0	0.0	1.9	0.0	0.0	5.4	0.4	0.4	0.0	0.0	0.0	0.0	0.0
97.0	0.0	1.8	0.0	0.0	5.3	0.4	0.4	0.0	0.0	0.0	0.0	0.0
98.0	0.0	1.7	0.0	0.0	5.2	0.4	0.4	0.0	0.0	0.0	0.0	0.0
99.0	0.0	1.7	0.0	0.0	5.1	0.3	0.3	0.0	0.0	0.0	0.0	0.0
100.0	0.0	1.6	0.0	0.0	5.0	0.3	0.3	0.0	0.0	0.0	0.0	0.0
101.0	0.0	1.6	0.0	0.0	4.9	0.3	0.3	0.0	0.0	0.0	0.0	0.0
102.0	0.0	1.5	0.0	0.0	4.8	0.3	0.3	0.0	0.0	0.0	0.0	0.0
103.0	0.0	1.5	0.0	0.0	4.7	0.3	0.3	0.0	0.0	0.0	0.0	0.0
104.0	0.0	1.4	0.0	0.0	4.6	0.3	0.3	0.0	0.0	0.0	0.0	0.0
105.0	0.0	1.4	0.0	0.0	4.5	0.3	0.2	0.0	0.0	0.0	0.0	0.0
106.0	0.0	1.3	0.0	0.0	4.5	0.2	0.2	0.0	0.0	0.0	0.0	0.0
107.0	0.0	1.3	0.0	0.0	4.4	0.2	0.2	0.0	0.0	0.0	0.0	0.0
108.0	0.0	1.2	0.0	0.0	4.3	0.2	0.2	0.0	0.0	0.0	0.0	0.0
109.0	0.0	1.2	0.0	0.0	4.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0
110.0	0.0	1.1	0.0	0.0	4.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0
111.0	0.0	1.1	0.0	0.0	4.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0
112.0	0.0	1.1	0.0	0.0	4.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0
113.0	0.0	1.0	0.0	0.0	3.9	0.2	0.2	0.0	0.0	0.0	0.0	0.0
114.0	0.0	1.0	0.0	0.0	3.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0
115.0	0.0	0.9	0.0	0.0	3.8	0.2	0.1	0.0	0.0	0.0	0.0	0.0
116.0	0.0	0.9	0.0	0.0	3.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0
117.0	0.0	0.9	0.0	0.0	3.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0
118.0	0.0	0.8	0.0	0.0	3.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0
119.0	0.0	0.8	0.0	0.0	3.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0
120.0	0.0	0.8	0.0	0.0	3.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0
121.0	0.0	0.8	0.0	0.0	3.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0
122.0	0.0	0.7	0.0	0.0	3.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0
123.0	0.0	0.7	0.0	0.0	3.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0
124.0	0.0	0.7	0.0	0.0	3.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0
125.0	0.0	0.7	0.0	0.0	3.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
126.0	0.0	0.6	0.0	0.0	3.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
127.0	0.0	0.6	0.0	0.0	3.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0
128.0	0.0	0.6	0.0	0.0	2.9	0.1	0.1	0.0	0.0	0.0	0.0	0.0
129.0	0.0	0.6	0.0	0.0	2.9	0.1	0.1	0.0	0.0	0.0	0.0	0.0
130.0	0.0	0.5	0.0	0.0	2.8	0.1	0.1	0.0	0.0	0.0	0.0	0.0
131.0	0.0	0.5	0.0	0.0	2.8	0.1	0.1	0.0	0.0	0.0	0.0	0.0
132.0	0.0	0.5	0.0	0.0	2.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0
133.0	0.0	0.5	0.0	0.0	2.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0
134.0	0.0	0.5	0.0	0.0	2.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0
135.0	0.0	0.5	0.0	0.0	2.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0
136.0	0.0	0.4	0.0	0.0	2.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0
137.0	0.0	0.4	0.0	0.0	2.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0
138.0	0.0	0.4	0.0	0.0	2.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0
139.0	0.0	0.4	0.0	0.0	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140.0	0.0	0.4	0.0	0.0	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
141.0	0.0	0.4	0.0	0.0	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
142.0	0.0	0.3	0.0	0.0	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
143.0	0.0	0.3	0.0	0.0	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
144.0	0.0	0.3	0.0	0.0	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
145.0	0.0	0.3	0.0	0.0	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
146.0	0.0	0.3	0.0	0.0	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
147.0	0.0	0.3	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
148.0	0.0	0.3	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
149.0	0.0	0.3	0.0	0.0	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150.0	0.0	0.3	0.0	0.0	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
151.0	0.0	0.2	0.0	0.0	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
152.0	0.0	0.2	0.0	0.0	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
153.0	0.0	0.2	0.0	0.0	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
154.0	0.0	0.2	0.0	0.0	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
155.0	0.0	0.2	0.0	0.0	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
156.0	0.0	0.2	0.0	0.0	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Time	NM-102-02	NM-103-A	NM-103-B	NM-103-C	NM-103-D	NM-104	NM-105-A	NM-105-B	NM-105-C	NM-105-D	NM-106-A	NM-107-A
DA (SM)	1.1562	0.2821	0.4730	0.6396	0.1724	1.2779	0.3122	0.1764	0.6769	0.3072	0.8088	0.6553
PRF	150	150	201	171	150	150	150	150	150	150	150	150
Tc (hr)	23.13	6.74	4.22	4.77	4.21	49.91	6.55	5.04	10.98	11.96	12.07	11.91
Tlag (hr)	13.88	4.04	2.53	2.86	2.53	29.95	3.93	3.03	6.59	7.18	7.24	7.15
Drecom (hr)	3.08	0.90	0.56	0.63	0.56	6.64	0.87	0.67	1.46	1.59	1.61	1.58
Dmax (hr)	3.93	1.15	0.72	0.81	0.72	8.49	1.11	0.86	1.87	2.03	2.05	2.03
Dchosen (hr)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Φ	0.23	0.23	0.31	0.26	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23
α	0.47	0.47	0.75	0.57	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47
Tp (hr)	14.38	4.54	3.03	3.36	3.03	30.45	4.43	3.53	7.09	7.68	7.74	7.65
Qp	12.06	9.31	31.32	32.48	8.54	6.30	10.57	7.50	14.33	6.00	15.67	12.85
TIME (HR)												
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1.0	5.4	6.6	22.5	24.2	7.0	2.0	7.6	5.8	8.6	3.5	9.0	7.5
2.0	7.2	8.2	29.6	30.4	8.2	2.7	9.4	7.0	11.1	4.5	11.8	9.7
3.0	8.4	9.0	31.3	32.4	8.5	3.2	10.2	7.5	12.6	5.1	13.4	11.0
4.0	9.3	9.3	30.3	32.2	8.4	3.7	10.5	7.5	13.4	5.5	14.4	11.9
5.0	10.0	9.3	28.0	30.8	8.0	4.0	10.5	7.3	14.0	5.8	15.1	12.4
6.0	10.5	9.1	25.1	28.9	7.4	4.3	10.3	6.9	14.2	5.9	15.5	12.7
7.0	11.0	8.9	22.0	26.6	6.8	4.5	10.0	6.5	14.3	6.0	15.6	12.8
8.0	11.3	8.5	19.0	24.2	6.2	4.8	9.6	6.1	14.3	6.0	15.7	12.8
9.0	11.5	8.1	16.2	21.8	5.7	4.9	9.1	5.6	14.1	6.0	15.6	12.8
10.0	11.7	7.7	13.7	19.5	5.1	5.1	8.6	5.2	13.9	5.9	15.4	12.6
11.0	11.9	7.2	11.4	17.4	4.6	5.3	8.1	4.7	13.6	5.8	15.2	12.4
12.0	12.0	6.8	9.5	15.4	4.1	5.4	7.6	4.3	13.3	5.7	14.9	12.2
13.0	12.0	6.4	7.9	13.6	3.6	5.5	7.1	3.9	12.9	5.6	14.5	11.9
14.0	12.1	6.0	6.5	12.0	3.2	5.6	6.6	3.6	12.5	5.4	14.2	11.6
15.0	12.1	5.5	5.4	10.5	2.8	5.7	6.1	3.2	12.1	5.3	13.8	11.2
16.0	12.0	5.2	4.4	9.2	2.5	5.8	5.7	2.9	11.6	5.1	13.4	10.9
17.0	12.0	4.8	3.6	8.0	2.2	5.9	5.3	2.6	11.2	4.9	12.9	10.5
18.0	11.9	4.4	2.9	7.0	1.9	6.0	4.9	2.4	10.8	4.8	12.5	10.2
19.0	11.8	4.1	2.4	6.1	1.7	6.0	4.5	2.1	10.4	4.6	12.1	9.8
20.0	11.7	3.8	1.9	5.3	1.5	6.1	4.1	1.9	9.9	4.4	11.6	9.5
21.0	11.6	3.5	1.6	4.6	1.3	6.1	3.8	1.7	9.5	4.3	11.2	9.1
22.0	11.5	3.2	1.3	4.0	1.2	6.2	3.5	1.5	9.1	4.1	10.8	8.8
23.0	11.4	3.0	1.0	3.4	1.0	6.2	3.2	1.4	8.7	3.9	10.4	8.4
24.0	11.2	2.7	0.8	3.0	0.9	6.2	3.0	1.2	8.3	3.8	10.0	8.1
25.0	11.1	2.5	0.7	2.5	0.8	6.2	2.7	1.1	7.9	3.6	9.6	7.7
26.0	10.9	2.3	0.5	2.2	0.7	6.3	2.5	1.0	7.6	3.5	9.2	7.4
27.0	10.7	2.1	0.4	1.9	0.6	6.3	2.3	0.9	7.2	3.3	8.8	7.1
28.0	10.6	1.9	0.3	1.6	0.5	6.3	2.1	0.8	6.9	3.2	8.4	6.8
29.0	10.4	1.8	0.3	1.4	0.4	6.3	1.9	0.7	6.5	3.0	8.0	6.5
30.0	10.2	1.6	0.2	1.2	0.4	6.3	1.7	0.6	6.2	2.9	7.7	6.2
31.0	10.1	1.5	0.2	1.0	0.3	6.3	1.6	0.5	5.9	2.8	7.4	5.9
32.0	9.9	1.4	0.1	0.9	0.3	6.3	1.5	0.5	5.6	2.7	7.0	5.7
33.0	9.7	1.3	0.1	0.8	0.3	6.3	1.3	0.4	5.3	2.5	6.7	5.4
34.0	9.5	1.2	0.1	0.7	0.2	6.3	1.2	0.4	5.1	2.4	6.4	5.2
35.0	9.4	1.1	0.1	0.6	0.2	6.3	1.1	0.3	4.8	2.3	6.1	4.9
36.0	9.2	1.0	0.1	0.5	0.2	6.3	1.0	0.3	4.5	2.2	5.8	4.7
37.0	9.0	0.9	0.0	0.4	0.1	6.2	0.9	0.3	4.3	2.1	5.6	4.5
38.0	8.8	0.8	0.0	0.4	0.1	6.2	0.8	0.2	4.1	2.0	5.3	4.3
39.0	8.6	0.7	0.0	0.3	0.1	6.2	0.8	0.2	3.9	1.9	5.1	4.0
40.0	8.5	0.7	0.0	0.3	0.1	6.2	0.7	0.2	3.7	1.8	4.8	3.9
41.0	8.3	0.6	0.0	0.2	0.1	6.2	0.6	0.2	3.5	1.7	4.6	3.7
42.0	8.1	0.6	0.0	0.2	0.1	6.1	0.6	0.1	3.3	1.6	4.4	3.5
43.0	7.9	0.5	0.0	0.2	0.1	6.1	0.5	0.1	3.1	1.6	4.2	3.3
44.0	7.8	0.5	0.0	0.1	0.1	6.1	0.5	0.1	2.9	1.5	4.0	3.2
45.0	7.6	0.4	0.0	0.1	0.0	6.0	0.4	0.1	2.8	1.4	3.8	3.0
46.0	7.4	0.4	0.0	0.1	0.0	6.0	0.4	0.1	2.6	1.3	3.6	2.9
47.0	7.3	0.4	0.0	0.1	0.0	6.0	0.4	0.1	2.5	1.3	3.4	2.7
48.0	7.1	0.3	0.0	0.1	0.0	5.9	0.3	0.1	2.4	1.2	3.2	2.6
49.0	6.9	0.3	0.0	0.1	0.0	5.9	0.3	0.1	2.2	1.2	3.1	2.4
50.0	6.8	0.3	0.0	0.1	0.0	5.9	0.3	0.1	2.1	1.1	2.9	2.3
51.0	6.6	0.2	0.0	0.0	0.0	5.8	0.2	0.0	2.0	1.0	2.8	2.2
52.0	6.5	0.2	0.0	0.0	0.0	5.8	0.2	0.0	1.9	1.0	2.6	2.1
53.0	6.3	0.2	0.0	0.0	0.0	5.8	0.2	0.0	1.8	0.9	2.5	2.0
54.0	6.2	0.2	0.0	0.0	0.0	5.7	0.2	0.0	1.7	0.9	2.4	1.9
55.0	6.0	0.2	0.0	0.0	0.0	5.7	0.2	0.0	1.6	0.8	2.3	1.8
56.0	5.9	0.2	0.0	0.0	0.0	5.7	0.1	0.0	1.5	0.8	2.1	1.7
57.0	5.7	0.1	0.0	0.0	0.0	5.6	0.1	0.0	1.4	0.8	2.0	1.6
58.0	5.6	0.1	0.0	0.0	0.0	5.6	0.1	0.0	1.3	0.7	1.9	1.5
59.0	5.5	0.1	0.0	0.0	0.0	5.5	0.1	0.0	1.3	0.7	1.8	1.4
60.0	5.3	0.1	0.0	0.0	0.0	5.5	0.1	0.0	1.2	0.6	1.7	1.4
61.0	5.2	0.1	0.0	0.0	0.0	5.4	0.1	0.0	1.1	0.6	1.6	1.3
62.0	5.1	0.1	0.0	0.0	0.0	5.4	0.1	0.0	1.1	0.6	1.6	1.2
63.0	5.0	0.1	0.0	0.0	0.0	5.4	0.1	0.0	1.0	0.6	1.5	1.2
64.0	4.8	0.1	0.0	0.0	0.0	5.3	0.1	0.0	0.9	0.5	1.4	1.1
65.0	4.7	0.1	0.0	0.0	0.0	5.3	0.1	0.0	0.9	0.5	1.3	1.0
66.0	4.6	0.1	0.0	0.0	0.0	5.2	0.1	0.0	0.8	0.5	1.3	1.0
67.0	4.5	0.1	0.0	0.0	0.0	5.2	0.1	0.0	0.8	0.4	1.2	0.9
68.0	4.4	0.0	0.0	0.0	0.0	5.1	0.0	0.0	0.7	0.4	1.1	0.9
69.0	4.3	0.0	0.0	0.0	0.0	5.1	0.0	0.0	0.7	0.4	1.1	0.8
70.0	4.1	0.0	0.0	0.0	0.0	5.1	0.0	0.0	0.7	0.4	1.0	0.8
71.0	4.0	0.0	0.0	0.0	0.0	5.0	0.0	0.0	0.6	0.4	1.0	0.8
72.0	3.9	0.0	0.0	0.0	0.0	5.0	0.0	0.0	0.6	0.3	0.9	0.7
73.0	3.8	0.0	0.0	0.0	0.0	4.9	0.0	0.0	0.6	0.3	0.9	0.7
74.0	3.7	0.0	0.0	0.0	0.0	4.9	0.0	0.0	0.5	0.3	0.8	0.6
75.0	3.6	0.0	0.0	0.0	0.0	4.8	0.0	0.0	0.5	0.3	0.8	0.6
76.0	3.5	0.0	0.0	0.0	0.0	4.8	0.0	0.0	0.5	0.3	0.7	0.6

Time	NM-102-02	NM-103-A	NM-103-B	NM-103-C	NM-103-D	NM-104	NM-105-A	NM-105-B	NM-105-C	NM-105-D	NM-106-A	NM-107-A
DA (SM)	1.1562	0.2821	0.4730	0.6396	0.1724	1.2779	0.3122	0.1764	0.6769	0.3072	0.8088	0.6553
PRF	150	150	201	171	150	150	150	150	150	150	150	150
Tc (hr)	23.13	6.74	4.22	4.77	4.21	49.91	6.55	5.04	10.98	11.96	12.07	11.91
Tlag (hr)	13.88	4.04	2.53	2.86	2.53	29.95	3.93	3.03	6.59	7.18	7.24	7.15
Drecom (hr)	3.08	0.90	0.56	0.63	0.56	6.64	0.87	0.67	1.46	1.59	1.61	1.58
Dmax (hr)	3.93	1.15	0.72	0.81	0.72	8.49	1.11	0.86	1.87	2.03	2.05	2.03
Dchosen (hr)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Φ	0.23	0.23	0.31	0.26	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23
α	0.47	0.47	0.75	0.57	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47
Tp (hr)	14.38	4.54	3.03	3.36	3.03	30.45	4.43	3.53	7.09	7.68	7.74	7.65
Qp	12.06	9.31	31.32	32.48	8.54	6.30	10.57	7.50	14.33	6.00	15.67	12.85
TIME (HR)												
77.0	3.5	0.0	0.0	0.0	0.0	4.8	0.0	0.0	0.4	0.3	0.7	0.5
78.0	3.4	0.0	0.0	0.0	0.0	4.7	0.0	0.0	0.4	0.2	0.7	0.5
79.0	3.3	0.0	0.0	0.0	0.0	4.7	0.0	0.0	0.4	0.2	0.6	0.5
80.0	3.2	0.0	0.0	0.0	0.0	4.6	0.0	0.0	0.4	0.2	0.6	0.5
81.0	3.1	0.0	0.0	0.0	0.0	4.6	0.0	0.0	0.3	0.2	0.6	0.4
82.0	3.0	0.0	0.0	0.0	0.0	4.5	0.0	0.0	0.3	0.2	0.5	0.4
83.0	2.9	0.0	0.0	0.0	0.0	4.5	0.0	0.0	0.3	0.2	0.5	0.4
84.0	2.9	0.0	0.0	0.0	0.0	4.4	0.0	0.0	0.3	0.2	0.5	0.4
85.0	2.8	0.0	0.0	0.0	0.0	4.4	0.0	0.0	0.3	0.2	0.5	0.4
86.0	2.7	0.0	0.0	0.0	0.0	4.4	0.0	0.0	0.3	0.2	0.4	0.3
87.0	2.6	0.0	0.0	0.0	0.0	4.3	0.0	0.0	0.2	0.1	0.4	0.3
88.0	2.6	0.0	0.0	0.0	0.0	4.3	0.0	0.0	0.2	0.1	0.4	0.3
89.0	2.5	0.0	0.0	0.0	0.0	4.2	0.0	0.0	0.2	0.1	0.4	0.3
90.0	2.4	0.0	0.0	0.0	0.0	4.2	0.0	0.0	0.2	0.1	0.3	0.3
91.0	2.4	0.0	0.0	0.0	0.0	4.1	0.0	0.0	0.2	0.1	0.3	0.3
92.0	2.3	0.0	0.0	0.0	0.0	4.1	0.0	0.0	0.2	0.1	0.3	0.2
93.0	2.2	0.0	0.0	0.0	0.0	4.1	0.0	0.0	0.2	0.1	0.3	0.2
94.0	2.2	0.0	0.0	0.0	0.0	4.0	0.0	0.0	0.2	0.1	0.3	0.2
95.0	2.1	0.0	0.0	0.0	0.0	4.0	0.0	0.0	0.1	0.1	0.3	0.2
96.0	2.1	0.0	0.0	0.0	0.0	3.9	0.0	0.0	0.1	0.1	0.2	0.2
97.0	2.0	0.0	0.0	0.0	0.0	3.9	0.0	0.0	0.1	0.1	0.2	0.2
98.0	2.0	0.0	0.0	0.0	0.0	3.9	0.0	0.0	0.1	0.1	0.2	0.2
99.0	1.9	0.0	0.0	0.0	0.0	3.8	0.0	0.0	0.1	0.1	0.2	0.2
100.0	1.8	0.0	0.0	0.0	0.0	3.8	0.0	0.0	0.1	0.1	0.2	0.2
101.0	1.8	0.0	0.0	0.0	0.0	3.7	0.0	0.0	0.1	0.1	0.2	0.1
102.0	1.7	0.0	0.0	0.0	0.0	3.7	0.0	0.0	0.1	0.1	0.2	0.1
103.0	1.7	0.0	0.0	0.0	0.0	3.7	0.0	0.0	0.1	0.1	0.2	0.1
104.0	1.7	0.0	0.0	0.0	0.0	3.6	0.0	0.0	0.1	0.1	0.2	0.1
105.0	1.6	0.0	0.0	0.0	0.0	3.6	0.0	0.0	0.1	0.1	0.1	0.1
106.0	1.6	0.0	0.0	0.0	0.0	3.5	0.0	0.0	0.1	0.1	0.1	0.1
107.0	1.5	0.0	0.0	0.0	0.0	3.5	0.0	0.0	0.1	0.0	0.1	0.1
108.0	1.5	0.0	0.0	0.0	0.0	3.5	0.0	0.0	0.1	0.0	0.1	0.1
109.0	1.4	0.0	0.0	0.0	0.0	3.4	0.0	0.0	0.1	0.0	0.1	0.1
110.0	1.4	0.0	0.0	0.0	0.0	3.4	0.0	0.0	0.1	0.0	0.1	0.1
111.0	1.4	0.0	0.0	0.0	0.0	3.3	0.0	0.0	0.1	0.0	0.1	0.1
112.0	1.3	0.0	0.0	0.0	0.0	3.3	0.0	0.0	0.1	0.0	0.1	0.1
113.0	1.3	0.0	0.0	0.0	0.0	3.3	0.0	0.0	0.0	0.0	0.1	0.1
114.0	1.2	0.0	0.0	0.0	0.0	3.2	0.0	0.0	0.0	0.0	0.1	0.1
115.0	1.2	0.0	0.0	0.0	0.0	3.2	0.0	0.0	0.0	0.0	0.1	0.1
116.0	1.2	0.0	0.0	0.0	0.0	3.2	0.0	0.0	0.0	0.0	0.1	0.1
117.0	1.1	0.0	0.0	0.0	0.0	3.1	0.0	0.0	0.0	0.0	0.1	0.1
118.0	1.1	0.0	0.0	0.0	0.0	3.1	0.0	0.0	0.0	0.0	0.1	0.1
119.0	1.1	0.0	0.0	0.0	0.0	3.1	0.0	0.0	0.0	0.0	0.1	0.1
120.0	1.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.1	0.0
121.0	1.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.1	0.0
122.0	1.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.1	0.0
123.0	1.0	0.0	0.0	0.0	0.0	2.9	0.0	0.0	0.0	0.0	0.1	0.0
124.0	0.9	0.0	0.0	0.0	0.0	2.9	0.0	0.0	0.0	0.0	0.1	0.0
125.0	0.9	0.0	0.0	0.0	0.0	2.9	0.0	0.0	0.0	0.0	0.0	0.0
126.0	0.9	0.0	0.0	0.0	0.0	2.8	0.0	0.0	0.0	0.0	0.0	0.0
127.0	0.9	0.0	0.0	0.0	0.0	2.8	0.0	0.0	0.0	0.0	0.0	0.0
128.0	0.8	0.0	0.0	0.0	0.0	2.8	0.0	0.0	0.0	0.0	0.0	0.0
129.0	0.8	0.0	0.0	0.0	0.0	2.7	0.0	0.0	0.0	0.0	0.0	0.0
130.0	0.8	0.0	0.0	0.0	0.0	2.7	0.0	0.0	0.0	0.0	0.0	0.0
131.0	0.8	0.0	0.0	0.0	0.0	2.7	0.0	0.0	0.0	0.0	0.0	0.0
132.0	0.7	0.0	0.0	0.0	0.0	2.6	0.0	0.0	0.0	0.0	0.0	0.0
133.0	0.7	0.0	0.0	0.0	0.0	2.6	0.0	0.0	0.0	0.0	0.0	0.0
134.0	0.7	0.0	0.0	0.0	0.0	2.6	0.0	0.0	0.0	0.0	0.0	0.0
135.0	0.7	0.0	0.0	0.0	0.0	2.5	0.0	0.0	0.0	0.0	0.0	0.0
136.0	0.7	0.0	0.0	0.0	0.0	2.5	0.0	0.0	0.0	0.0	0.0	0.0
137.0	0.6	0.0	0.0	0.0	0.0	2.5	0.0	0.0	0.0	0.0	0.0	0.0
138.0	0.6	0.0	0.0	0.0	0.0	2.4	0.0	0.0	0.0	0.0	0.0	0.0
139.0	0.6	0.0	0.0	0.0	0.0	2.4	0.0	0.0	0.0	0.0	0.0	0.0
140.0	0.6	0.0	0.0	0.0	0.0	2.4	0.0	0.0	0.0	0.0	0.0	0.0
141.0	0.6	0.0	0.0	0.0	0.0	2.4	0.0	0.0	0.0	0.0	0.0	0.0
142.0	0.6	0.0	0.0	0.0	0.0	2.3	0.0	0.0	0.0	0.0	0.0	0.0
143.0	0.5	0.0	0.0	0.0	0.0	2.3	0.0	0.0	0.0	0.0	0.0	0.0
144.0	0.5	0.0	0.0	0.0	0.0	2.3	0.0	0.0	0.0	0.0	0.0	0.0
145.0	0.5	0.0	0.0	0.0	0.0	2.2	0.0	0.0	0.0	0.0	0.0	0.0
146.0	0.5	0.0	0.0	0.0	0.0	2.2	0.0	0.0	0.0	0.0	0.0	0.0
147.0	0.5	0.0	0.0	0.0	0.0	2.2	0.0	0.0	0.0	0.0	0.0	0.0
148.0	0.5	0.0	0.0	0.0	0.0	2.2	0.0	0.0	0.0	0.0	0.0	0.0
149.0	0.5	0.0	0.0	0.0	0.0	2.1	0.0	0.0	0.0	0.0	0.0	0.0
150.0	0.4	0.0	0.0	0.0	0.0	2.1	0.0	0.0	0.0	0.0	0.0	0.0
151.0	0.4	0.0	0.0	0.0	0.0	2.1	0.0	0.0	0.0	0.0	0.0	0.0
152.0	0.4	0.0	0.0	0.0	0.0	2.1	0.0	0.0	0.0	0.0	0.0	0.0
153.0	0.4	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0
154.0	0.4	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0
155.0	0.4	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0
156.0	0.4	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0

Time	NM-107-B	NM-107-C	NM-107-D	NM-107-E	NM-107-04	NM-107-05	NM-108-A	NM-108-B	NM-109-A	NM-110-A	NM-110-B	NM-110-C
DA (SM)	0.7216	2.3060	1.2296	0.5503	4.2987	0.5618	0.1402	0.6832	0.2075	0.7444	0.7630	0.6230
PRF	150	150	150	150	150	150	201	150	150	150	150	150
Tc (hr)	12.88	34.62	12.95	7.06	27.44	10.84	2.36	25.90	3.57	10.28	9.78	14.30
Tlag (hr)	7.73	20.77	7.77	4.24	16.46	6.50	1.42	15.54	2.14	6.17	5.87	8.58
Drecom (hr)	1.71	4.61	1.72	0.94	3.65	1.44	0.31	3.45	0.48	1.37	1.30	1.90
Dmax (hr)	2.19	5.89	2.20	1.20	4.66	1.84	0.40	4.40	0.61	1.75	1.66	2.43
Dchosen (hr)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Φ	0.23	0.23	0.23	0.23	0.23	0.23	0.31	0.23	0.23	0.23	0.23	0.23
α	0.47	0.47	0.47	0.47	0.47	0.47	0.75	0.47	0.47	0.47	0.47	0.47
Tp (hr)	8.23	21.27	8.27	4.74	16.96	7.00	1.92	16.04	2.64	6.67	6.37	9.08
Qp	13.15	16.26	22.31	17.43	38.01	12.03	14.72	6.39	11.77	16.74	17.98	10.30
TIME (HR)												
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1.0	7.4	6.1	12.5	12.2	15.7	7.2	12.9	2.7	10.0	10.3	11.2	5.6
2.0	9.7	8.2	16.4	15.3	21.1	9.4	14.7	3.6	11.6	13.2	14.4	7.3
3.0	11.0	9.7	18.7	16.7	24.8	10.6	13.5	4.3	11.7	14.9	16.2	8.4
4.0	11.9	10.9	20.2	17.3	27.7	11.3	11.3	4.7	11.2	15.9	17.2	9.1
5.0	12.5	11.8	21.2	17.4	29.9	11.7	9.0	5.1	10.5	16.5	17.8	9.6
6.0	12.9	12.6	21.8	17.2	31.6	12.0	7.0	5.4	9.5	16.7	18.0	9.9
7.0	13.1	13.2	22.2	16.7	33.1	12.0	5.3	5.6	8.6	16.7	17.9	10.1
8.0	13.2	13.8	22.3	16.1	34.2	12.0	3.9	5.8	7.7	16.6	17.7	10.3
9.0	13.1	14.2	22.3	15.4	35.2	11.8	2.9	6.0	6.8	16.4	17.4	10.3
10.0	13.0	14.6	22.1	14.7	36.0	11.6	2.1	6.1	6.0	16.0	17.0	10.3
11.0	12.9	15.0	21.8	13.9	36.6	11.4	1.5	6.2	5.2	15.6	16.5	10.2
12.0	12.7	15.3	21.5	13.1	37.1	11.1	1.1	6.3	4.6	15.2	16.0	10.1
13.0	12.4	15.5	21.1	12.4	37.4	10.8	0.8	6.3	4.0	14.7	15.4	9.9
14.0	12.1	15.7	20.6	11.6	37.7	10.4	0.6	6.4	3.4	14.2	14.8	9.8
15.0	11.9	15.8	20.1	10.8	37.9	10.1	0.4	6.4	3.0	13.6	14.2	9.6
16.0	11.5	16.0	19.6	10.1	38.0	9.7	0.3	6.4	2.6	13.1	13.6	9.4
17.0	11.2	16.1	19.1	9.4	38.0	9.3	0.2	6.4	2.2	12.6	13.0	9.2
18.0	10.9	16.2	18.5	8.8	38.0	9.0	0.1	6.4	1.9	12.0	12.4	9.0
19.0	10.5	16.2	17.9	8.2	37.9	8.6	0.1	6.3	1.6	11.5	11.9	8.7
20.0	10.2	16.2	17.4	7.6	37.8	8.3	0.1	6.3	1.4	11.0	11.3	8.5
21.0	9.9	16.3	16.8	7.0	37.6	7.9	0.0	6.3	1.2	10.5	10.7	8.2
22.0	9.5	16.3	16.2	6.5	37.4	7.6	0.0	6.2	1.0	10.0	10.2	8.0
23.0	9.2	16.2	15.6	6.0	37.1	7.2	0.0	6.2	0.9	9.5	9.7	7.8
24.0	8.9	16.2	15.1	5.6	36.8	6.9	0.0	6.1	0.8	9.0	9.2	7.5
25.0	8.5	16.2	14.5	5.1	36.5	6.6	0.0	6.1	0.6	8.6	8.7	7.3
26.0	8.2	16.1	14.0	4.7	36.2	6.3	0.0	6.0	0.6	8.2	8.2	7.0
27.0	7.9	16.0	13.4	4.4	35.8	6.0	0.0	5.9	0.5	7.7	7.8	6.8
28.0	7.6	15.9	12.9	4.0	35.4	5.7	0.0	5.8	0.4	7.3	7.3	6.6
29.0	7.3	15.9	12.4	3.7	35.1	5.4	0.0	5.8	0.3	7.0	6.9	6.4
30.0	7.0	15.8	11.9	3.4	34.6	5.1	0.0	5.7	0.3	6.6	6.5	6.1
31.0	6.7	15.7	11.4	3.1	34.2	4.9	0.0	5.6	0.2	6.2	6.2	5.9
32.0	6.4	15.5	11.0	2.9	33.8	4.6	0.0	5.5	0.2	5.9	5.8	5.7
33.0	6.2	15.4	10.5	2.7	33.4	4.4	0.0	5.5	0.2	5.6	5.5	5.5
34.0	5.9	15.3	10.1	2.4	32.9	4.2	0.0	5.4	0.2	5.3	5.2	5.3
35.0	5.7	15.2	9.7	2.2	32.4	3.9	0.0	5.3	0.1	5.0	4.9	5.1
36.0	5.4	15.0	9.2	2.1	32.0	3.7	0.0	5.2	0.1	4.7	4.6	4.9
37.0	5.2	14.9	8.9	1.9	31.5	3.5	0.0	5.1	0.1	4.4	4.3	4.7
38.0	5.0	14.8	8.5	1.7	31.0	3.4	0.0	5.0	0.1	4.2	4.1	4.5
39.0	4.7	14.6	8.1	1.6	30.6	3.2	0.0	5.0	0.1	4.0	3.8	4.4
40.0	4.5	14.5	7.7	1.5	30.1	3.0	0.0	4.9	0.1	3.7	3.6	4.2
41.0	4.3	14.3	7.4	1.3	29.6	2.8	0.0	4.8	0.0	3.5	3.4	4.0
42.0	4.1	14.2	7.1	1.2	29.1	2.7	0.0	4.7	0.0	3.3	3.2	3.9
43.0	4.0	14.0	6.8	1.1	28.7	2.5	0.0	4.6	0.0	3.1	3.0	3.7
44.0	3.8	13.9	6.5	1.0	28.2	2.4	0.0	4.5	0.0	3.0	2.8	3.6
45.0	3.6	13.7	6.2	0.9	27.7	2.3	0.0	4.4	0.0	2.8	2.6	3.4
46.0	3.4	13.5	5.9	0.9	27.2	2.1	0.0	4.4	0.0	2.6	2.5	3.3
47.0	3.3	13.4	5.6	0.8	26.7	2.0	0.0	4.3	0.0	2.5	2.3	3.1
48.0	3.1	13.2	5.4	0.7	26.3	1.9	0.0	4.2	0.0	2.3	2.2	3.0
49.0	3.0	13.1	5.1	0.7	25.8	1.8	0.0	4.1	0.0	2.2	2.0	2.9
50.0	2.8	12.9	4.9	0.6	25.3	1.7	0.0	4.0	0.0	2.1	1.9	2.8
51.0	2.7	12.7	4.7	0.5	24.9	1.6	0.0	4.0	0.0	1.9	1.8	2.7
52.0	2.6	12.6	4.4	0.5	24.4	1.5	0.0	3.9	0.0	1.8	1.7	2.6
53.0	2.5	12.4	4.2	0.5	24.0	1.4	0.0	3.8	0.0	1.7	1.6	2.4
54.0	2.4	12.2	4.0	0.4	23.5	1.4	0.0	3.7	0.0	1.6	1.5	2.3
55.0	2.2	12.1	3.9	0.4	23.1	1.3	0.0	3.7	0.0	1.5	1.4	2.2
56.0	2.1	11.9	3.7	0.4	22.7	1.2	0.0	3.6	0.0	1.4	1.3	2.2
57.0	2.0	11.8	3.5	0.3	22.2	1.1	0.0	3.5	0.0	1.3	1.2	2.1
58.0	1.9	11.6	3.3	0.3	21.8	1.1	0.0	3.4	0.0	1.3	1.1	2.0
59.0	1.8	11.4	3.2	0.3	21.4	1.0	0.0	3.4	0.0	1.2	1.1	1.9
60.0	1.8	11.3	3.0	0.2	21.0	1.0	0.0	3.3	0.0	1.1	1.0	1.8
61.0	1.7	11.1	2.9	0.2	20.5	0.9	0.0	3.2	0.0	1.0	0.9	1.7
62.0	1.6	11.0	2.7	0.2	20.1	0.8	0.0	3.1	0.0	1.0	0.9	1.7
63.0	1.5	10.8	2.6	0.2	19.7	0.8	0.0	3.1	0.0	0.9	0.8	1.6
64.0	1.4	10.6	2.5	0.2	19.3	0.8	0.0	3.0	0.0	0.9	0.8	1.5
65.0	1.4	10.5	2.4	0.2	19.0	0.7	0.0	2.9	0.0	0.8	0.7	1.5
66.0	1.3	10.3	2.3	0.1	18.6	0.7	0.0	2.9	0.0	0.8	0.7	1.4
67.0	1.2	10.2	2.1	0.1	18.2	0.6	0.0	2.8	0.0	0.7	0.6	1.3
68.0	1.2	10.0	2.0	0.1	17.8	0.6	0.0	2.8	0.0	0.7	0.6	1.3
69.0	1.1	9.9	1.9	0.1	17.5	0.6	0.0	2.7	0.0	0.6	0.6	1.2
70.0	1.1	9.7	1.8	0.1	17.1	0.5	0.0	2.6	0.0	0.6	0.5	1.2
71.0	1.0	9.6	1.8	0.1	16.7	0.5	0.0	2.6	0.0	0.6	0.5	1.1
72.0	1.0	9.4	1.7	0.1	16.4	0.5	0.0	2.5	0.0	0.5	0.5	1.1
73.0	0.9	9.3	1.6	0.1	16.1	0.4	0.0	2.5	0.0	0.5	0.4	1.0
74.0	0.9	9.1	1.5	0.1	15.7	0.4	0.0	2.4	0.0	0.5	0.4	1.0
75.0	0.8	9.0	1.4	0.1	15.4	0.4	0.0	2.4	0.0	0.4	0.4	0.9
76.0	0.8	8.9	1.4	0.1	15.1	0.4	0.0	2.3	0.0	0.4	0.3	0.9

Time	NM-107-B	NM-107-C	NM-107-D	NM-107-E	NM-107-04	NM-107-05	NM-108-A	NM-108-B	NM-109-A	NM-110-A	NM-110-B	NM-110-C
DA (SM)	0.7216	2.3060	1.2296	0.5503	4.2987	0.5618	0.1402	0.6832	0.2075	0.7444	0.7630	0.6230
PRF	150	150	150	150	150	150	201	150	150	150	150	150
Tc (hr)	12.88	34.62	12.95	7.06	27.44	10.84	2.36	25.90	3.57	10.28	9.78	14.30
Tlag (hr)	7.73	20.77	7.77	4.24	16.46	6.50	1.42	15.54	2.14	6.17	5.87	8.58
Drecom (hr)	1.71	4.61	1.72	0.94	3.65	1.44	0.31	3.45	0.48	1.37	1.30	1.90
Dmax (hr)	2.19	5.89	2.20	1.20	4.66	1.84	0.40	4.40	0.61	1.75	1.66	2.43
Dchosen (hr)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Φ	0.23	0.23	0.23	0.23	0.23	0.23	0.31	0.23	0.23	0.23	0.23	0.23
α	0.47	0.47	0.47	0.47	0.47	0.47	0.75	0.47	0.47	0.47	0.47	0.47
Tp (hr)	8.23	21.27	8.27	4.74	16.96	7.00	1.92	16.04	2.64	6.67	6.37	9.08
Qp	13.15	16.26	22.31	17.43	38.01	12.03	14.72	6.39	11.77	16.74	17.98	10.30
TIME (HR)												
77.0	0.8	8.7	1.3	0.1	14.7	0.3	0.0	2.3	0.0	0.4	0.3	0.8
78.0	0.7	8.6	1.2	0.0	14.4	0.3	0.0	2.2	0.0	0.4	0.3	0.8
79.0	0.7	8.4	1.2	0.0	14.1	0.3	0.0	2.1	0.0	0.3	0.3	0.8
80.0	0.6	8.3	1.1	0.0	13.8	0.3	0.0	2.1	0.0	0.3	0.3	0.7
81.0	0.6	8.2	1.1	0.0	13.5	0.3	0.0	2.1	0.0	0.3	0.2	0.7
82.0	0.6	8.0	1.0	0.0	13.2	0.3	0.0	2.0	0.0	0.3	0.2	0.7
83.0	0.6	7.9	1.0	0.0	12.9	0.2	0.0	2.0	0.0	0.3	0.2	0.6
84.0	0.5	7.8	0.9	0.0	12.7	0.2	0.0	1.9	0.0	0.2	0.2	0.6
85.0	0.5	7.7	0.9	0.0	12.4	0.2	0.0	1.9	0.0	0.2	0.2	0.6
86.0	0.5	7.5	0.8	0.0	12.1	0.2	0.0	1.8	0.0	0.2	0.2	0.6
87.0	0.5	7.4	0.8	0.0	11.8	0.2	0.0	1.8	0.0	0.2	0.2	0.5
88.0	0.4	7.3	0.7	0.0	11.6	0.2	0.0	1.7	0.0	0.2	0.2	0.5
89.0	0.4	7.2	0.7	0.0	11.3	0.2	0.0	1.7	0.0	0.2	0.1	0.5
90.0	0.4	7.0	0.7	0.0	11.1	0.2	0.0	1.7	0.0	0.2	0.1	0.5
91.0	0.4	6.9	0.6	0.0	10.8	0.1	0.0	1.6	0.0	0.2	0.1	0.4
92.0	0.3	6.8	0.6	0.0	10.6	0.1	0.0	1.6	0.0	0.1	0.1	0.4
93.0	0.3	6.7	0.6	0.0	10.4	0.1	0.0	1.5	0.0	0.1	0.1	0.4
94.0	0.3	6.6	0.5	0.0	10.1	0.1	0.0	1.5	0.0	0.1	0.1	0.4
95.0	0.3	6.5	0.5	0.0	9.9	0.1	0.0	1.5	0.0	0.1	0.1	0.4
96.0	0.3	6.4	0.5	0.0	9.7	0.1	0.0	1.4	0.0	0.1	0.1	0.4
97.0	0.3	6.3	0.5	0.0	9.5	0.1	0.0	1.4	0.0	0.1	0.1	0.3
98.0	0.3	6.2	0.4	0.0	9.2	0.1	0.0	1.4	0.0	0.1	0.1	0.3
99.0	0.2	6.0	0.4	0.0	9.0	0.1	0.0	1.3	0.0	0.1	0.1	0.3
100.0	0.2	5.9	0.4	0.0	8.8	0.1	0.0	1.3	0.0	0.1	0.1	0.3
101.0	0.2	5.8	0.4	0.0	8.6	0.1	0.0	1.3	0.0	0.1	0.1	0.3
102.0	0.2	5.7	0.4	0.0	8.4	0.1	0.0	1.2	0.0	0.1	0.1	0.3
103.0	0.2	5.6	0.3	0.0	8.2	0.1	0.0	1.2	0.0	0.1	0.1	0.3
104.0	0.2	5.5	0.3	0.0	8.1	0.1	0.0	1.2	0.0	0.1	0.1	0.2
105.0	0.2	5.4	0.3	0.0	7.9	0.1	0.0	1.2	0.0	0.1	0.0	0.2
106.0	0.2	5.4	0.3	0.0	7.7	0.1	0.0	1.1	0.0	0.1	0.0	0.2
107.0	0.2	5.3	0.3	0.0	7.5	0.1	0.0	1.1	0.0	0.1	0.0	0.2
108.0	0.2	5.2	0.3	0.0	7.3	0.1	0.0	1.1	0.0	0.1	0.0	0.2
109.0	0.1	5.1	0.3	0.0	7.2	0.0	0.0	1.0	0.0	0.0	0.0	0.2
110.0	0.1	5.0	0.2	0.0	7.0	0.0	0.0	1.0	0.0	0.0	0.0	0.2
111.0	0.1	4.9	0.2	0.0	6.8	0.0	0.0	1.0	0.0	0.0	0.0	0.2
112.0	0.1	4.8	0.2	0.0	6.7	0.0	0.0	1.0	0.0	0.0	0.0	0.2
113.0	0.1	4.7	0.2	0.0	6.5	0.0	0.0	0.9	0.0	0.0	0.0	0.2
114.0	0.1	4.6	0.2	0.0	6.4	0.0	0.0	0.9	0.0	0.0	0.0	0.2
115.0	0.1	4.6	0.2	0.0	6.2	0.0	0.0	0.9	0.0	0.0	0.0	0.1
116.0	0.1	4.5	0.2	0.0	6.1	0.0	0.0	0.9	0.0	0.0	0.0	0.1
117.0	0.1	4.4	0.2	0.0	6.0	0.0	0.0	0.9	0.0	0.0	0.0	0.1
118.0	0.1	4.3	0.2	0.0	5.8	0.0	0.0	0.8	0.0	0.0	0.0	0.1
119.0	0.1	4.2	0.1	0.0	5.7	0.0	0.0	0.8	0.0	0.0	0.0	0.1
120.0	0.1	4.2	0.1	0.0	5.5	0.0	0.0	0.8	0.0	0.0	0.0	0.1
121.0	0.1	4.1	0.1	0.0	5.4	0.0	0.0	0.8	0.0	0.0	0.0	0.1
122.0	0.1	4.0	0.1	0.0	5.3	0.0	0.0	0.8	0.0	0.0	0.0	0.1
123.0	0.1	3.9	0.1	0.0	5.2	0.0	0.0	0.7	0.0	0.0	0.0	0.1
124.0	0.1	3.9	0.1	0.0	5.0	0.0	0.0	0.7	0.0	0.0	0.0	0.1
125.0	0.1	3.8	0.1	0.0	4.9	0.0	0.0	0.7	0.0	0.0	0.0	0.1
126.0	0.1	3.7	0.1	0.0	4.8	0.0	0.0	0.7	0.0	0.0	0.0	0.1
127.0	0.1	3.7	0.1	0.0	4.7	0.0	0.0	0.7	0.0	0.0	0.0	0.1
128.0	0.1	3.6	0.1	0.0	4.6	0.0	0.0	0.6	0.0	0.0	0.0	0.1
129.0	0.0	3.5	0.1	0.0	4.5	0.0	0.0	0.6	0.0	0.0	0.0	0.1
130.0	0.0	3.5	0.1	0.0	4.4	0.0	0.0	0.6	0.0	0.0	0.0	0.1
131.0	0.0	3.4	0.1	0.0	4.3	0.0	0.0	0.6	0.0	0.0	0.0	0.1
132.0	0.0	3.3	0.1	0.0	4.2	0.0	0.0	0.6	0.0	0.0	0.0	0.1
133.0	0.0	3.3	0.1	0.0	4.1	0.0	0.0	0.6	0.0	0.0	0.0	0.1
134.0	0.0	3.2	0.1	0.0	4.0	0.0	0.0	0.6	0.0	0.0	0.0	0.1
135.0	0.0	3.2	0.1	0.0	3.9	0.0	0.0	0.5	0.0	0.0	0.0	0.1
136.0	0.0	3.1	0.1	0.0	3.8	0.0	0.0	0.5	0.0	0.0	0.0	0.1
137.0	0.0	3.1	0.1	0.0	3.7	0.0	0.0	0.5	0.0	0.0	0.0	0.1
138.0	0.0	3.0	0.1	0.0	3.6	0.0	0.0	0.5	0.0	0.0	0.0	0.0
139.0	0.0	2.9	0.1	0.0	3.5	0.0	0.0	0.5	0.0	0.0	0.0	0.0
140.0	0.0	2.9	0.0	0.0	3.4	0.0	0.0	0.5	0.0	0.0	0.0	0.0
141.0	0.0	2.8	0.0	0.0	3.4	0.0	0.0	0.5	0.0	0.0	0.0	0.0
142.0	0.0	2.8	0.0	0.0	3.3	0.0	0.0	0.5	0.0	0.0	0.0	0.0
143.0	0.0	2.7	0.0	0.0	3.2	0.0	0.0	0.4	0.0	0.0	0.0	0.0
144.0	0.0	2.7	0.0	0.0	3.1	0.0	0.0	0.4	0.0	0.0	0.0	0.0
145.0	0.0	2.6	0.0	0.0	3.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0
146.0	0.0	2.6	0.0	0.0	3.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0
147.0	0.0	2.5	0.0	0.0	2.9	0.0	0.0	0.4	0.0	0.0	0.0	0.0
148.0	0.0	2.5	0.0	0.0	2.8	0.0	0.0	0.4	0.0	0.0	0.0	0.0
149.0	0.0	2.4	0.0	0.0	2.8	0.0	0.0	0.4	0.0	0.0	0.0	0.0
150.0	0.0	2.4	0.0	0.0	2.7	0.0	0.0	0.4	0.0	0.0	0.0	0.0
151.0	0.0	2.3	0.0	0.0	2.6	0.0	0.0	0.4	0.0	0.0	0.0	0.0
152.0	0.0	2.3	0.0	0.0	2.6	0.0	0.0	0.3	0.0	0.0	0.0	0.0
153.0	0.0	2.3	0.0	0.0	2.5	0.0	0.0	0.3	0.0	0.0	0.0	0.0
154.0	0.0	2.2	0.0	0.0	2.4	0.0	0.0	0.3	0.0	0.0	0.0	0.0
155.0	0.0	2.2	0.0	0.0	2.4	0.0	0.0	0.3	0.0	0.0	0.0	0.0
156.0	0.0	2.1	0.0	0.0	2.3	0.0	0.0	0.3	0.0	0.0	0.0	0.0

Time	NM-111-A	NM-111-B	NM-111-C	NM-112-A	NM-113-A	NM-113-B	NM-113-C	NM-113-D	NM-113-E	NM-115-A	NM-115-B	NM-115-C
DA (SM)	0.1574	0.4651	0.2586	0.0735	0.1109	0.0542	0.2946	0.2168	0.2711	0.2868	1.0821	1.3656
PRF	189	150	150	150	243	150	150	150	150	168	161	194
Tc (hr)	2.37	5.28	3.09	2.47	1.75	1.41	4.19	9.35	5.03	3.91	7.86	6.44
Tlag (hr)	1.42	3.17	1.86	1.48	1.05	0.85	2.51	5.61	3.02	2.35	4.71	3.87
Drecom (hr)	0.32	0.70	0.41	0.33	0.23	0.19	0.56	1.24	0.67	0.52	1.05	0.86
Dmax (hr)	0.40	0.90	0.53	0.42	0.30	0.24	0.71	1.59	0.86	0.67	1.34	1.10
Dchosen (hr)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Φ	0.29	0.23	0.23	0.23	0.38	0.23	0.23	0.23	0.23	0.26	0.25	0.30
α	0.68	0.47	0.47	0.47	1.05	0.47	0.47	0.47	0.47	0.56	0.53	0.71
Tp (hr)	1.92	3.67	2.36	1.98	1.55	1.35	3.01	6.11	3.52	2.85	5.21	4.37
Qp	15.47	19.02	16.50	5.56	17.40	6.05	14.68	5.32	11.55	16.91	33.50	60.70
TIME (HR)												
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1.0	13.7	14.6	14.5	5.1	15.9	5.9	12.0	3.4	9.0	13.5	21.5	36.9
2.0	15.5	17.7	16.4	5.6	16.8	5.8	14.2	4.3	10.9	16.4	28.0	51.2
3.0	14.3	18.9	16.3	5.3	13.1	5.0	14.7	4.8	11.5	16.9	31.3	58.1
4.0	12.2	19.0	15.2	4.8	9.0	4.0	14.4	5.1	11.5	16.3	32.9	60.5
5.0	10.0	18.6	13.9	4.2	5.8	3.1	13.7	5.3	11.2	15.2	33.5	60.3
6.0	7.9	17.8	12.4	3.6	3.6	2.4	12.7	5.3	10.7	13.8	33.3	58.3
7.0	6.2	16.8	10.9	3.1	2.1	1.8	11.7	5.3	10.0	12.4	32.7	55.3
8.0	4.8	15.8	9.5	2.6	1.3	1.4	10.7	5.2	9.4	11.0	31.7	51.7
9.0	3.6	14.7	8.2	2.2	0.7	1.0	9.7	5.1	8.7	9.6	30.5	47.7
10.0	2.7	13.6	7.1	1.8	0.4	0.8	8.7	5.0	8.0	8.4	29.1	43.7
11.0	2.0	12.5	6.1	1.5	0.2	0.6	7.8	4.8	7.3	7.3	27.7	39.8
12.0	1.5	11.4	5.2	1.2	0.1	0.4	6.9	4.7	6.6	6.3	26.2	36.0
13.0	1.1	10.5	4.4	1.0	0.1	0.3	6.2	4.5	6.0	5.4	24.7	32.3
14.0	0.8	9.5	3.7	0.8	0.0	0.2	5.5	4.3	5.5	4.6	23.2	29.0
15.0	0.6	8.7	3.2	0.7	0.0	0.2	4.8	4.1	5.0	3.9	21.8	25.9
16.0	0.5	7.9	2.7	0.5	0.0	0.1	4.3	3.9	4.5	3.4	20.4	23.0
17.0	0.3	7.1	2.3	0.4	0.0	0.1	3.8	3.7	4.0	2.8	19.0	20.4
18.0	0.2	6.4	1.9	0.4	0.0	0.1	3.3	3.6	3.6	2.4	17.7	18.1
19.0	0.2	5.8	1.6	0.3	0.0	0.0	2.9	3.4	3.3	2.0	16.5	16.0
20.0	0.1	5.2	1.3	0.2	0.0	0.0	2.5	3.2	2.9	1.7	15.3	14.1
21.0	0.1	4.7	1.1	0.2	0.0	0.0	2.2	3.0	2.6	1.5	14.2	12.4
22.0	0.1	4.2	0.9	0.2	0.0	0.0	1.9	2.9	2.3	1.2	13.2	10.9
23.0	0.0	3.8	0.8	0.1	0.0	0.0	1.7	2.7	2.1	1.0	12.2	9.5
24.0	0.0	3.4	0.7	0.1	0.0	0.0	1.5	2.6	1.9	0.9	11.3	8.4
25.0	0.0	3.1	0.5	0.1	0.0	0.0	1.3	2.4	1.7	0.7	10.4	7.3
26.0	0.0	2.8	0.5	0.1	0.0	0.0	1.1	2.3	1.5	0.6	9.6	6.4
27.0	0.0	2.5	0.4	0.1	0.0	0.0	1.0	2.2	1.3	0.5	8.9	5.6
28.0	0.0	2.2	0.3	0.0	0.0	0.0	0.9	2.0	1.2	0.4	8.2	4.9
29.0	0.0	2.0	0.3	0.0	0.0	0.0	0.7	1.9	1.0	0.4	7.5	4.2
30.0	0.0	1.8	0.2	0.0	0.0	0.0	0.7	1.8	0.9	0.3	6.9	3.7
31.0	0.0	1.6	0.2	0.0	0.0	0.0	0.6	1.7	0.8	0.3	6.4	3.2
32.0	0.0	1.4	0.2	0.0	0.0	0.0	0.5	1.6	0.7	0.2	5.8	2.8
33.0	0.0	1.3	0.1	0.0	0.0	0.0	0.4	1.5	0.7	0.2	5.4	2.4
34.0	0.0	1.1	0.1	0.0	0.0	0.0	0.4	1.4	0.6	0.1	4.9	2.1
35.0	0.0	1.0	0.1	0.0	0.0	0.0	0.3	1.3	0.5	0.1	4.5	1.8
36.0	0.0	0.9	0.1	0.0	0.0	0.0	0.3	1.2	0.5	0.1	4.2	1.6
37.0	0.0	0.8	0.1	0.0	0.0	0.0	0.2	1.2	0.4	0.1	3.8	1.4
38.0	0.0	0.7	0.1	0.0	0.0	0.0	0.2	1.1	0.4	0.1	3.5	1.2
39.0	0.0	0.6	0.0	0.0	0.0	0.0	0.2	1.0	0.3	0.1	3.2	1.0
40.0	0.0	0.6	0.0	0.0	0.0	0.0	0.2	1.0	0.3	0.1	2.9	0.9
41.0	0.0	0.5	0.0	0.0	0.0	0.0	0.1	0.9	0.3	0.0	2.7	0.8
42.0	0.0	0.4	0.0	0.0	0.0	0.0	0.1	0.8	0.2	0.0	2.5	0.7
43.0	0.0	0.4	0.0	0.0	0.0	0.0	0.1	0.8	0.2	0.0	2.3	0.6
44.0	0.0	0.4	0.0	0.0	0.0	0.0	0.1	0.7	0.2	0.0	2.1	0.5
45.0	0.0	0.3	0.0	0.0	0.0	0.0	0.1	0.7	0.2	0.0	1.9	0.4
46.0	0.0	0.3	0.0	0.0	0.0	0.0	0.1	0.6	0.1	0.0	1.7	0.4
47.0	0.0	0.2	0.0	0.0	0.0	0.0	0.1	0.6	0.1	0.0	1.6	0.3
48.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.6	0.1	0.0	1.4	0.3
49.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.5	0.1	0.0	1.3	0.2
50.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.5	0.1	0.0	1.2	0.2
51.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.5	0.1	0.0	1.1	0.2
52.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.4	0.1	0.0	1.0	0.2
53.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.4	0.1	0.0	0.9	0.1
54.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.4	0.1	0.0	0.8	0.1
55.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.8	0.1
56.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.7	0.1
57.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.6	0.1
58.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.6	0.1
59.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.5	0.1
60.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.5	0.0
61.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.4	0.0
62.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.4	0.0
63.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.4	0.0
64.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.3	0.0
65.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.3	0.0
66.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.3	0.0
67.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.3	0.0
68.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.0
69.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.0
70.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.0
71.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.0
72.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.0
73.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0
74.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0
75.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0
76.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0

Time	NM-111-A	NM-111-B	NM-111-C	NM-112-A	NM-113-A	NM-113-B	NM-113-C	NM-113-D	NM-113-E	NM-115-A	NM-115-B	NM-115-C
DA (SM)	0.1574	0.4651	0.2586	0.0735	0.1109	0.0542	0.2946	0.2168	0.2711	0.2868	1.0821	1.3656
PRF	189	150	150	150	243	150	150	150	150	168	161	194
Tc (hr)	2.37	5.28	3.09	2.47	1.75	1.41	4.19	9.35	5.03	3.91	7.86	6.44
Tlag (hr)	1.42	3.17	1.86	1.48	1.05	0.85	2.51	5.61	3.02	2.35	4.71	3.87
Drecom (hr)	0.32	0.70	0.41	0.33	0.23	0.19	0.56	1.24	0.67	0.52	1.05	0.86
Dmax (hr)	0.40	0.90	0.53	0.42	0.30	0.24	0.71	1.59	0.86	0.67	1.34	1.10
Dchosen (hr)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Φ	0.29	0.23	0.23	0.23	0.38	0.23	0.23	0.23	0.23	0.26	0.25	0.30
α	0.68	0.47	0.47	0.47	1.05	0.47	0.47	0.47	0.47	0.56	0.53	0.71
Tp (hr)	1.92	3.67	2.36	1.98	1.55	1.35	3.01	6.11	3.52	2.85	5.21	4.37
Qp	15.47	19.02	16.50	5.56	17.40	6.05	14.68	5.32	11.55	16.91	33.50	60.70
TIME (HR)												
77.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0
78.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0
79.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0
80.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0
81.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0
82.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0
83.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0
84.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
85.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
88.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
89.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
91.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
92.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
93.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
94.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
95.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
96.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
97.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
98.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
99.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
101.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
102.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
103.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
104.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
105.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
106.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
107.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
108.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
109.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
111.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
112.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
113.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
114.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
115.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
116.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
117.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
118.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
119.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
121.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
122.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
123.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
124.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
125.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
126.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
127.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
128.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
129.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
131.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
132.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
133.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
134.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
135.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
136.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
137.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
138.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
139.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
141.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
142.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
143.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
144.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
145.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
146.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
147.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
148.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
149.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
151.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
152.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
153.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
154.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
155.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
156.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Time	NM-115-D	NM-116-A	NM-116-B	NM-116-C	NM-117-A	NM-117-B	NM-118-A	NM-119-A	NM-121-A	NM-131-A	W700	W710
DA (SM)	0.9664	0.1453	0.2213	0.0857	0.5308	3.1639	1.6544	5.4297	0.7407	0.4263	13.1060	1.1785
PRF	237	220	257	150	169	150	150	150	150	150	163	150
Tc (hr)	4.25	2.63	1.93	1.96	5.09	34.59	16.42	31.35	11.03	5.41	97.76	11.56
Tlag (hr)	2.55	1.58	1.16	1.18	3.05	20.76	9.85	18.81	6.62	3.25	58.66	6.93
Drecom (hr)	0.56	0.35	0.26	0.26	0.68	4.60	2.18	4.17	1.47	0.72	13.00	1.54
Dmax (hr)	0.72	0.45	0.33	0.33	0.87	5.88	2.79	5.33	1.88	0.92	16.62	1.96
Dchosen (hr)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Φ	0.37	0.34	0.40	0.23	0.26	0.23	0.23	0.23	0.23	0.23	0.25	0.23
α	1.00	0.88	1.15	0.47	0.57	0.47	0.47	0.47	0.47	0.47	0.53	0.47
Tp (hr)	3.05	2.08	1.66	1.68	3.55	21.26	10.35	19.31	7.12	3.75	59.16	7.43
Qp	75.06	15.40	34.32	7.66	25.25	22.33	23.98	42.18	15.60	17.07	36.13	23.78
TIME (HR)												
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1.0	48.3	12.8	30.3	7.3	18.5	8.3	12.3	16.5	9.3	13.0	6.9	14.0
2.0	69.5	15.4	33.6	7.6	23.4	11.3	16.2	22.2	12.1	15.8	9.9	18.1
3.0	75.1	14.4	26.7	7.0	25.1	13.4	18.7	26.2	13.7	16.9	12.2	20.6
4.0	72.1	12.1	18.6	6.0	25.1	14.9	20.5	29.3	14.6	17.1	14.1	22.1
5.0	64.9	9.7	12.0	5.1	24.3	16.2	21.7	31.7	15.2	16.7	15.8	23.0
6.0	56.1	7.4	7.4	4.2	23.0	17.3	22.6	33.7	15.5	16.1	17.2	23.5
7.0	47.2	5.6	4.4	3.4	21.4	18.2	23.2	35.4	15.6	15.2	18.5	23.8
8.0	38.9	4.1	2.6	2.7	19.7	18.9	23.6	36.7	15.6	14.3	19.7	23.7
9.0	31.5	3.0	1.5	2.2	18.0	19.6	23.9	37.9	15.4	13.3	20.8	23.6
10.0	25.3	2.1	0.8	1.7	16.2	20.1	24.0	38.8	15.1	12.4	21.8	23.2
11.0	20.0	1.5	0.5	1.4	14.6	20.6	24.0	39.6	14.8	11.4	22.7	22.8
12.0	15.7	1.1	0.3	1.1	13.1	20.9	23.9	40.3	14.5	10.5	23.6	22.3
13.0	12.3	0.8	0.1	0.9	11.7	21.3	23.7	40.8	14.1	9.6	24.4	21.8
14.0	9.5	0.5	0.1	0.7	10.4	21.5	23.4	41.3	13.6	8.8	25.2	21.2
15.0	7.4	0.4	0.0	0.5	9.2	21.8	23.1	41.6	13.2	8.0	25.9	20.5
16.0	5.7	0.3	0.0	0.4	8.2	21.9	22.8	41.8	12.7	7.3	26.5	19.9
17.0	4.3	0.2	0.0	0.3	7.2	22.1	22.4	42.0	12.3	6.6	27.2	19.2
18.0	3.3	0.1	0.0	0.2	6.3	22.2	22.0	42.1	11.8	6.0	27.8	18.5
19.0	2.5	0.1	0.0	0.2	5.6	22.3	21.6	42.2	11.3	5.4	28.3	17.8
20.0	1.9	0.1	0.0	0.1	4.9	22.3	21.1	42.2	10.9	4.9	28.8	17.1
21.0	1.4	0.0	0.0	0.1	4.3	22.3	20.6	42.1	10.4	4.4	29.3	16.5
22.0	1.1	0.0	0.0	0.1	3.8	22.3	20.2	42.0	10.0	4.0	29.8	15.8
23.0	0.8	0.0	0.0	0.1	3.3	22.3	19.7	41.9	9.5	3.6	30.2	15.1
24.0	0.6	0.0	0.0	0.1	2.9	22.2	19.2	41.7	9.1	3.2	30.7	14.5
25.0	0.5	0.0	0.0	0.0	2.5	22.2	18.7	41.5	8.7	2.9	31.0	13.9
26.0	0.3	0.0	0.0	0.0	2.2	22.1	18.2	41.2	8.3	2.6	31.4	13.3
27.0	0.3	0.0	0.0	0.0	1.9	22.0	17.7	41.0	7.9	2.4	31.8	12.7
28.0	0.2	0.0	0.0	0.0	1.7	21.9	17.2	40.7	7.5	2.1	32.1	12.1
29.0	0.1	0.0	0.0	0.0	1.4	21.8	16.7	40.3	7.2	1.9	32.4	11.6
30.0	0.1	0.0	0.0	0.0	1.3	21.6	16.2	40.0	6.8	1.7	32.7	11.0
31.0	0.1	0.0	0.0	0.0	1.1	21.5	15.8	39.7	6.5	1.5	33.0	10.5
32.0	0.1	0.0	0.0	0.0	0.9	21.3	15.3	39.3	6.1	1.4	33.3	10.0
33.0	0.0	0.0	0.0	0.0	0.8	21.2	14.8	38.9	5.8	1.2	33.5	9.6
34.0	0.0	0.0	0.0	0.0	0.7	21.0	14.4	38.5	5.5	1.1	33.7	9.1
35.0	0.0	0.0	0.0	0.0	0.6	20.8	13.9	38.1	5.3	1.0	34.0	8.7
36.0	0.0	0.0	0.0	0.0	0.5	20.7	13.5	37.7	5.0	0.9	34.2	8.2
37.0	0.0	0.0	0.0	0.0	0.5	20.5	13.1	37.2	4.7	0.8	34.3	7.8
38.0	0.0	0.0	0.0	0.0	0.4	20.3	12.6	36.8	4.5	0.7	34.5	7.5
39.0	0.0	0.0	0.0	0.0	0.3	20.1	12.2	36.4	4.3	0.6	34.7	7.1
40.0	0.0	0.0	0.0	0.0	0.3	19.9	11.8	35.9	4.0	0.6	34.9	6.7
41.0	0.0	0.0	0.0	0.0	0.3	19.7	11.4	35.5	3.8	0.5	35.0	6.4
42.0	0.0	0.0	0.0	0.0	0.2	19.5	11.0	35.0	3.6	0.4	35.1	6.1
43.0	0.0	0.0	0.0	0.0	0.2	19.2	10.7	34.6	3.4	0.4	35.3	5.8
44.0	0.0	0.0	0.0	0.0	0.2	19.0	10.3	34.1	3.2	0.4	35.4	5.5
45.0	0.0	0.0	0.0	0.0	0.1	18.8	10.0	33.6	3.1	0.3	35.5	5.2
46.0	0.0	0.0	0.0	0.0	0.1	18.6	9.6	33.2	2.9	0.3	35.6	4.9
47.0	0.0	0.0	0.0	0.0	0.1	18.4	9.3	32.7	2.7	0.3	35.7	4.7
48.0	0.0	0.0	0.0	0.0	0.1	18.1	9.0	32.2	2.6	0.2	35.7	4.4
49.0	0.0	0.0	0.0	0.0	0.1	17.9	8.7	31.8	2.5	0.2	35.8	4.2
50.0	0.0	0.0	0.0	0.0	0.1	17.7	8.4	31.3	2.3	0.2	35.9	4.0
51.0	0.0	0.0	0.0	0.0	0.1	17.5	8.1	30.8	2.2	0.2	35.9	3.8
52.0	0.0	0.0	0.0	0.0	0.1	17.3	7.8	30.4	2.1	0.1	36.0	3.6
53.0	0.0	0.0	0.0	0.0	0.0	17.0	7.5	29.9	2.0	0.1	36.0	3.4
54.0	0.0	0.0	0.0	0.0	0.0	16.8	7.2	29.5	1.9	0.1	36.1	3.2
55.0	0.0	0.0	0.0	0.0	0.0	16.6	7.0	29.0	1.7	0.1	36.1	3.0
56.0	0.0	0.0	0.0	0.0	0.0	16.4	6.7	28.5	1.7	0.1	36.1	2.9
57.0	0.0	0.0	0.0	0.0	0.0	16.1	6.5	28.1	1.6	0.1	36.1	2.7
58.0	0.0	0.0	0.0	0.0	0.0	15.9	6.2	27.6	1.5	0.1	36.1	2.6
59.0	0.0	0.0	0.0	0.0	0.0	15.7	6.0	27.2	1.4	0.1	36.1	2.4
60.0	0.0	0.0	0.0	0.0	0.0	15.5	5.8	26.8	1.3	0.1	36.1	2.3
61.0	0.0	0.0	0.0	0.0	0.0	15.2	5.6	26.3	1.2	0.0	36.1	2.2
62.0	0.0	0.0	0.0	0.0	0.0	15.0	5.4	25.9	1.2	0.0	36.1	2.1
63.0	0.0	0.0	0.0	0.0	0.0	14.8	5.2	25.5	1.1	0.0	36.1	2.0
64.0	0.0	0.0	0.0	0.0	0.0	14.6	5.0	25.0	1.0	0.0	36.1	1.9
65.0	0.0	0.0	0.0	0.0	0.0	14.4	4.8	24.6	1.0	0.0	36.0	1.8
66.0	0.0	0.0	0.0	0.0	0.0	14.2	4.6	24.2	0.9	0.0	36.0	1.7
67.0	0.0	0.0	0.0	0.0	0.0	14.0	4.4	23.8	0.9	0.0	36.0	1.6
68.0	0.0	0.0	0.0	0.0	0.0	13.8	4.3	23.4	0.8	0.0	35.9	1.5
69.0	0.0	0.0	0.0	0.0	0.0	13.5	4.1	23.0	0.8	0.0	35.9	1.4
70.0	0.0	0.0	0.0	0.0	0.0	13.3	4.0	22.6	0.7	0.0	35.8	1.3
71.0	0.0	0.0	0.0	0.0	0.0	13.1	3.8	22.2	0.7	0.0	35.8	1.3
72.0	0.0	0.0	0.0	0.0	0.0	12.9	3.7	21.8	0.6	0.0	35.7	1.2
73.0	0.0	0.0	0.0	0.0	0.0	12.7	3.5	21.4	0.6	0.0	35.7	1.1
74.0	0.0	0.0	0.0	0.0	0.0	12.5	3.4	21.0	0.6	0.0	35.6	1.1
75.0	0.0	0.0	0.0	0.0	0.0	12.3	3.3	20.7	0.5	0.0	35.5	1.0
76.0	0.0	0.0	0.0	0.0	0.0	12.2	3.1	20.3	0.5	0.0	35.5	0.9

Time	NM-115-D	NM-116-A	NM-116-B	NM-116-C	NM-117-A	NM-117-B	NM-118-A	NM-119-A	NM-121-A	NM-131-A	W700	W710
DA (SM)	0.9664	0.1453	0.2213	0.0857	0.5308	3.1639	1.6544	5.4297	0.7407	0.4263	13.1060	1.1785
PRF	237	220	257	150	169	150	150	150	150	150	163	150
Tc (hr)	4.25	2.63	1.93	1.96	5.09	34.59	16.42	31.35	11.03	5.41	97.76	11.56
Tlag (hr)	2.55	1.58	1.16	1.18	3.05	20.76	9.85	18.81	6.62	3.25	58.66	6.93
Drecom (hr)	0.56	0.35	0.26	0.26	0.68	4.60	2.18	4.17	1.47	0.72	13.00	1.54
Dmax (hr)	0.72	0.45	0.33	0.33	0.87	5.88	2.79	5.33	1.88	0.92	16.62	1.96
Dchosen (hr)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Φ	0.37	0.34	0.40	0.23	0.26	0.23	0.23	0.23	0.23	0.23	0.25	0.23
α	1.00	0.88	1.15	0.47	0.57	0.47	0.47	0.47	0.47	0.47	0.53	0.47
Tp (hr)	3.05	2.08	1.66	1.68	3.55	21.26	10.35	19.31	7.12	3.75	59.16	7.43
Qp	75.06	15.40	34.32	7.66	25.25	22.33	23.98	42.18	15.60	17.07	36.13	23.78
TIME (HR)												
77.0	0.0	0.0	0.0	0.0	0.0	12.0	3.0	19.9	0.5	0.0	35.4	0.9
78.0	0.0	0.0	0.0	0.0	0.0	11.8	2.9	19.6	0.5	0.0	35.3	0.8
79.0	0.0	0.0	0.0	0.0	0.0	11.6	2.8	19.2	0.4	0.0	35.3	0.8
80.0	0.0	0.0	0.0	0.0	0.0	11.4	2.7	18.9	0.4	0.0	35.2	0.8
81.0	0.0	0.0	0.0	0.0	0.0	11.2	2.6	18.5	0.4	0.0	35.1	0.7
82.0	0.0	0.0	0.0	0.0	0.0	11.0	2.5	18.2	0.4	0.0	35.0	0.7
83.0	0.0	0.0	0.0	0.0	0.0	10.9	2.4	17.8	0.3	0.0	34.9	0.6
84.0	0.0	0.0	0.0	0.0	0.0	10.7	2.3	17.5	0.3	0.0	34.8	0.6
85.0	0.0	0.0	0.0	0.0	0.0	10.5	2.2	17.2	0.3	0.0	34.7	0.6
86.0	0.0	0.0	0.0	0.0	0.0	10.3	2.1	16.9	0.3	0.0	34.6	0.5
87.0	0.0	0.0	0.0	0.0	0.0	10.2	2.0	16.6	0.3	0.0	34.5	0.5
88.0	0.0	0.0	0.0	0.0	0.0	10.0	2.0	16.2	0.2	0.0	34.4	0.5
89.0	0.0	0.0	0.0	0.0	0.0	9.8	1.9	15.9	0.2	0.0	34.3	0.4
90.0	0.0	0.0	0.0	0.0	0.0	9.7	1.8	15.6	0.2	0.0	34.2	0.4
91.0	0.0	0.0	0.0	0.0	0.0	9.5	1.7	15.3	0.2	0.0	34.1	0.4
92.0	0.0	0.0	0.0	0.0	0.0	9.3	1.7	15.1	0.2	0.0	34.0	0.4
93.0	0.0	0.0	0.0	0.0	0.0	9.2	1.6	14.8	0.2	0.0	33.9	0.4
94.0	0.0	0.0	0.0	0.0	0.0	9.0	1.5	14.5	0.2	0.0	33.8	0.3
95.0	0.0	0.0	0.0	0.0	0.0	8.9	1.5	14.2	0.2	0.0	33.7	0.3
96.0	0.0	0.0	0.0	0.0	0.0	8.7	1.4	13.9	0.2	0.0	33.6	0.3
97.0	0.0	0.0	0.0	0.0	0.0	8.6	1.4	13.7	0.1	0.0	33.4	0.3
98.0	0.0	0.0	0.0	0.0	0.0	8.4	1.3	13.4	0.1	0.0	33.3	0.3
99.0	0.0	0.0	0.0	0.0	0.0	8.3	1.3	13.2	0.1	0.0	33.2	0.3
100.0	0.0	0.0	0.0	0.0	0.0	8.1	1.2	12.9	0.1	0.0	33.1	0.2
101.0	0.0	0.0	0.0	0.0	0.0	8.0	1.2	12.6	0.1	0.0	33.0	0.2
102.0	0.0	0.0	0.0	0.0	0.0	7.9	1.1	12.4	0.1	0.0	32.8	0.2
103.0	0.0	0.0	0.0	0.0	0.0	7.7	1.1	12.2	0.1	0.0	32.7	0.2
104.0	0.0	0.0	0.0	0.0	0.0	7.6	1.0	11.9	0.1	0.0	32.6	0.2
105.0	0.0	0.0	0.0	0.0	0.0	7.5	1.0	11.7	0.1	0.0	32.5	0.2
106.0	0.0	0.0	0.0	0.0	0.0	7.3	0.9	11.5	0.1	0.0	32.3	0.2
107.0	0.0	0.0	0.0	0.0	0.0	7.2	0.9	11.2	0.1	0.0	32.2	0.2
108.0	0.0	0.0	0.0	0.0	0.0	7.1	0.9	11.0	0.1	0.0	32.1	0.1
109.0	0.0	0.0	0.0	0.0	0.0	7.0	0.8	10.8	0.1	0.0	31.9	0.1
110.0	0.0	0.0	0.0	0.0	0.0	6.8	0.8	10.6	0.1	0.0	31.8	0.1
111.0	0.0	0.0	0.0	0.0	0.0	6.7	0.8	10.4	0.1	0.0	31.7	0.1
112.0	0.0	0.0	0.0	0.0	0.0	6.6	0.7	10.2	0.1	0.0	31.5	0.1
113.0	0.0	0.0	0.0	0.0	0.0	6.5	0.7	10.0	0.1	0.0	31.4	0.1
114.0	0.0	0.0	0.0	0.0	0.0	6.4	0.7	9.8	0.1	0.0	31.3	0.1
115.0	0.0	0.0	0.0	0.0	0.0	6.3	0.7	9.6	0.0	0.0	31.1	0.1
116.0	0.0	0.0	0.0	0.0	0.0	6.1	0.6	9.4	0.0	0.0	31.0	0.1
117.0	0.0	0.0	0.0	0.0	0.0	6.0	0.6	9.2	0.0	0.0	30.9	0.1
118.0	0.0	0.0	0.0	0.0	0.0	5.9	0.6	9.0	0.0	0.0	30.7	0.1
119.0	0.0	0.0	0.0	0.0	0.0	5.8	0.6	8.8	0.0	0.0	30.6	0.1
120.0	0.0	0.0	0.0	0.0	0.0	5.7	0.5	8.7	0.0	0.0	30.4	0.1
121.0	0.0	0.0	0.0	0.0	0.0	5.6	0.5	8.5	0.0	0.0	30.3	0.1
122.0	0.0	0.0	0.0	0.0	0.0	5.5	0.5	8.3	0.0	0.0	30.2	0.1
123.0	0.0	0.0	0.0	0.0	0.0	5.4	0.5	8.1	0.0	0.0	30.0	0.1
124.0	0.0	0.0	0.0	0.0	0.0	5.3	0.5	8.0	0.0	0.0	29.9	0.1
125.0	0.0	0.0	0.0	0.0	0.0	5.2	0.4	7.8	0.0	0.0	29.7	0.1
126.0	0.0	0.0	0.0	0.0	0.0	5.1	0.4	7.7	0.0	0.0	29.6	0.1
127.0	0.0	0.0	0.0	0.0	0.0	5.0	0.4	7.5	0.0	0.0	29.5	0.0
128.0	0.0	0.0	0.0	0.0	0.0	4.9	0.4	7.3	0.0	0.0	29.3	0.0
129.0	0.0	0.0	0.0	0.0	0.0	4.8	0.4	7.2	0.0	0.0	29.2	0.0
130.0	0.0	0.0	0.0	0.0	0.0	4.8	0.4	7.1	0.0	0.0	29.0	0.0
131.0	0.0	0.0	0.0	0.0	0.0	4.7	0.3	6.9	0.0	0.0	28.9	0.0
132.0	0.0	0.0	0.0	0.0	0.0	4.6	0.3	6.8	0.0	0.0	28.7	0.0
133.0	0.0	0.0	0.0	0.0	0.0	4.5	0.3	6.6	0.0	0.0	28.6	0.0
134.0	0.0	0.0	0.0	0.0	0.0	4.4	0.3	6.5	0.0	0.0	28.5	0.0
135.0	0.0	0.0	0.0	0.0	0.0	4.3	0.3	6.4	0.0	0.0	28.3	0.0
136.0	0.0	0.0	0.0	0.0	0.0	4.3	0.3	6.2	0.0	0.0	28.2	0.0
137.0	0.0	0.0	0.0	0.0	0.0	4.2	0.3	6.1	0.0	0.0	28.0	0.0
138.0	0.0	0.0	0.0	0.0	0.0	4.1	0.3	6.0	0.0	0.0	27.9	0.0
139.0	0.0	0.0	0.0	0.0	0.0	4.0	0.2	5.9	0.0	0.0	27.7	0.0
140.0	0.0	0.0	0.0	0.0	0.0	4.0	0.2	5.7	0.0	0.0	27.6	0.0
141.0	0.0	0.0	0.0	0.0	0.0	3.9	0.2	5.6	0.0	0.0	27.4	0.0
142.0	0.0	0.0	0.0	0.0	0.0	3.8	0.2	5.5	0.0	0.0	27.3	0.0
143.0	0.0	0.0	0.0	0.0	0.0	3.7	0.2	5.4	0.0	0.0	27.2	0.0
144.0	0.0	0.0	0.0	0.0	0.0	3.7	0.2	5.3	0.0	0.0	27.0	0.0
145.0	0.0	0.0	0.0	0.0	0.0	3.6	0.2	5.2	0.0	0.0	26.9	0.0
146.0	0.0	0.0	0.0	0.0	0.0	3.5	0.2	5.1	0.0	0.0	26.7	0.0
147.0	0.0	0.0	0.0	0.0	0.0	3.5	0.2	4.9	0.0	0.0	26.6	0.0
148.0	0.0	0.0	0.0	0.0	0.0	3.4	0.2	4.8	0.0	0.0	26.4	0.0
149.0	0.0	0.0	0.0	0.0	0.0	3.3	0.2	4.7	0.0	0.0	26.3	0.0
150.0	0.0	0.0	0.0	0.0	0.0	3.3	0.2	4.6	0.0	0.0	26.2	0.0
151.0	0.0	0.0	0.0	0.0	0.0	3.2	0.1	4.5	0.0	0.0	26.0	0.0
152.0	0.0	0.0	0.0	0.0	0.0	3.2	0.1	4.5	0.0	0.0	25.9	0.0
153.0	0.0	0.0	0.0	0.0	0.0	3.1	0.1	4.4	0.0	0.0	25.7	0.0
154.0	0.0	0.0	0.0	0.0	0.0	3.0	0.1	4.3	0.0	0.0	25.6	0.0
155.0	0.0	0.0	0.0	0.0	0.0	3.0	0.1	4.2	0.0	0.0	25.4	0.0
156.0	0.0	0.0	0.0	0.0	0.0	2.9	0.1	4.1	0.0	0.0	25.3	0.0

Time	W720	W730	W740	W750	W760	W770	W840	W870	W920	SM-101-A	SM-101-B	SM-102-A
DA (SM)	2.9667	0.8881	1.5788	10.1256	4.8465	1.0354	4.0456	9.0712	1.1895	1.0827	0.8689	0.8451
PRF	150	150	150	152	150	150	150	150	150	230	150	181
Tc (hr)	26.88	13.77	15.40	77.52	41.91	3.16	33.56	65.73	13.67	5.93	25.14	7.25
Tlag (hr)	16.13	8.26	9.24	46.51	25.15	1.90	20.14	39.44	8.20	3.56	15.08	4.35
Drecom (hr)	3.58	1.83	2.05	10.31	5.57	0.42	4.46	8.74	1.82	0.79	3.34	0.96
Dmax (hr)	4.57	2.34	2.62	13.18	7.13	0.54	5.71	11.17	2.32	1.01	4.27	1.23
Dchosen (hr)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Φ	0.23	0.23	0.23	0.24	0.23	0.23	0.23	0.23	0.23	0.36	0.23	0.28
α	0.47	0.47	0.47	0.48	0.47	0.47	0.47	0.47	0.47	0.95	0.47	0.63
Tp (hr)	16.63	8.76	9.74	47.01	25.65	2.40	20.64	39.94	8.70	4.06	15.58	4.85
Qp	26.76	15.20	24.32	32.82	28.34	64.75	29.41	34.07	20.50	61.44	8.36	31.55
TIME (HR)												
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1.0	11.2	8.3	12.8	8.3	9.7	56.5	11.1	9.6	11.3	33.2	3.6	19.2
2.0	15.0	10.9	16.8	11.4	13.2	64.3	15.1	13.1	14.8	50.8	4.8	26.1
3.0	17.6	12.5	19.4	13.7	15.7	63.9	17.8	15.7	16.9	59.1	5.6	29.6
4.0	19.6	13.6	21.1	15.6	17.6	60.2	19.9	17.7	18.4	61.4	6.3	31.2
5.0	21.2	14.3	22.4	17.2	19.2	55.0	21.6	19.4	19.3	60.1	6.8	31.5
6.0	22.4	14.8	23.2	18.6	20.6	49.3	23.0	20.9	19.9	56.5	7.1	31.1
7.0	23.4	15.0	23.8	19.8	21.7	43.6	24.2	22.2	20.3	51.8	7.4	30.1
8.0	24.2	15.2	24.1	20.9	22.7	38.2	25.1	23.4	20.5	46.5	7.7	28.7
9.0	24.9	15.2	24.3	21.9	23.5	33.2	26.0	24.4	20.5	41.2	7.9	27.1
10.0	25.4	15.1	24.3	22.8	24.3	28.7	26.7	25.3	20.4	36.0	8.0	25.5
11.0	25.8	15.0	24.2	23.6	24.9	24.7	27.3	26.2	20.2	31.2	8.2	23.7
12.0	26.2	14.8	24.1	24.4	25.5	21.2	27.8	26.9	20.0	26.8	8.2	22.0
13.0	26.4	14.6	23.8	25.1	26.0	18.1	28.2	27.6	19.6	22.9	8.3	20.3
14.0	26.6	14.3	23.5	25.7	26.4	15.4	28.5	28.3	19.3	19.4	8.3	18.7
15.0	26.7	14.0	23.1	26.3	26.8	13.1	28.8	28.9	18.9	16.4	8.4	17.1
16.0	26.8	13.7	22.7	26.9	27.1	11.1	29.0	29.4	18.4	13.8	8.4	15.7
17.0	26.8	13.4	22.3	27.4	27.4	9.4	29.2	29.9	18.0	11.6	8.3	14.3
18.0	26.7	13.0	21.8	27.8	27.6	7.9	29.3	30.3	17.5	9.7	8.3	13.0
19.0	26.6	12.6	21.3	28.3	27.8	6.7	29.4	30.8	17.0	8.1	8.3	11.8
20.0	26.5	12.3	20.8	28.7	28.0	5.6	29.4	31.1	16.5	6.7	8.2	10.7
21.0	26.4	11.9	20.3	29.1	28.1	4.8	29.4	31.5	16.0	5.5	8.2	9.7
22.0	26.2	11.5	19.8	29.4	28.2	4.0	29.4	31.8	15.5	4.6	8.1	8.8
23.0	26.0	11.2	19.2	29.8	28.3	3.4	29.3	32.1	15.0	3.8	8.0	7.9
24.0	25.8	10.8	18.7	30.1	28.3	2.8	29.2	32.4	14.5	3.1	8.0	7.1
25.0	25.6	10.4	18.2	30.3	28.3	2.4	29.1	32.6	14.0	2.6	7.9	6.4
26.0	25.3	10.1	17.6	30.6	28.3	2.0	29.0	32.8	13.5	2.1	7.8	5.8
27.0	25.1	9.7	17.1	30.9	28.3	1.7	28.9	33.0	13.0	1.7	7.7	5.2
28.0	24.8	9.4	16.6	31.1	28.3	1.4	28.7	33.2	12.6	1.4	7.6	4.7
29.0	24.5	9.0	16.1	31.3	28.2	1.2	28.5	33.3	12.1	1.2	7.5	4.2
30.0	24.2	8.7	15.6	31.5	28.2	1.0	28.3	33.5	11.6	0.9	7.4	3.8
31.0	23.9	8.4	15.1	31.6	28.1	0.8	28.1	33.6	11.2	0.8	7.3	3.4
32.0	23.6	8.1	14.6	31.8	28.0	0.7	27.9	33.7	10.8	0.6	7.2	3.0
33.0	23.3	7.8	14.1	32.0	27.9	0.6	27.7	33.8	10.4	0.5	7.0	2.7
34.0	22.9	7.5	13.6	32.1	27.8	0.5	27.4	33.9	10.0	0.4	6.9	2.4
35.0	22.6	7.2	13.2	32.2	27.6	0.4	27.2	33.9	9.6	0.3	6.8	2.2
36.0	22.3	6.9	12.7	32.3	27.5	0.3	26.9	34.0	9.2	0.3	6.7	1.9
37.0	21.9	6.6	12.3	32.4	27.4	0.3	26.7	34.0	8.8	0.2	6.6	1.7
38.0	21.6	6.3	11.8	32.5	27.2	0.2	26.4	34.1	8.5	0.2	6.5	1.5
39.0	21.3	6.1	11.4	32.6	27.0	0.2	26.1	34.1	8.1	0.1	6.4	1.4
40.0	20.9	5.8	11.0	32.6	26.9	0.2	25.8	34.1	7.8	0.1	6.2	1.2
41.0	20.6	5.6	10.6	32.7	26.7	0.1	25.6	34.1	7.5	0.1	6.1	1.1
42.0	20.2	5.4	10.2	32.7	26.5	0.1	25.3	34.1	7.2	0.1	6.0	1.0
43.0	19.9	5.1	9.9	32.8	26.3	0.1	25.0	34.0	6.9	0.1	5.9	0.9
44.0	19.5	4.9	9.5	32.8	26.1	0.1	24.7	34.0	6.6	0.1	5.8	0.8
45.0	19.2	4.7	9.2	32.8	25.9	0.1	24.4	34.0	6.3	0.0	5.7	0.7
46.0	18.9	4.5	8.8	32.8	25.7	0.1	24.1	33.9	6.0	0.0	5.6	0.6
47.0	18.5	4.3	8.5	32.8	25.5	0.0	23.8	33.8	5.8	0.0	5.5	0.5
48.0	18.2	4.1	8.2	32.8	25.3	0.0	23.5	33.8	5.5	0.0	5.4	0.5
49.0	17.9	4.0	7.9	32.8	25.1	0.0	23.2	33.7	5.3	0.0	5.2	0.4
50.0	17.5	3.8	7.6	32.8	24.8	0.0	22.9	33.6	5.0	0.0	5.1	0.4
51.0	17.2	3.6	7.3	32.8	24.6	0.0	22.6	33.6	4.8	0.0	5.0	0.3
52.0	16.9	3.5	7.0	32.7	24.4	0.0	22.3	33.5	4.6	0.0	4.9	0.3
53.0	16.5	3.3	6.7	32.7	24.2	0.0	22.0	33.4	4.4	0.0	4.8	0.3
54.0	16.2	3.2	6.5	32.7	23.9	0.0	21.7	33.3	4.2	0.0	4.7	0.2
55.0	15.9	3.0	6.2	32.6	23.7	0.0	21.3	33.2	4.0	0.0	4.6	0.2
56.0	15.6	2.9	6.0	32.6	23.5	0.0	21.0	33.1	3.9	0.0	4.5	0.2
57.0	15.3	2.8	5.7	32.5	23.2	0.0	20.7	33.0	3.7	0.0	4.4	0.2
58.0	15.0	2.7	5.5	32.4	23.0	0.0	20.4	32.8	3.5	0.0	4.3	0.1
59.0	14.7	2.5	5.3	32.4	22.8	0.0	20.1	32.7	3.4	0.0	4.2	0.1
60.0	14.4	2.4	5.1	32.3	22.5	0.0	19.9	32.6	3.2	0.0	4.1	0.1
61.0	14.1	2.3	4.9	32.2	22.3	0.0	19.6	32.5	3.1	0.0	4.1	0.1
62.0	13.8	2.2	4.7	32.2	22.1	0.0	19.3	32.3	2.9	0.0	4.0	0.1
63.0	13.5	2.1	4.5	32.1	21.8	0.0	19.0	32.2	2.8	0.0	3.9	0.1
64.0	13.3	2.0	4.3	32.0	21.6	0.0	18.7	32.0	2.7	0.0	3.8	0.1
65.0	13.0	1.9	4.2	31.9	21.4	0.0	18.4	31.9	2.5	0.0	3.7	0.1
66.0	12.7	1.8	4.0	31.8	21.1	0.0	18.1	31.8	2.4	0.0	3.6	0.1
67.0	12.5	1.8	3.8	31.7	20.9	0.0	17.8	31.6	2.3	0.0	3.5	0.1
68.0	12.2	1.7	3.7	31.6	20.7	0.0	17.6	31.5	2.2	0.0	3.5	0.0
69.0	11.9	1.6	3.5	31.5	20.4	0.0	17.3	31.3	2.1	0.0	3.4	0.0
70.0	11.7	1.5	3.4	31.4	20.2	0.0	17.0	31.2	2.0	0.0	3.3	0.0
71.0	11.4	1.5	3.3	31.3	20.0	0.0	16.7	31.0	1.9	0.0	3.2	0.0
72.0	11.2	1.4	3.1	31.2	19.7	0.0	16.5	30.8	1.8	0.0	3.1	0.0
73.0	11.0	1.3	3.0	31.1	19.5	0.0	16.2	30.7	1.8	0.0	3.1	0.0
74.0	10.7	1.3	2.9	31.0	19.3	0.0	15.9	30.5	1.7	0.0	3.0	0.0
75.0	10.5	1.2	2.8	30.9	19.0	0.0	15.7	30.3	1.6	0.0	2.9	0.0
76.0	10.3	1.2	2.6	30.7	18.8	0.0	15.4	30.2	1.5	0.0	2.9	0.0

Time	W720	W730	W740	W750	W760	W770	W840	W870	W920	SM-101-A	SM-101-B	SM-102-A
DA (SM)	2.9667	0.8881	1.5788	10.1256	4.8465	1.0354	4.0456	9.0712	1.1895	1.0827	0.8689	0.8451
PRF	150	150	150	152	150	150	150	150	150	230	150	181
Tc (hr)	26.88	13.77	15.40	77.52	41.91	3.16	33.56	65.73	13.67	5.93	25.14	7.25
Tlag (hr)	16.13	8.26	9.24	46.51	25.15	1.90	20.14	39.44	8.20	3.56	15.08	4.35
Drecom (hr)	3.58	1.83	2.05	10.31	5.57	0.42	4.46	8.74	1.82	0.79	3.34	0.96
Dmax (hr)	4.57	2.34	2.62	13.18	7.13	0.54	5.71	11.17	2.32	1.01	4.27	1.23
Dchosen (hr)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Φ	0.23	0.23	0.23	0.24	0.23	0.23	0.23	0.23	0.23	0.36	0.23	0.28
α	0.47	0.47	0.47	0.48	0.47	0.47	0.47	0.47	0.47	0.95	0.47	0.63
Tp (hr)	16.63	8.76	9.74	47.01	25.65	2.40	20.64	39.94	8.70	4.06	15.58	4.85
Qp	26.76	15.20	24.32	32.82	28.34	64.75	29.41	34.07	20.50	61.44	8.36	31.55
TIME (HR)												
77.0	10.0	1.1	2.5	30.6	18.6	0.0	15.2	30.0	1.4	0.0	2.8	0.0
78.0	9.8	1.1	2.4	30.5	18.4	0.0	14.9	29.8	1.4	0.0	2.7	0.0
79.0	9.6	1.0	2.3	30.4	18.1	0.0	14.7	29.7	1.3	0.0	2.7	0.0
80.0	9.4	1.0	2.2	30.3	17.9	0.0	14.4	29.5	1.3	0.0	2.6	0.0
81.0	9.2	0.9	2.1	30.1	17.7	0.0	14.2	29.3	1.2	0.0	2.5	0.0
82.0	9.0	0.9	2.1	30.0	17.5	0.0	14.0	29.1	1.1	0.0	2.5	0.0
83.0	8.8	0.8	2.0	29.9	17.3	0.0	13.7	29.0	1.1	0.0	2.4	0.0
84.0	8.6	0.8	1.9	29.7	17.0	0.0	13.5	28.8	1.0	0.0	2.4	0.0
85.0	8.4	0.8	1.8	29.6	16.8	0.0	13.3	28.6	1.0	0.0	2.3	0.0
86.0	8.2	0.7	1.7	29.5	16.6	0.0	13.0	28.4	0.9	0.0	2.2	0.0
87.0	8.0	0.7	1.7	29.3	16.4	0.0	12.8	28.3	0.9	0.0	2.2	0.0
88.0	7.8	0.7	1.6	29.2	16.2	0.0	12.6	28.1	0.9	0.0	2.1	0.0
89.0	7.7	0.6	1.5	29.0	16.0	0.0	12.4	27.9	0.8	0.0	2.1	0.0
90.0	7.5	0.6	1.5	28.9	15.8	0.0	12.2	27.7	0.8	0.0	2.0	0.0
91.0	7.3	0.6	1.4	28.8	15.6	0.0	12.0	27.5	0.7	0.0	2.0	0.0
92.0	7.2	0.5	1.3	28.6	15.4	0.0	11.7	27.4	0.7	0.0	1.9	0.0
93.0	7.0	0.5	1.3	28.5	15.2	0.0	11.5	27.2	0.7	0.0	1.9	0.0
94.0	6.8	0.5	1.2	28.3	15.0	0.0	11.3	27.0	0.6	0.0	1.8	0.0
95.0	6.7	0.5	1.2	28.2	14.8	0.0	11.1	26.8	0.6	0.0	1.8	0.0
96.0	6.5	0.4	1.1	28.0	14.6	0.0	10.9	26.6	0.6	0.0	1.8	0.0
97.0	6.4	0.4	1.1	27.9	14.4	0.0	10.7	26.5	0.6	0.0	1.7	0.0
98.0	6.2	0.4	1.0	27.8	14.2	0.0	10.6	26.3	0.5	0.0	1.7	0.0
99.0	6.1	0.4	1.0	27.6	14.0	0.0	10.4	26.1	0.5	0.0	1.6	0.0
100.0	5.9	0.4	0.9	27.5	13.8	0.0	10.2	25.9	0.5	0.0	1.6	0.0
101.0	5.8	0.3	0.9	27.3	13.6	0.0	10.0	25.7	0.5	0.0	1.5	0.0
102.0	5.7	0.3	0.9	27.2	13.4	0.0	9.8	25.5	0.4	0.0	1.5	0.0
103.0	5.5	0.3	0.8	27.0	13.3	0.0	9.6	25.4	0.4	0.0	1.5	0.0
104.0	5.4	0.3	0.8	26.9	13.1	0.0	9.5	25.2	0.4	0.0	1.4	0.0
105.0	5.3	0.3	0.8	26.7	12.9	0.0	9.3	25.0	0.4	0.0	1.4	0.0
106.0	5.2	0.3	0.7	26.6	12.7	0.0	9.1	24.8	0.4	0.0	1.4	0.0
107.0	5.0	0.3	0.7	26.4	12.5	0.0	9.0	24.6	0.3	0.0	1.3	0.0
108.0	4.9	0.2	0.7	26.3	12.4	0.0	8.8	24.5	0.3	0.0	1.3	0.0
109.0	4.8	0.2	0.6	26.1	12.2	0.0	8.6	24.3	0.3	0.0	1.3	0.0
110.0	4.7	0.2	0.6	26.0	12.0	0.0	8.5	24.1	0.3	0.0	1.2	0.0
111.0	4.6	0.2	0.6	25.8	11.9	0.0	8.3	23.9	0.3	0.0	1.2	0.0
112.0	4.5	0.2	0.6	25.7	11.7	0.0	8.2	23.7	0.3	0.0	1.2	0.0
113.0	4.4	0.2	0.5	25.5	11.5	0.0	8.0	23.6	0.3	0.0	1.1	0.0
114.0	4.3	0.2	0.5	25.3	11.4	0.0	7.9	23.4	0.2	0.0	1.1	0.0
115.0	4.2	0.2	0.5	25.2	11.2	0.0	7.7	23.2	0.2	0.0	1.1	0.0
116.0	4.1	0.2	0.5	25.0	11.1	0.0	7.6	23.0	0.2	0.0	1.1	0.0
117.0	4.0	0.2	0.5	24.9	10.9	0.0	7.5	22.8	0.2	0.0	1.0	0.0
118.0	3.9	0.2	0.4	24.7	10.7	0.0	7.3	22.7	0.2	0.0	1.0	0.0
119.0	3.8	0.1	0.4	24.6	10.6	0.0	7.2	22.5	0.2	0.0	1.0	0.0
120.0	3.7	0.1	0.4	24.4	10.4	0.0	7.1	22.3	0.2	0.0	0.9	0.0
121.0	3.6	0.1	0.4	24.3	10.3	0.0	6.9	22.1	0.2	0.0	0.9	0.0
122.0	3.5	0.1	0.4	24.1	10.1	0.0	6.8	22.0	0.2	0.0	0.9	0.0
123.0	3.4	0.1	0.3	24.0	10.0	0.0	6.7	21.8	0.2	0.0	0.9	0.0
124.0	3.3	0.1	0.3	23.8	9.9	0.0	6.5	21.6	0.1	0.0	0.9	0.0
125.0	3.3	0.1	0.3	23.7	9.7	0.0	6.4	21.5	0.1	0.0	0.8	0.0
126.0	3.2	0.1	0.3	23.5	9.6	0.0	6.3	21.3	0.1	0.0	0.8	0.0
127.0	3.1	0.1	0.3	23.4	9.4	0.0	6.2	21.1	0.1	0.0	0.8	0.0
128.0	3.0	0.1	0.3	23.2	9.3	0.0	6.1	20.9	0.1	0.0	0.8	0.0
129.0	3.0	0.1	0.3	23.1	9.2	0.0	5.9	20.8	0.1	0.0	0.7	0.0
130.0	2.9	0.1	0.3	22.9	9.0	0.0	5.8	20.6	0.1	0.0	0.7	0.0
131.0	2.8	0.1	0.2	22.8	8.9	0.0	5.7	20.4	0.1	0.0	0.7	0.0
132.0	2.8	0.1	0.2	22.6	8.8	0.0	5.6	20.3	0.1	0.0	0.7	0.0
133.0	2.7	0.1	0.2	22.5	8.6	0.0	5.5	20.1	0.1	0.0	0.7	0.0
134.0	2.6	0.1	0.2	22.3	8.5	0.0	5.4	19.9	0.1	0.0	0.7	0.0
135.0	2.6	0.1	0.2	22.2	8.4	0.0	5.3	19.8	0.1	0.0	0.6	0.0
136.0	2.5	0.1	0.2	22.0	8.3	0.0	5.2	19.6	0.1	0.0	0.6	0.0
137.0	2.4	0.1	0.2	21.9	8.1	0.0	5.1	19.5	0.1	0.0	0.6	0.0
138.0	2.4	0.1	0.2	21.7	8.0	0.0	5.0	19.3	0.1	0.0	0.6	0.0
139.0	2.3	0.1	0.2	21.6	7.9	0.0	4.9	19.1	0.1	0.0	0.6	0.0
140.0	2.3	0.1	0.2	21.5	7.8	0.0	4.8	19.0	0.1	0.0	0.6	0.0
141.0	2.2	0.0	0.2	21.3	7.7	0.0	4.7	18.8	0.1	0.0	0.5	0.0
142.0	2.1	0.0	0.1	21.2	7.6	0.0	4.6	18.7	0.1	0.0	0.5	0.0
143.0	2.1	0.0	0.1	21.0	7.5	0.0	4.5	18.5	0.1	0.0	0.5	0.0
144.0	2.0	0.0	0.1	20.9	7.3	0.0	4.5	18.4	0.1	0.0	0.5	0.0
145.0	2.0	0.0	0.1	20.7	7.2	0.0	4.4	18.2	0.1	0.0	0.5	0.0
146.0	1.9	0.0	0.1	20.6	7.1	0.0	4.3	18.0	0.0	0.0	0.5	0.0
147.0	1.9	0.0	0.1	20.5	7.0	0.0	4.2	17.9	0.0	0.0	0.5	0.0
148.0	1.9	0.0	0.1	20.3	6.9	0.0	4.1	17.7	0.0	0.0	0.5	0.0
149.0	1.8	0.0	0.1	20.2	6.8	0.0	4.0	17.6	0.0	0.0	0.4	0.0
150.0	1.8	0.0	0.1	20.0	6.7	0.0	4.0	17.4	0.0	0.0	0.4	0.0
151.0	1.7	0.0	0.1	19.9	6.6	0.0	3.9	17.3	0.0	0.0	0.4	0.0
152.0	1.7	0.0	0.1	19.8	6.5	0.0	3.8	17.1	0.0	0.0	0.4	0.0
153.0	1.6	0.0	0.1	19.6	6.4	0.0	3.7	17.0	0.0	0.0	0.4	0.0
154.0	1.6	0.0	0.1	19.5	6.3	0.0	3.7	16.8	0.0	0.0	0.4	0.0
155.0	1.6	0.0	0.1	19.3	6.2	0.0	3.6	16.7	0.0	0.0	0.4	0.0
156.0	1.5	0.0	0.1	19.2	6.1	0.0	3.5	16.6	0.0	0.0	0.4	0.0

Time	SM-103-A	S-W1000	S-W1100	S-W1550	S-W5200	S-W5300	S-W5450	S-W5500	S-W900
DA (SM)	0.4777	2.896	1.413	1.844	1.491	0.344	1.406	2.345	1.88
PRF	150	150	150	150	150	150	150	150	150
Tc (hr)	5.94	48.27	23.55	30.73	24.85	5.73	23.43	39.08	31.33
Tlag (hr)	3.56	29.0	14.1	18.4	14.9	3.4	14.1	23.5	18.8
Drecom (hr)	0.79	6.42	3.13	4.09	3.31	0.76	3.12	5.20	4.17
Dmax (hr)	1.01	8.21	4.00	5.22	4.22	0.97	3.98	6.64	5.33
Dchosen (hr)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Φ	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23
α	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47
Tp (hr)	4.06	29.46	14.63	18.94	15.41	3.94	14.56	23.95	19.30
Qp	17.64	14.75	14.49	14.60	14.51	13.10	14.48	14.69	14.61
TIME (HR)									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1.0	13.0	4.8	6.4	5.7	6.3	9.8	6.4	5.2	5.7
2.0	16.1	6.5	8.6	7.8	8.4	12.0	8.6	7.1	7.7
3.0	17.3	7.7	10.0	9.1	9.8	12.9	10.0	8.4	9.1
4.0	17.6	8.7	11.1	10.2	10.9	13.1	11.1	9.4	10.1
5.0	17.4	9.5	11.9	11.1	11.8	12.9	11.9	10.2	11.0
6.0	16.9	10.2	12.6	11.7	12.4	12.5	12.6	10.9	11.7
7.0	16.2	10.8	13.1	12.3	13.0	11.9	13.1	11.5	12.3
8.0	15.4	11.3	13.5	12.8	13.4	11.3	13.5	12.0	12.7
9.0	14.5	11.7	13.8	13.2	13.7	10.6	13.8	12.4	13.1
10.0	13.6	12.1	14.1	13.5	14.0	9.9	14.1	12.8	13.5
11.0	12.6	12.5	14.2	13.8	14.2	9.2	14.2	13.1	13.7
12.0	11.7	12.8	14.4	14.0	14.3	8.5	14.4	13.4	14.0
13.0	10.9	13.1	14.4	14.2	14.4	7.8	14.4	13.7	14.1
14.0	10.0	13.3	14.5	14.3	14.5	7.2	14.5	13.9	14.3
15.0	9.2	13.5	14.5	14.4	14.5	6.6	14.5	14.1	14.4
16.0	8.5	13.7	14.5	14.5	14.5	6.0	14.5	14.2	14.5
17.0	7.8	13.9	14.4	14.6	14.5	5.5	14.4	14.3	14.6
18.0	7.1	14.0	14.3	14.6	14.4	5.0	14.3	14.4	14.6
19.0	6.5	14.2	14.2	14.6	14.4	4.6	14.2	14.5	14.6
20.0	5.9	14.3	14.1	14.6	14.3	4.2	14.1	14.6	14.6
21.0	5.4	14.4	14.0	14.6	14.2	3.8	14.0	14.6	14.6
22.0	4.9	14.5	13.9	14.5	14.0	3.4	13.8	14.7	14.6
23.0	4.5	14.6	13.7	14.5	13.9	3.1	13.7	14.7	14.5
24.0	4.1	14.6	13.5	14.4	13.8	2.8	13.5	14.7	14.4
25.0	3.7	14.7	13.4	14.3	13.6	2.6	13.3	14.7	14.4
26.0	3.4	14.7	13.2	14.2	13.4	2.3	13.2	14.7	14.3
27.0	3.1	14.7	13.0	14.1	13.3	2.1	13.0	14.6	14.2
28.0	2.8	14.7	12.8	14.0	13.1	1.9	12.8	14.6	14.1
29.0	2.5	14.7	12.6	13.9	12.9	1.7	12.6	14.6	14.0
30.0	2.3	14.7	12.4	13.8	12.7	1.5	12.4	14.5	13.9
31.0	2.1	14.7	12.2	13.7	12.5	1.4	12.2	14.4	13.7
32.0	1.9	14.7	12.0	13.5	12.3	1.2	12.0	14.4	13.6
33.0	1.7	14.7	11.8	13.4	12.2	1.1	11.7	14.3	13.5
34.0	1.5	14.7	11.6	13.2	12.0	1.0	11.5	14.2	13.3
35.0	1.4	14.6	11.4	13.1	11.8	0.9	11.3	14.1	13.2
36.0	1.2	14.6	11.1	12.9	11.6	0.8	11.1	14.0	13.0
37.0	1.1	14.6	10.9	12.8	11.4	0.7	10.9	14.0	12.9
38.0	1.0	14.5	10.7	12.6	11.2	0.7	10.7	13.9	12.8
39.0	0.9	14.4	10.5	12.5	11.0	0.6	10.5	13.8	12.6
40.0	0.8	14.4	10.3	12.3	10.8	0.5	10.3	13.6	12.4
41.0	0.7	14.3	10.1	12.2	10.6	0.5	10.1	13.5	12.3
42.0	0.7	14.3	9.9	12.0	10.4	0.4	9.8	13.4	12.1
43.0	0.6	14.2	9.7	11.8	10.2	0.4	9.6	13.3	12.0
44.0	0.5	14.1	9.5	11.7	10.0	0.3	9.4	13.2	11.8
45.0	0.5	14.0	9.3	11.5	9.8	0.3	9.2	13.1	11.6
46.0	0.4	14.0	9.1	11.3	9.6	0.3	9.0	13.0	11.5
47.0	0.4	13.9	8.9	11.2	9.4	0.3	8.8	12.8	11.3
48.0	0.4	13.8	8.7	11.0	9.2	0.2	8.6	12.7	11.2
49.0	0.3	13.7	8.5	10.8	9.0	0.2	8.5	12.6	11.0
50.0	0.3	13.6	8.3	10.7	8.8	0.2	8.3	12.5	10.8
51.0	0.3	13.5	8.1	10.5	8.6	0.2	8.1	12.3	10.7
52.0	0.2	13.4	7.9	10.4	8.4	0.1	7.9	12.2	10.5
53.0	0.2	13.4	7.8	10.2	8.3	0.1	7.7	12.1	10.4
54.0	0.2	13.3	7.6	10.0	8.1	0.1	7.5	11.9	10.2
55.0	0.2	13.2	7.4	9.9	7.9	0.1	7.4	11.8	10.0
56.0	0.2	13.1	7.2	9.7	7.7	0.1	7.2	11.7	9.9
57.0	0.1	13.0	7.1	9.6	7.6	0.1	7.0	11.6	9.7
58.0	0.1	12.9	6.9	9.4	7.4	0.1	6.9	11.4	9.6
59.0	0.1	12.8	6.7	9.2	7.2	0.1	6.7	11.3	9.4
60.0	0.1	12.7	6.6	9.1	7.1	0.1	6.5	11.2	9.3
61.0	0.1	12.6	6.4	8.9	6.9	0.1	6.4	11.0	9.1
62.0	0.1	12.5	6.3	8.8	6.8	0.0	6.2	10.9	9.0
63.0	0.1	12.4	6.1	8.6	6.6	0.0	6.1	10.8	8.8
64.0	0.1	12.2	6.0	8.5	6.5	0.0	5.9	10.6	8.7
65.0	0.1	12.1	5.8	8.3	6.3	0.0	5.8	10.5	8.5
66.0	0.1	12.0	5.7	8.2	6.2	0.0	5.6	10.4	8.4
67.0	0.0	11.9	5.5	8.0	6.0	0.0	5.5	10.3	8.2
68.0	0.0	11.8	5.4	7.9	5.9	0.0	5.4	10.1	8.1
69.0	0.0	11.7	5.3	7.8	5.8	0.0	5.2	10.0	8.0
70.0	0.0	11.6	5.1	7.6	5.6	0.0	5.1	9.9	7.8
71.0	0.0	11.5	5.0	7.5	5.5	0.0	5.0	9.7	7.7
72.0	0.0	11.4	4.9	7.4	5.4	0.0	4.8	9.6	7.5
73.0	0.0	11.3	4.8	7.2	5.2	0.0	4.7	9.5	7.4
74.0	0.0	11.2	4.6	7.1	5.1	0.0	4.6	9.4	7.3
75.0	0.0	11.1	4.5	7.0	5.0	0.0	4.5	9.2	7.1
76.0	0.0	11.0	4.4	6.8	4.9	0.0	4.4	9.1	7.0

Time	SM-103-A	S-W1000	S-W1100	S-W1550	S-W5200	S-W5300	S-W5450	S-W5500	S-W900
DA (SM)	0.4777	2.896	1.413	1.844	1.491	0.344	1.406	2.345	1.88
PRF	150	150	150	150	150	150	150	150	150
Tc (hr)	5.94	48.27	23.55	30.73	24.85	5.73	23.43	39.08	31.33
Tlag (hr)	3.56	29.0	14.1	18.4	14.9	3.4	14.1	23.5	18.8
Drecom (hr)	0.79	6.42	3.13	4.09	3.31	0.76	3.12	5.20	4.17
Dmax (hr)	1.01	8.21	4.00	5.22	4.22	0.97	3.98	6.64	5.33
Dchosen (hr)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Φ	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23
α	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47
Tp (hr)	4.06	29.46	14.63	18.94	15.41	3.94	14.56	23.95	19.30
Qp	17.64	14.75	14.49	14.60	14.51	13.10	14.48	14.69	14.61
TIME (HR)									
77.0	0.0	10.9	4.3	6.7	4.8	0.0	4.2	9.0	6.9
78.0	0.0	10.8	4.2	6.6	4.6	0.0	4.1	8.9	6.8
79.0	0.0	10.7	4.1	6.5	4.5	0.0	4.0	8.8	6.6
80.0	0.0	10.5	4.0	6.3	4.4	0.0	3.9	8.6	6.5
81.0	0.0	10.4	3.9	6.2	4.3	0.0	3.8	8.5	6.4
82.0	0.0	10.3	3.8	6.1	4.2	0.0	3.7	8.4	6.3
83.0	0.0	10.2	3.7	6.0	4.1	0.0	3.6	8.3	6.2
84.0	0.0	10.1	3.6	5.9	4.0	0.0	3.5	8.2	6.1
85.0	0.0	10.0	3.5	5.8	3.9	0.0	3.4	8.1	5.9
86.0	0.0	9.9	3.4	5.7	3.8	0.0	3.4	8.0	5.8
87.0	0.0	9.8	3.3	5.6	3.7	0.0	3.3	7.8	5.7
88.0	0.0	9.7	3.2	5.4	3.6	0.0	3.2	7.7	5.6
89.0	0.0	9.6	3.1	5.3	3.5	0.0	3.1	7.6	5.5
90.0	0.0	9.5	3.0	5.2	3.4	0.0	3.0	7.5	5.4
91.0	0.0	9.4	3.0	5.1	3.4	0.0	2.9	7.4	5.3
92.0	0.0	9.3	2.9	5.0	3.3	0.0	2.9	7.3	5.2
93.0	0.0	9.2	2.8	4.9	3.2	0.0	2.8	7.2	5.1
94.0	0.0	9.1	2.7	4.8	3.1	0.0	2.7	7.1	5.0
95.0	0.0	9.0	2.7	4.7	3.0	0.0	2.6	7.0	4.9
96.0	0.0	8.9	2.6	4.7	3.0	0.0	2.6	6.9	4.8
97.0	0.0	8.8	2.5	4.6	2.9	0.0	2.5	6.8	4.7
98.0	0.0	8.7	2.5	4.5	2.8	0.0	2.4	6.7	4.6
99.0	0.0	8.6	2.4	4.4	2.7	0.0	2.4	6.6	4.6
100.0	0.0	8.5	2.3	4.3	2.7	0.0	2.3	6.5	4.5
101.0	0.0	8.4	2.3	4.2	2.6	0.0	2.2	6.4	4.4
102.0	0.0	8.3	2.2	4.1	2.5	0.0	2.2	6.3	4.3
103.0	0.0	8.2	2.1	4.0	2.5	0.0	2.1	6.2	4.2
104.0	0.0	8.1	2.1	4.0	2.4	0.0	2.1	6.1	4.1
105.0	0.0	8.1	2.0	3.9	2.3	0.0	2.0	6.0	4.0
106.0	0.0	8.0	2.0	3.8	2.3	0.0	1.9	5.9	4.0
107.0	0.0	7.9	1.9	3.7	2.2	0.0	1.9	5.8	3.9
108.0	0.0	7.8	1.9	3.7	2.2	0.0	1.8	5.8	3.8
109.0	0.0	7.7	1.8	3.6	2.1	0.0	1.8	5.7	3.7
110.0	0.0	7.6	1.8	3.5	2.1	0.0	1.7	5.6	3.7
111.0	0.0	7.5	1.7	3.4	2.0	0.0	1.7	5.5	3.6
112.0	0.0	7.4	1.7	3.4	2.0	0.0	1.6	5.4	3.5
113.0	0.0	7.3	1.6	3.3	1.9	0.0	1.6	5.3	3.4
114.0	0.0	7.3	1.6	3.2	1.9	0.0	1.6	5.3	3.4
115.0	0.0	7.2	1.5	3.2	1.8	0.0	1.5	5.2	3.3
116.0	0.0	7.1	1.5	3.1	1.8	0.0	1.5	5.1	3.2
117.0	0.0	7.0	1.5	3.0	1.7	0.0	1.4	5.0	3.2
118.0	0.0	6.9	1.4	3.0	1.7	0.0	1.4	4.9	3.1
119.0	0.0	6.8	1.4	2.9	1.6	0.0	1.4	4.9	3.1
120.0	0.0	6.8	1.3	2.9	1.6	0.0	1.3	4.8	3.0
121.0	0.0	6.7	1.3	2.8	1.5	0.0	1.3	4.7	2.9
122.0	0.0	6.6	1.3	2.7	1.5	0.0	1.2	4.6	2.9
123.0	0.0	6.5	1.2	2.7	1.5	0.0	1.2	4.6	2.8
124.0	0.0	6.4	1.2	2.6	1.4	0.0	1.2	4.5	2.8
125.0	0.0	6.4	1.2	2.6	1.4	0.0	1.1	4.4	2.7
126.0	0.0	6.3	1.1	2.5	1.4	0.0	1.1	4.4	2.6
127.0	0.0	6.2	1.1	2.5	1.3	0.0	1.1	4.3	2.6
128.0	0.0	6.1	1.1	2.4	1.3	0.0	1.0	4.2	2.5
129.0	0.0	6.1	1.0	2.4	1.2	0.0	1.0	4.2	2.5
130.0	0.0	6.0	1.0	2.3	1.2	0.0	1.0	4.1	2.4
131.0	0.0	5.9	1.0	2.3	1.2	0.0	1.0	4.0	2.4
132.0	0.0	5.8	1.0	2.2	1.2	0.0	0.9	4.0	2.3
133.0	0.0	5.8	0.9	2.2	1.1	0.0	0.9	3.9	2.3
134.0	0.0	5.7	0.9	2.1	1.1	0.0	0.9	3.8	2.2
135.0	0.0	5.6	0.9	2.1	1.1	0.0	0.9	3.8	2.2
136.0	0.0	5.6	0.8	2.0	1.0	0.0	0.8	3.7	2.2
137.0	0.0	5.5	0.8	2.0	1.0	0.0	0.8	3.7	2.1
138.0	0.0	5.4	0.8	2.0	1.0	0.0	0.8	3.6	2.1
139.0	0.0	5.4	0.8	1.9	1.0	0.0	0.8	3.5	2.0
140.0	0.0	5.3	0.8	1.9	0.9	0.0	0.7	3.5	2.0
141.0	0.0	5.2	0.7	1.8	0.9	0.0	0.7	3.4	1.9
142.0	0.0	5.2	0.7	1.8	0.9	0.0	0.7	3.4	1.9
143.0	0.0	5.1	0.7	1.8	0.9	0.0	0.7	3.3	1.9
144.0	0.0	5.0	0.7	1.7	0.8	0.0	0.7	3.3	1.8
145.0	0.0	5.0	0.7	1.7	0.8	0.0	0.6	3.2	1.8
146.0	0.0	4.9	0.6	1.6	0.8	0.0	0.6	3.2	1.7
147.0	0.0	4.8	0.6	1.6	0.8	0.0	0.6	3.1	1.7
148.0	0.0	4.8	0.6	1.6	0.7	0.0	0.6	3.1	1.7
149.0	0.0	4.7	0.6	1.5	0.7	0.0	0.6	3.0	1.6
150.0	0.0	4.7	0.6	1.5	0.7	0.0	0.6	3.0	1.6
151.0	0.0	4.6	0.6	1.5	0.7	0.0	0.5	2.9	1.6
152.0	0.0	4.5	0.5	1.4	0.7	0.0	0.5	2.9	1.5
153.0	0.0	4.5	0.5	1.4	0.7	0.0	0.5	2.8	1.5
154.0	0.0	4.4	0.5	1.4	0.6	0.0	0.5	2.8	1.5
155.0	0.0	4.4	0.5	1.4	0.6	0.0	0.5	2.7	1.4
156.0	0.0	4.3	0.5	1.3	0.6	0.0	0.5	2.7	1.4

**APPENDIX B1
CULVERT INVENTORY**

DITCH CROSS-CULVERT LOCATIONS

CITY OF EDINBURG - MASTER DRAINAGE PLAN

LATERAL SYSTEMS - CROSS CULVERT STRUCTURE INVENTORY & PROPOSED MDP IMPROVEMENTS

DITCH STATION	CROSSING NAME	EXISTING STRUCTURE	CULVERT LENGTH	PROPOSED STRUCTURE
ES-100				
50	OUTLET GATE TO SMD	2- 10' X 10' RCB	60	--
1309	CESAR CHAVEZ	10' X 10' RCB	80	
4086	DIRT RD	10' X 10' RCB	80	
8153	DOOLITTLE	10' X 6' RCB	84	10' X 10' RCB
11181	RAUL LONGORIA	8' X 4' & 4' X 4' RCB	147	10' X 10' RCB
ES-101				
675	FREDDY GONZALEZ	84" RCP	116	
1520	28TH ST	60" RCP	80	
2308	US 281	60" RCP	400	
ES-102				
2027	SPRAGUE	10' X 6' RCB	106	--
ES-102-01				
1035	ACCESS RD	UNK- 24" RCP	94	8' X 5' RCB
1701	RAUL LONGORIA	UNK 2 BOX	157	8' X 5' RCB
4635	DOOLITTLE	UNK- 36" RCP	420	8' X 5' RCB
ES-102-02				
ES-102-03				
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ES-102-395				

CITY OF EDINBURG - MASTER DRAINAGE PLAN

LATERAL SYSTEMS - CROSS CULVERT STRUCTURE INVENTORY & PROPOSED MDP IMPROVEMENTS

DITCH STATION	CROSSING NAME	EXISTING STRUCTURE	CULVERT LENGTH	PROPOSED STRUCTURE
NM-105				
1318	MCCOLL (FM 2061)	30" RCP	124	5' X 5' RCB
3954	MONUMENT MACK	30" RCP	90	6' X 4' RCB
5285	UTILITY- CANAL	48" RCP	56	--
9235	HOEHN	18" RCP	114	48" RCP
11882	DEPOT	48" RCP	200	--
NM-106				
1311	MCCOLL (FM 2061)	36" RCP	108	2-36" RCP
2652	ACCESS	36" RCP	36	2-36" RCP
NM-108				
1343	JACKSON	10' X 6' RCB	186	--
NM-109				
1331	JACKSON	36" RCP	940	48" RCP
NM-110				
1335	MCCOLL (FM 2061)	30" RCP (US) / 8'X4' RCB (DS)	176	8'X4' RCB EXTENDED U/S
2639	UTILITY	30" RCP	108	7' X 4' RCP
3988	MON MACK	36" RCP	142	7' X 4' RCP
5454	SAKER	36" RCP	76	2-36" RCP
NM-111				
1335	MCCOLL (FM 2061)	24" RCP	220	--
NM-112				
1257	JACKSON	6' X 6' RCB	184	--
3978	SUGAR	72" RCP	136	--
5831	RAILROAD	36" RCP	100	--

CITY OF EDINBURG - MASTER DRAINAGE PLAN

LATERAL SYSTEMS - CROSS CULVERT STRUCTURE INVENTORY & PROPOSED MDP IMPROVEMENTS

DITCH	CROSSING	EXISTING	CULVERT	PROPOSED
STATION	NAME	STRUCTURE	LENGTH	STRUCTURE
NM-113				
1390	JACKSON	5' X 4' RCB	280	2- 5' X 4' RCB
2382	RAILROAD	5' X 4' RCB	68	--
4086	SUGAR	18" RCP	102	42" RCP
NM-115				
1196	WISCONSIN	7' X 8' RCB	152	2- 7' X 8' RCB
3132	RAILROAD	10' X 10' RCB	212	--
3839	TRENTON	10' X 10' RCB & 48" RCP	174	--
5188	DIRT	10' X 8' RCB	48	--
6509	ALBERTA	8' X 9' RCB	178	2- 8' X 9' RCB
7827	UTILITY	8' X 7' RCB	48	2- 8' X 7' RCB
9146	DOVE	7' X 6' RCB	154	2- 7' X 6' RCB
11793	VIOLET	6' X 5' RCB	154	10' X 8' RCB
12718	UTILITY	6' X 4' RCB	36	2- 6' X 4' RCB
13110	UTILITY	6' X 4' RCB	40	2- 6' X 4' RCB
14441	NOLANA	66" RCP	188	--
NM-116				
655	WISCONSIN	2- 36" RCP	320	6' X 5' RCB
3353	TRENTON	42" RCP	620	--
SM-102				
1319	WISCONSIN	48" RCP	220	--
3316	ACCESS	60" RCP	86	--
MC-101				
1319	WISCONSIN	48" RCP	220	--
3316	ACCESS	60" RCP	86	--

Legend

- HCDD1 MAJOR CHANNELS
- DRAINAGE DITCHES

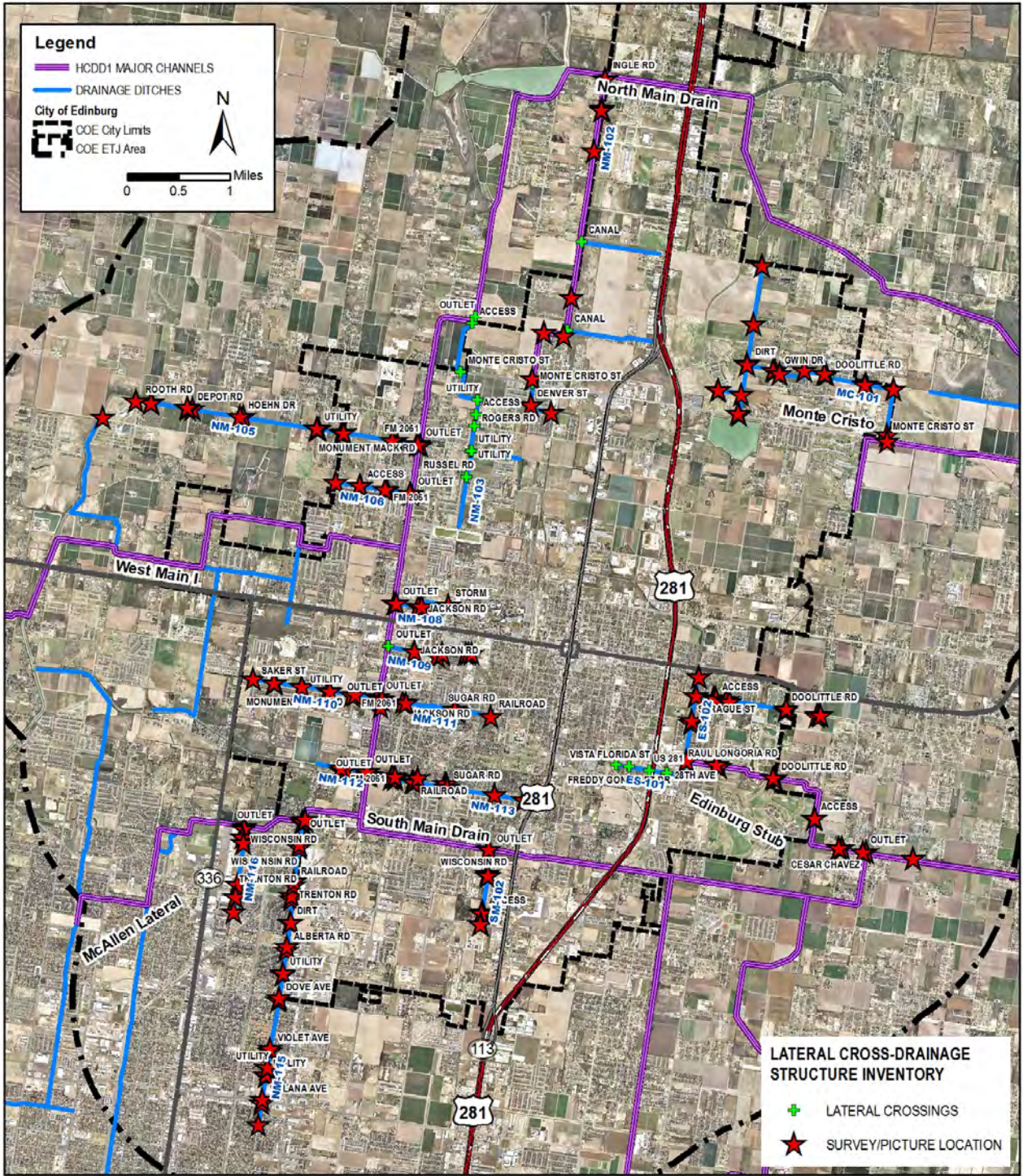
City of Edinburg

- COE City Limits
- COE ETJ Area

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Miles

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**LATERAL CROSS-DRAINAGE
STRUCTURE INVENTORY**

- + LATERAL CROSSINGS
- ★ SURVEY/PICTURE LOCATION

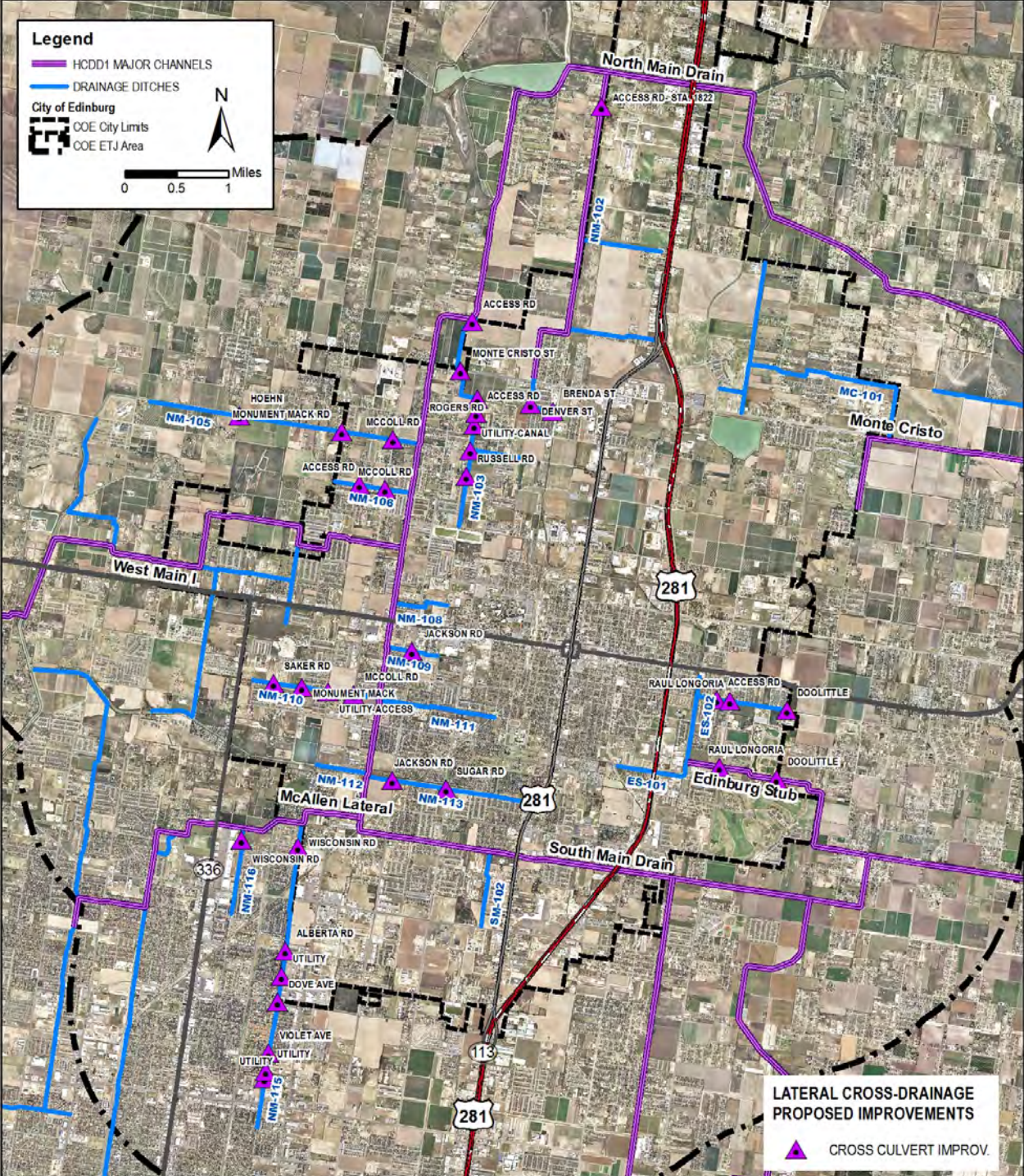
Legend

- HCDD1 MAJOR CHANNELS
- DRAINAGE DITCHES


City of Edinburg

- COE City Limits
- COE ETJ Area

Miles
0 0.5 1



**LATERAL CROSS-DRAINAGE
PROPOSED IMPROVEMENTS**

 CROSS CULVERT IMPROV.

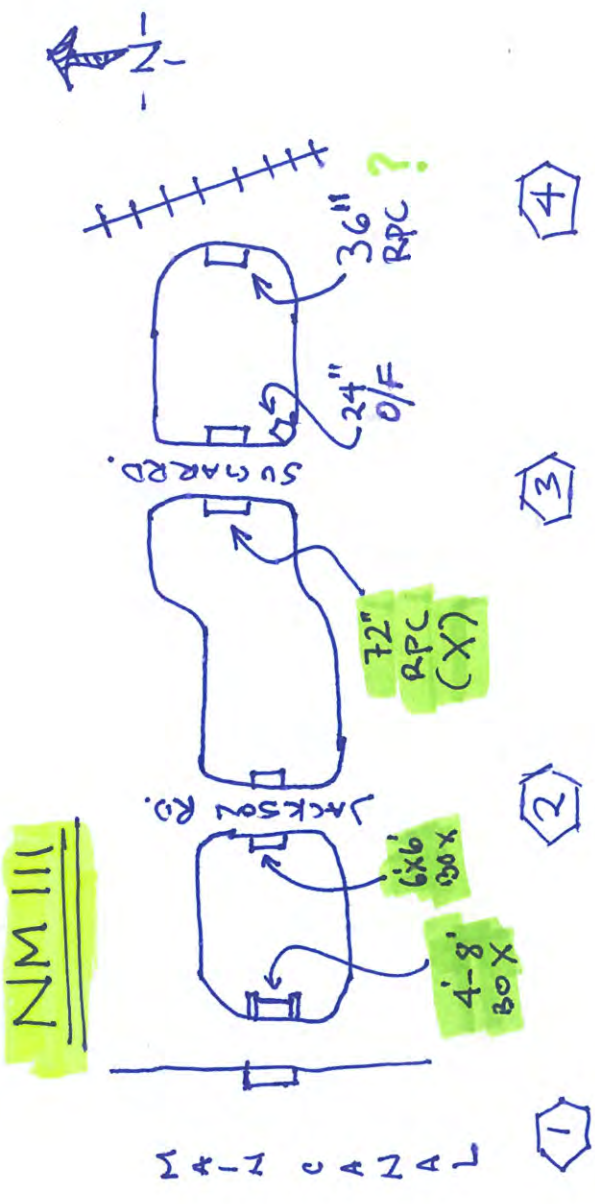
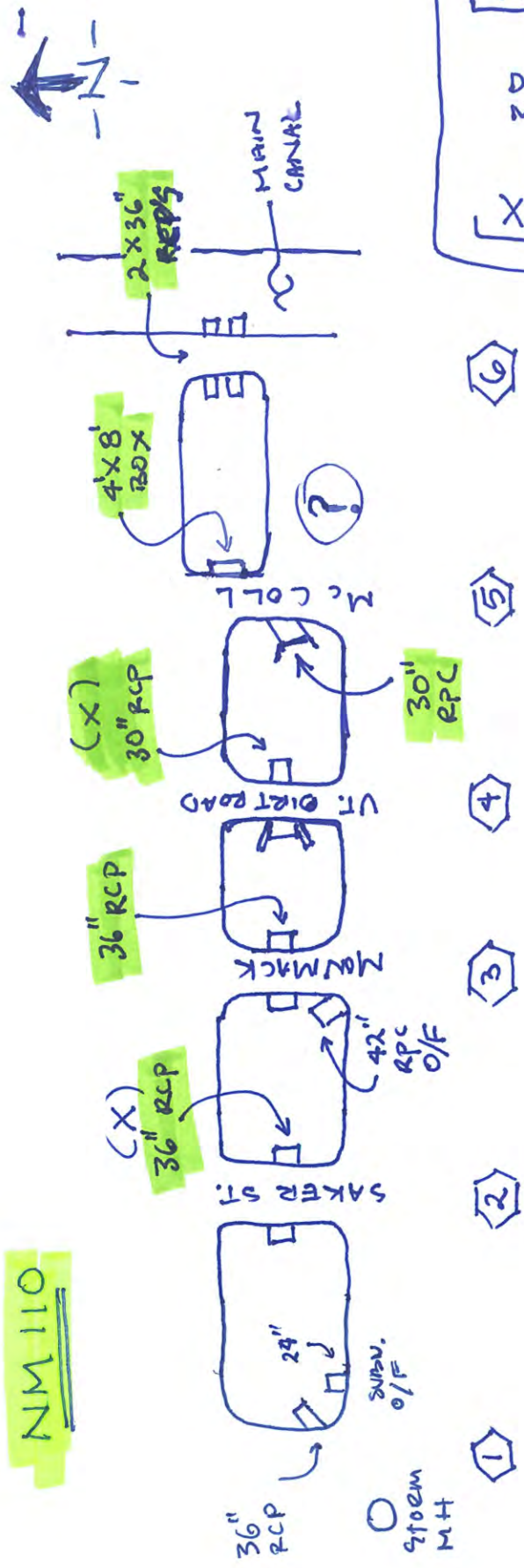
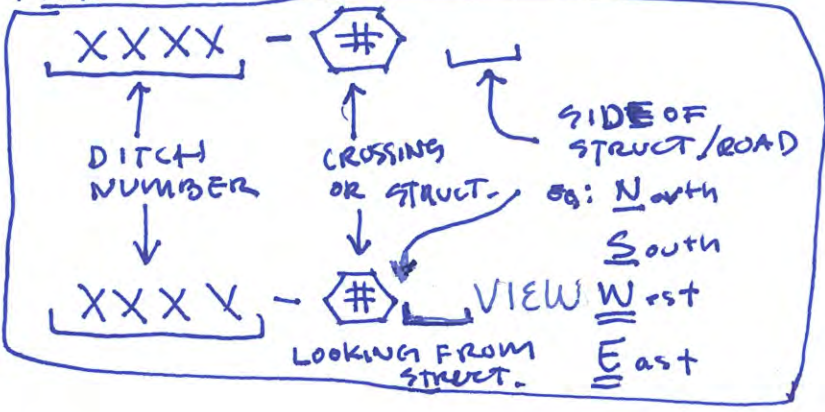
**APPENDIX B2
CULVERT INVENTORY**

FIELD SURVEY NOTES & PHOTOS

**CULVERT PHOTOS PROVIDED
AS IMAGE FILES ON DISKETTE**



PICTURE LABELS:



O/F = OUTFALL X = CROSSING MH = MANHOLE RCP = REINFORCED CONCRETE PIPE
 <#> = CROSSING NUMBER / STOP NUMBER TO ID. PICTURES

TEDSI

Project: MASTER PLAN

Computed:

Date: 10/29/14

Project #: 2014-1147-01

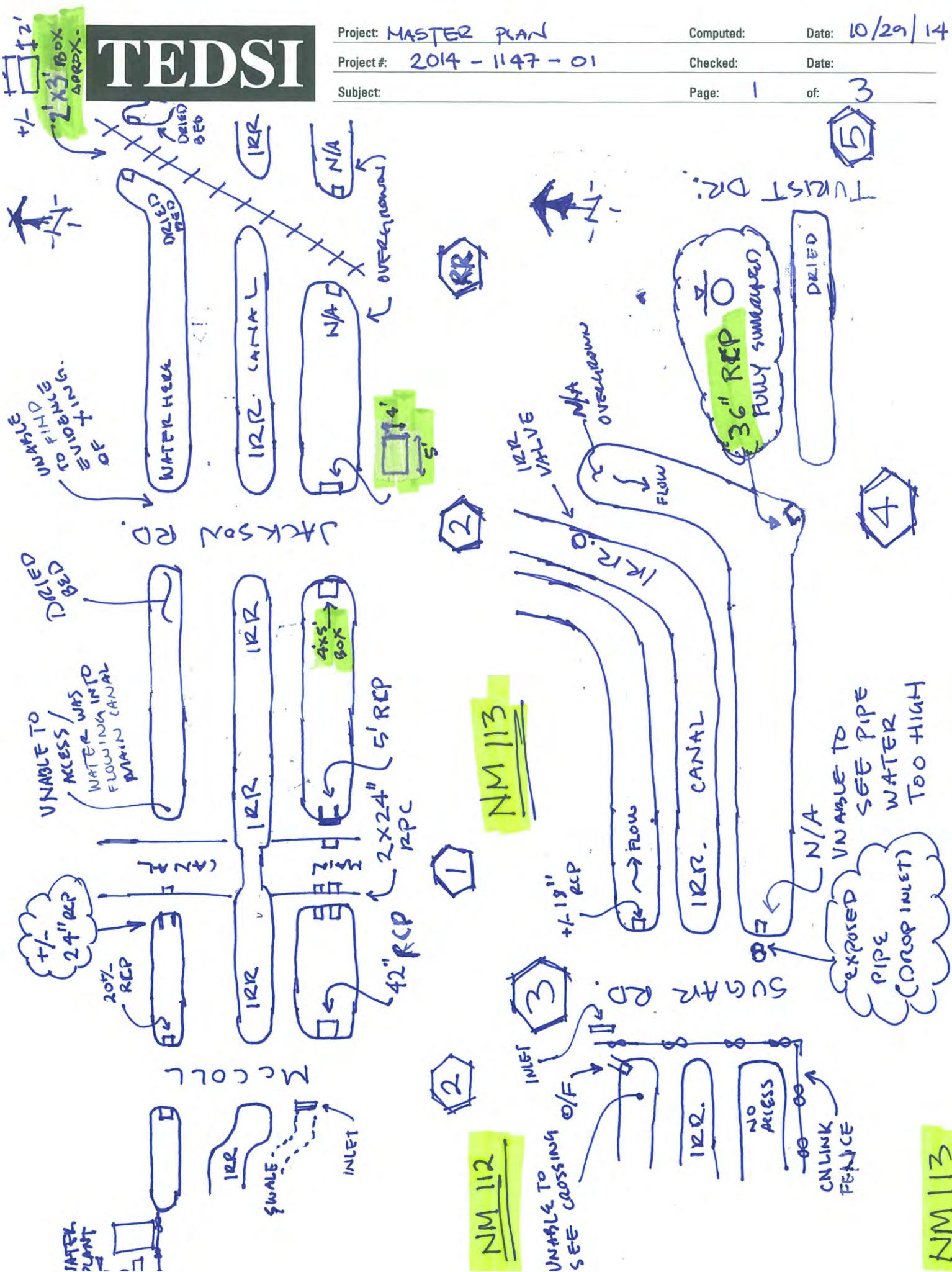
Checked:

Date:

Subject:

Page: 1

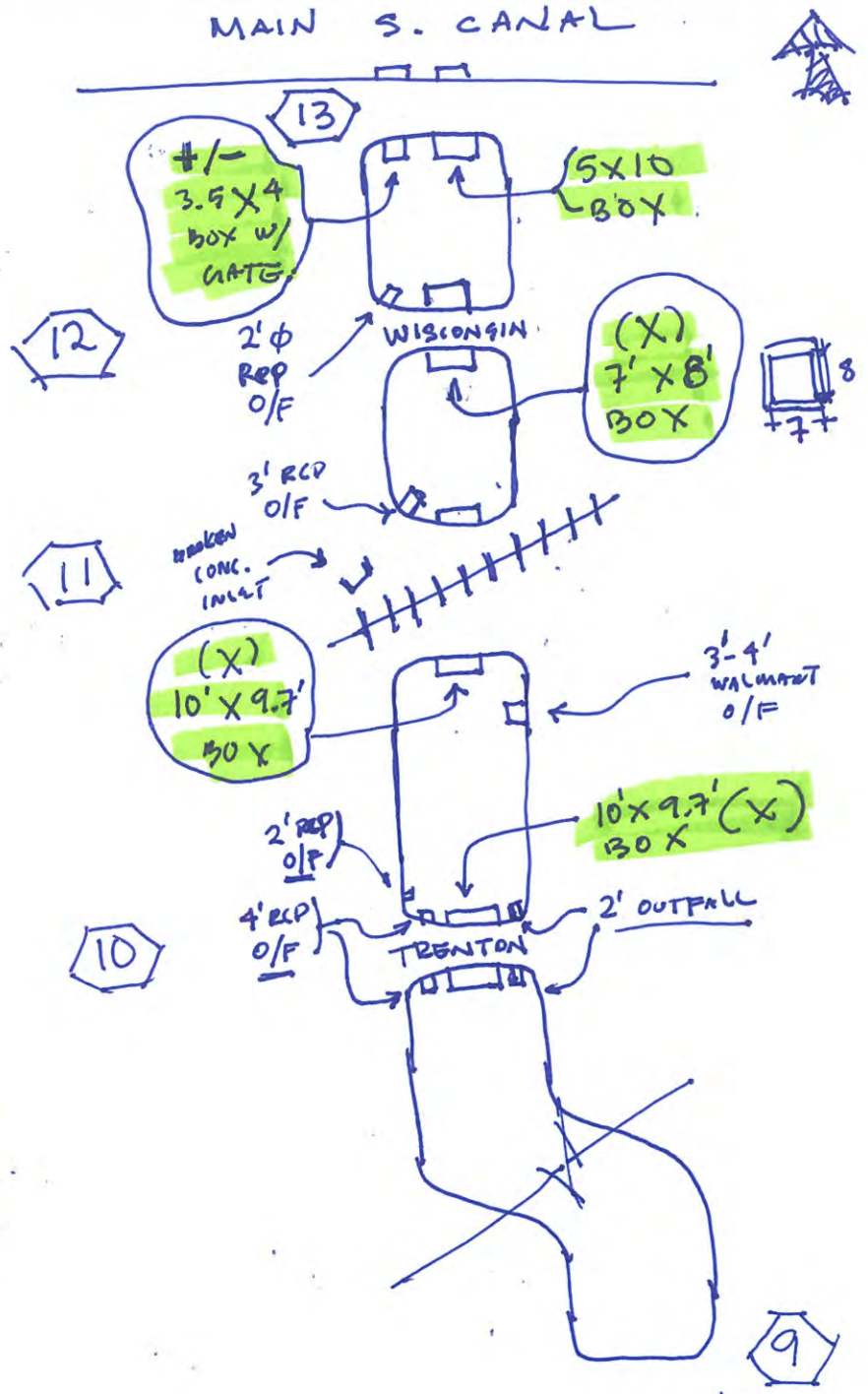
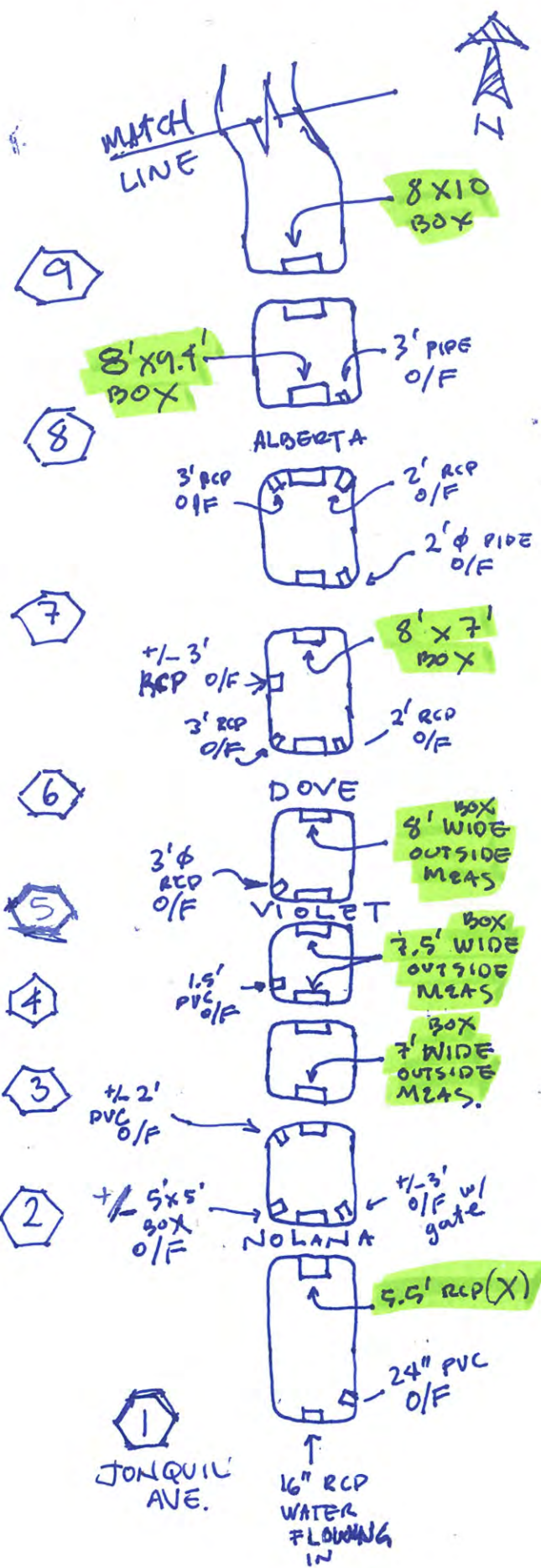
of: 3



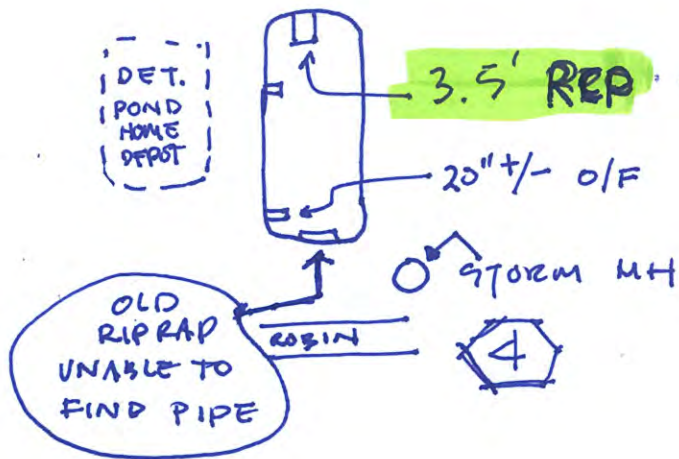
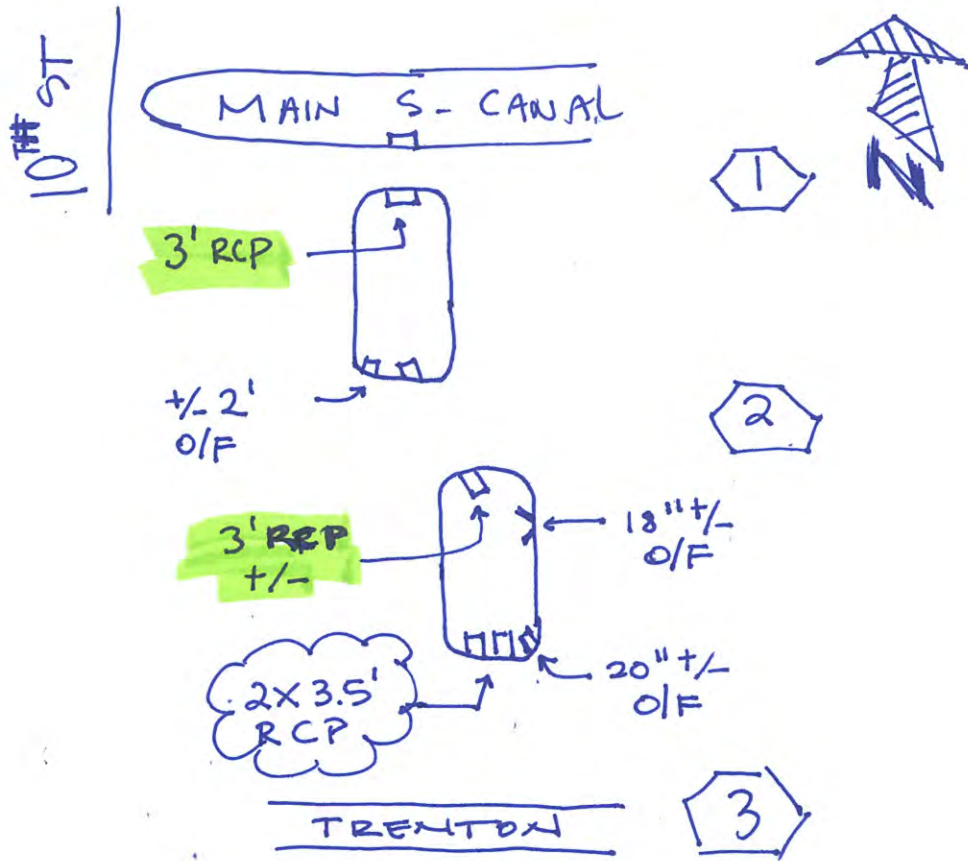
NM 112

NM 113

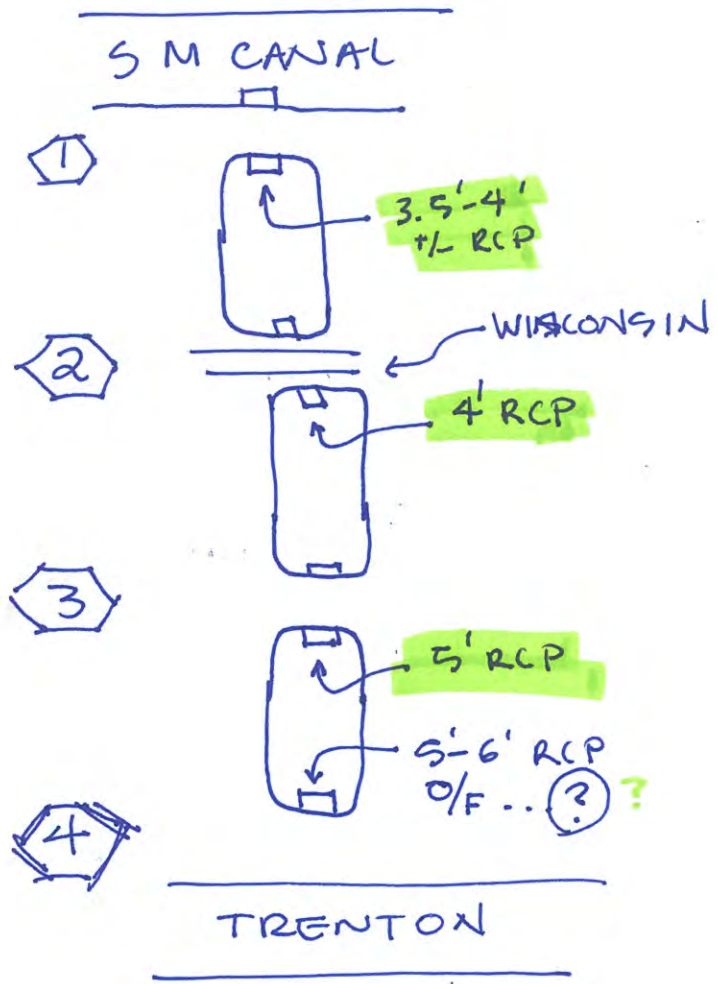
NM 113



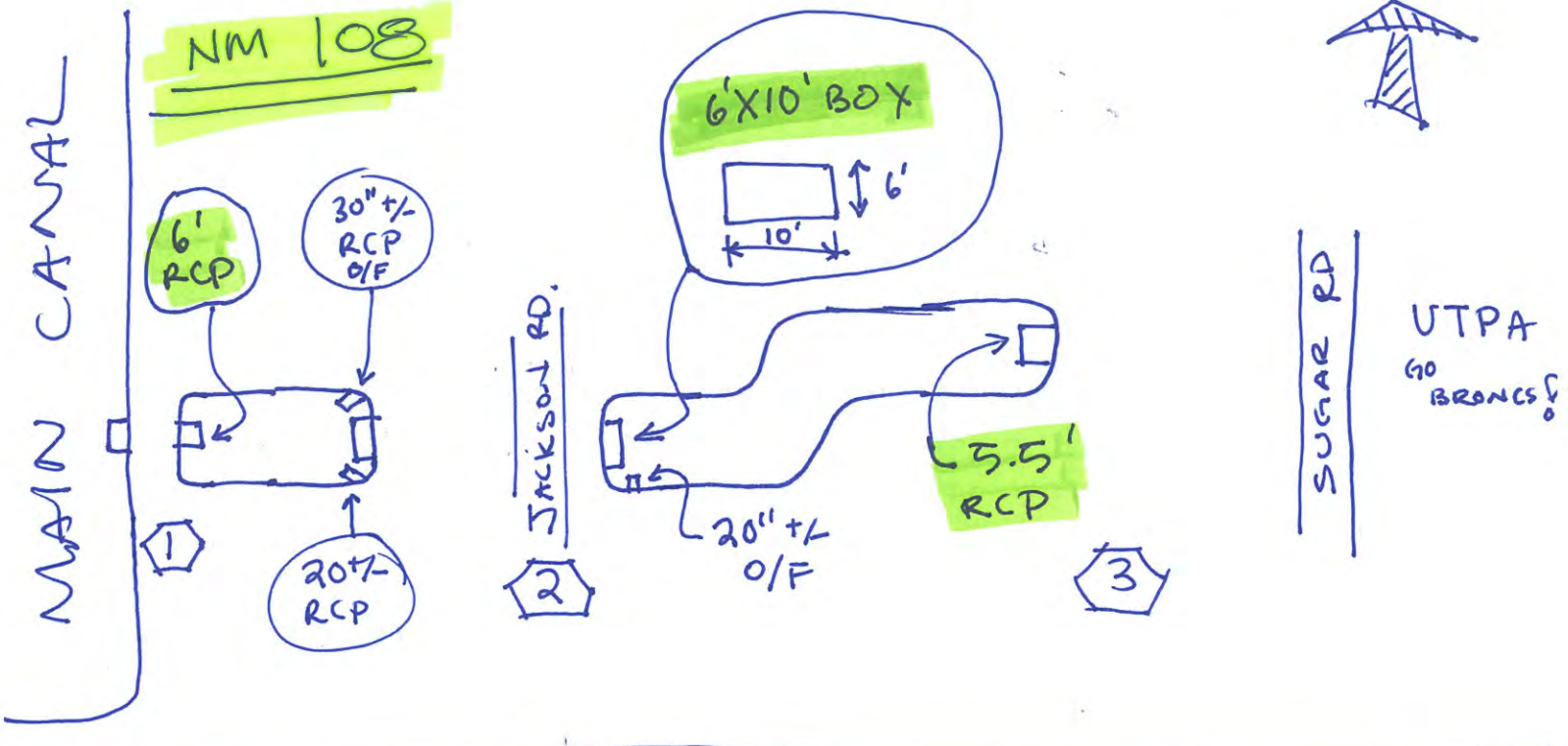
NM 115



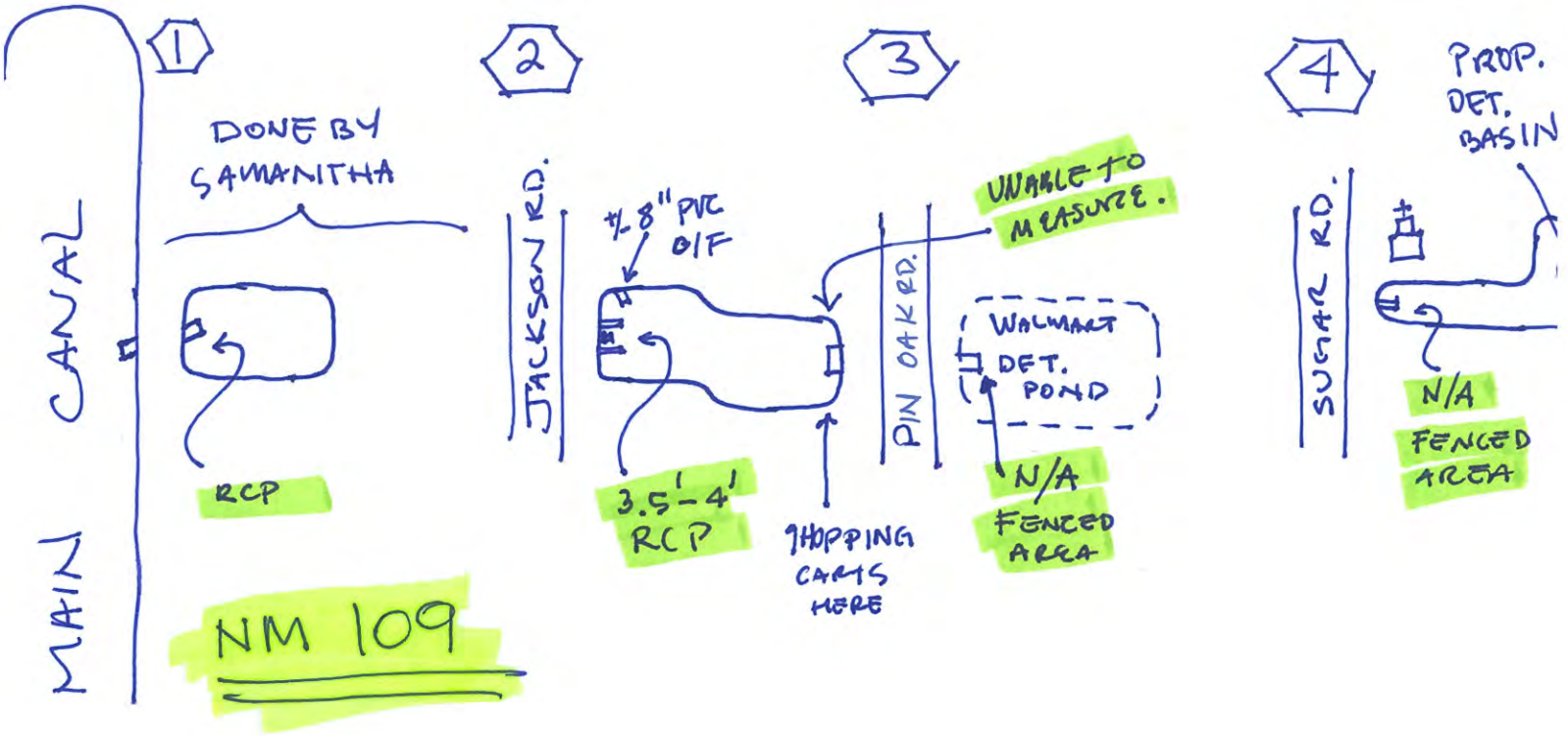
NM-116

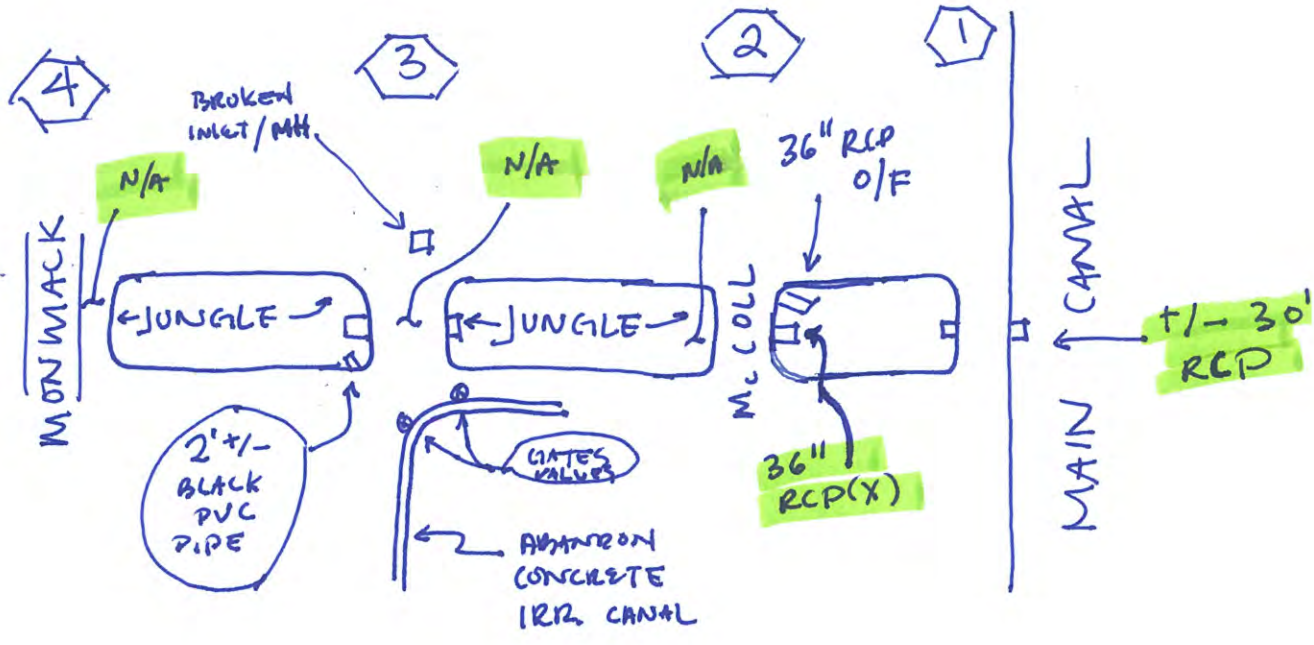


SM 102



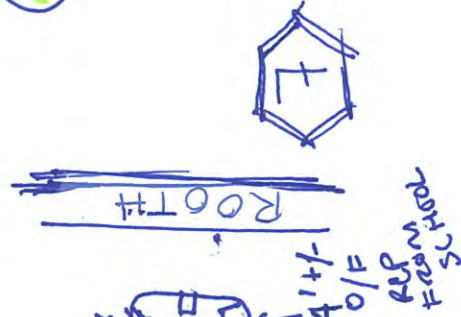
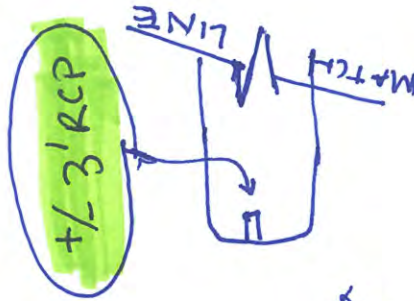
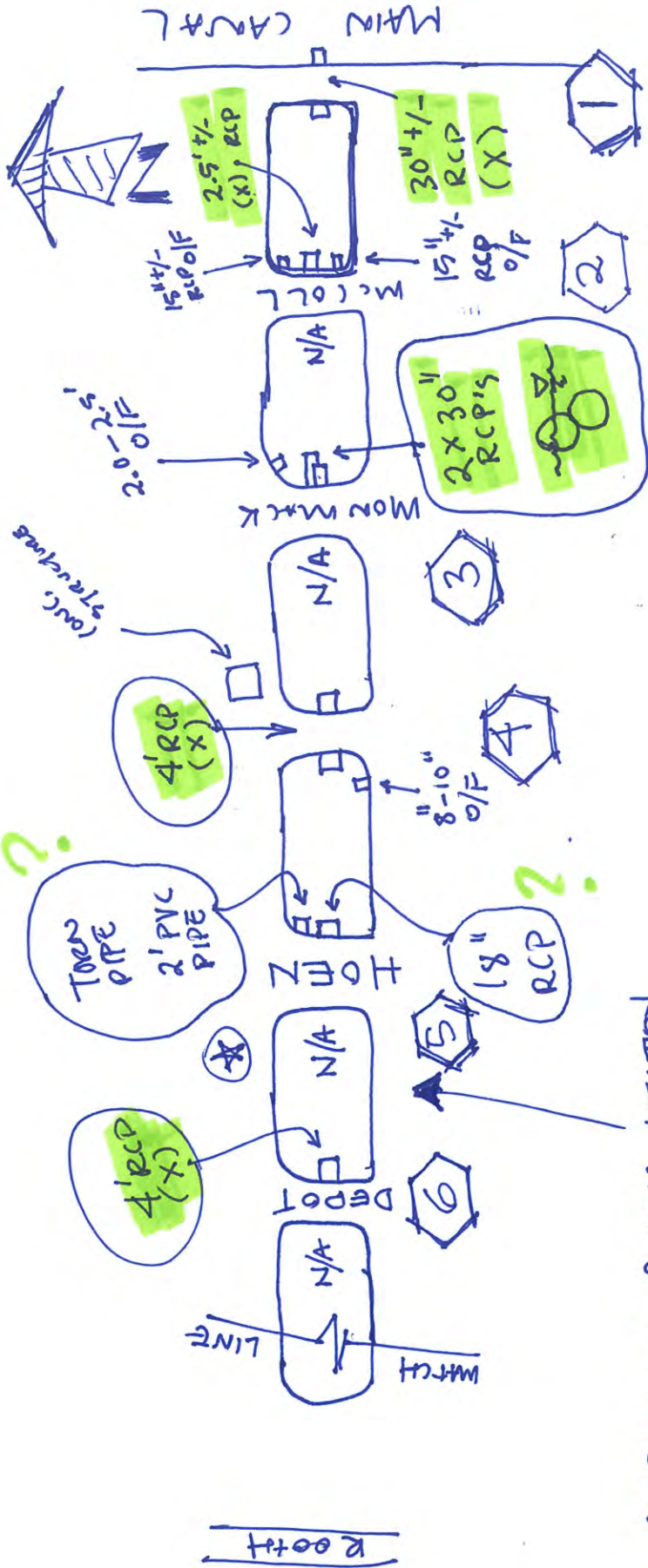
STATE HIGHWAY 107 (UNIVERSITY DRIVE)



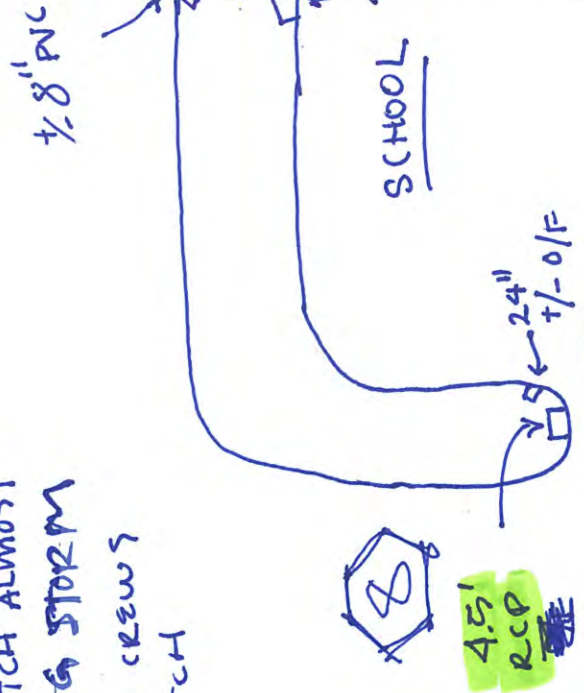


DITCH IS OVERGROWN WEST OF
Mc COLL RD. UNABLE TO FIND
PIPES.

NM 106



NM 105

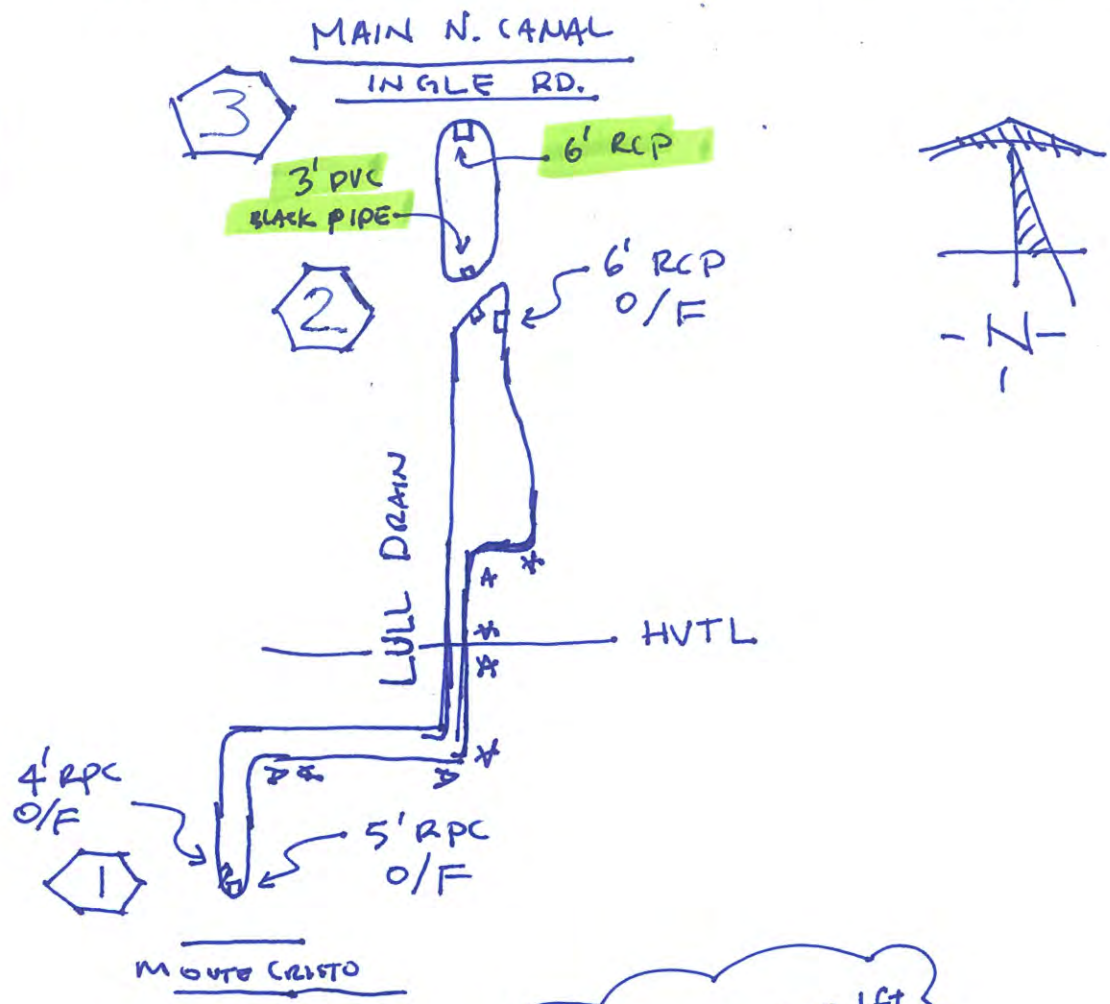


MILE 17 1/2 RD
 N/A

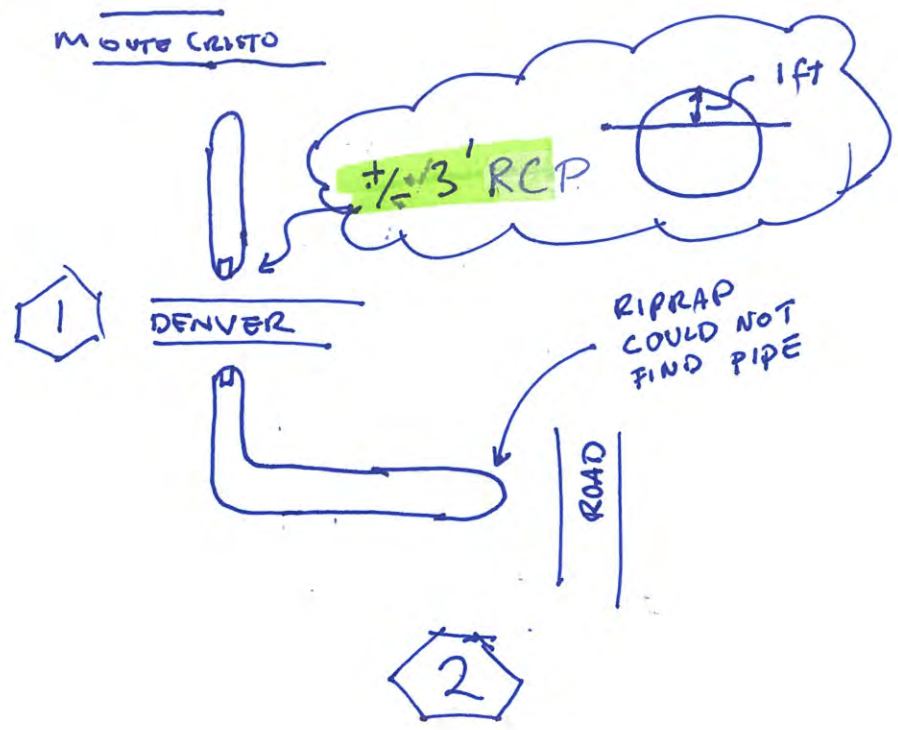
RESIDENT @ THIS LOCATION STATES THAT DITCH ALMOST OVERTOPS DURING STORM EVENTS AFTER CREWS WORKED ON DITCH

NM 102

△ = Picture

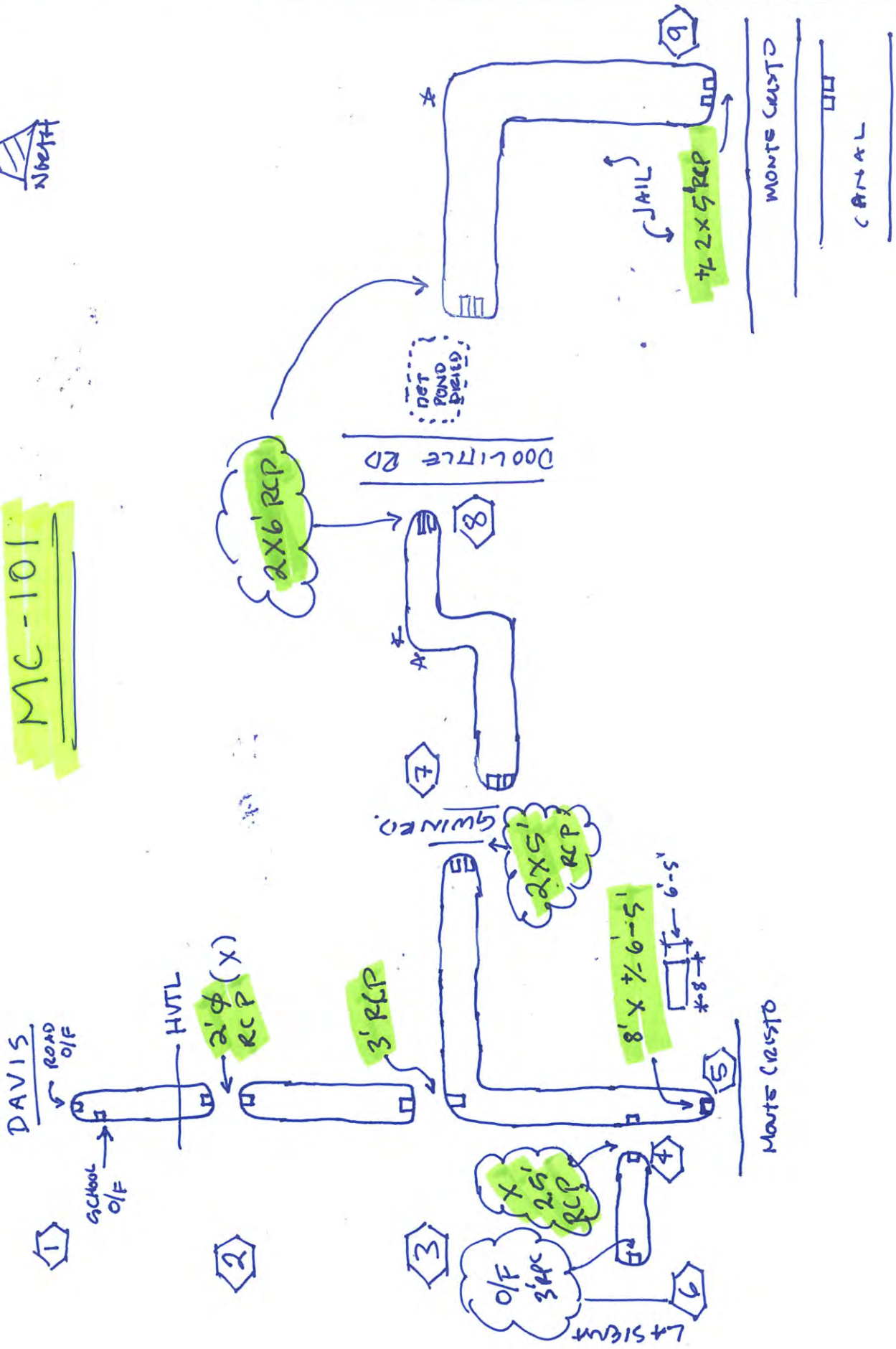


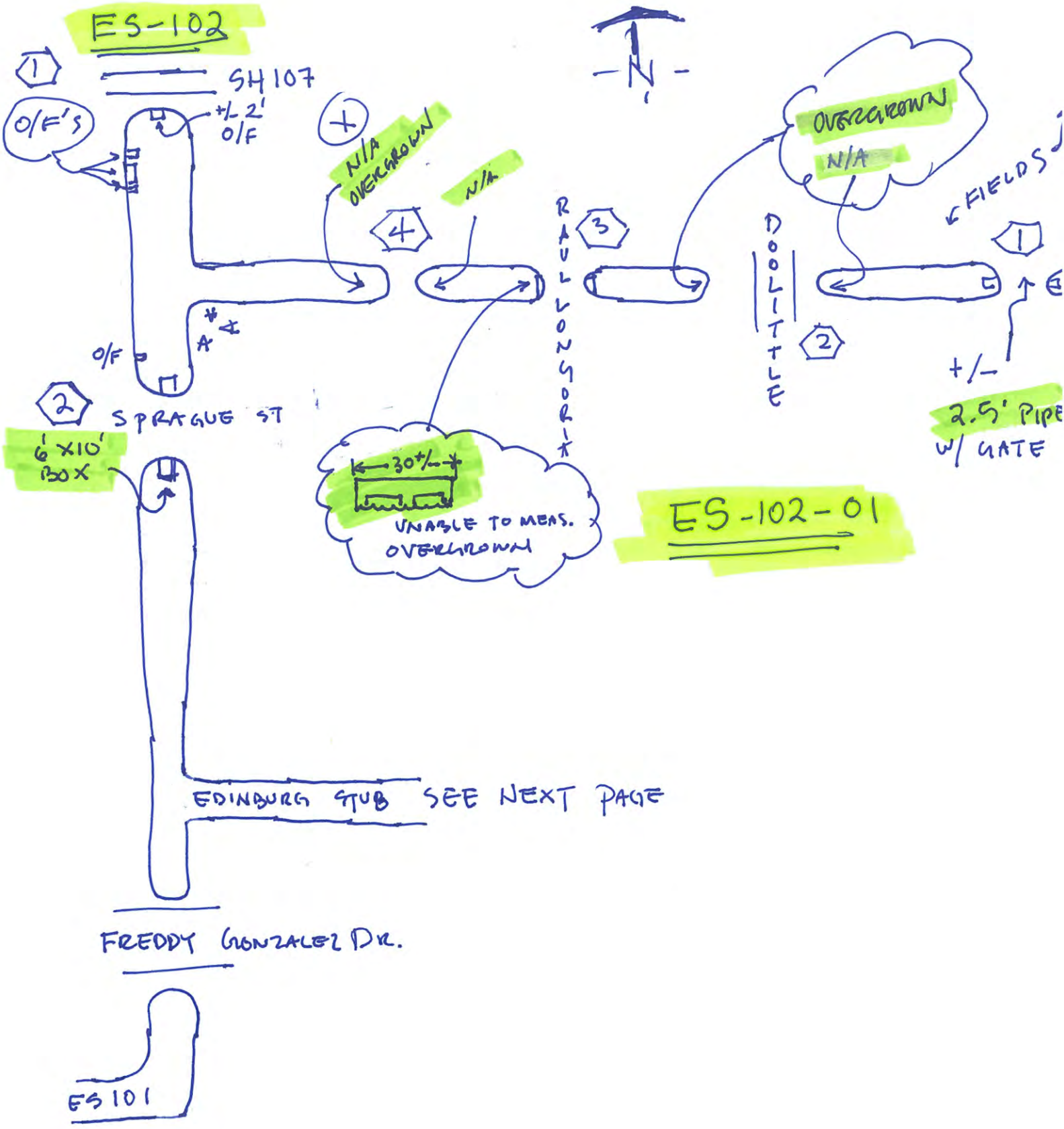
NM 102-03



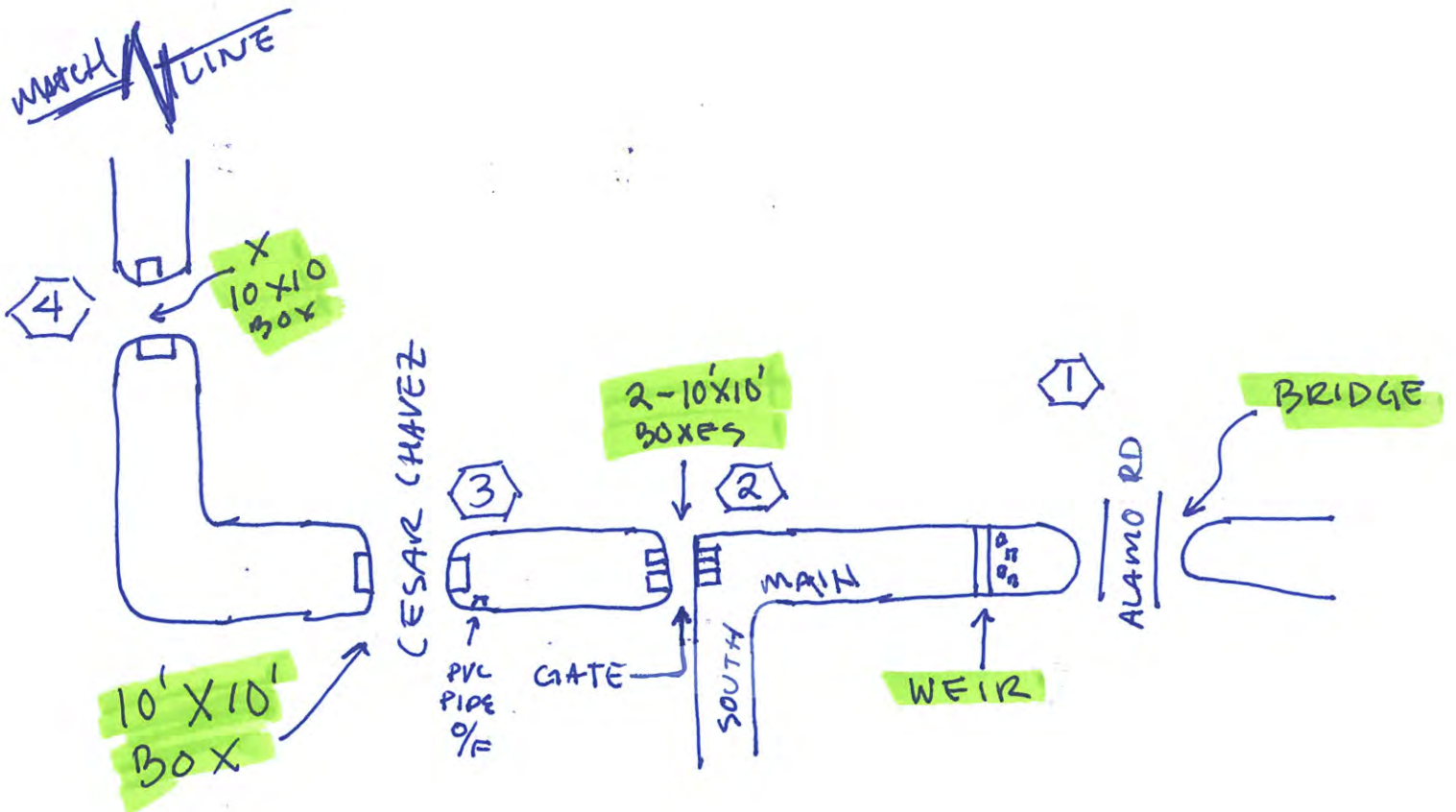
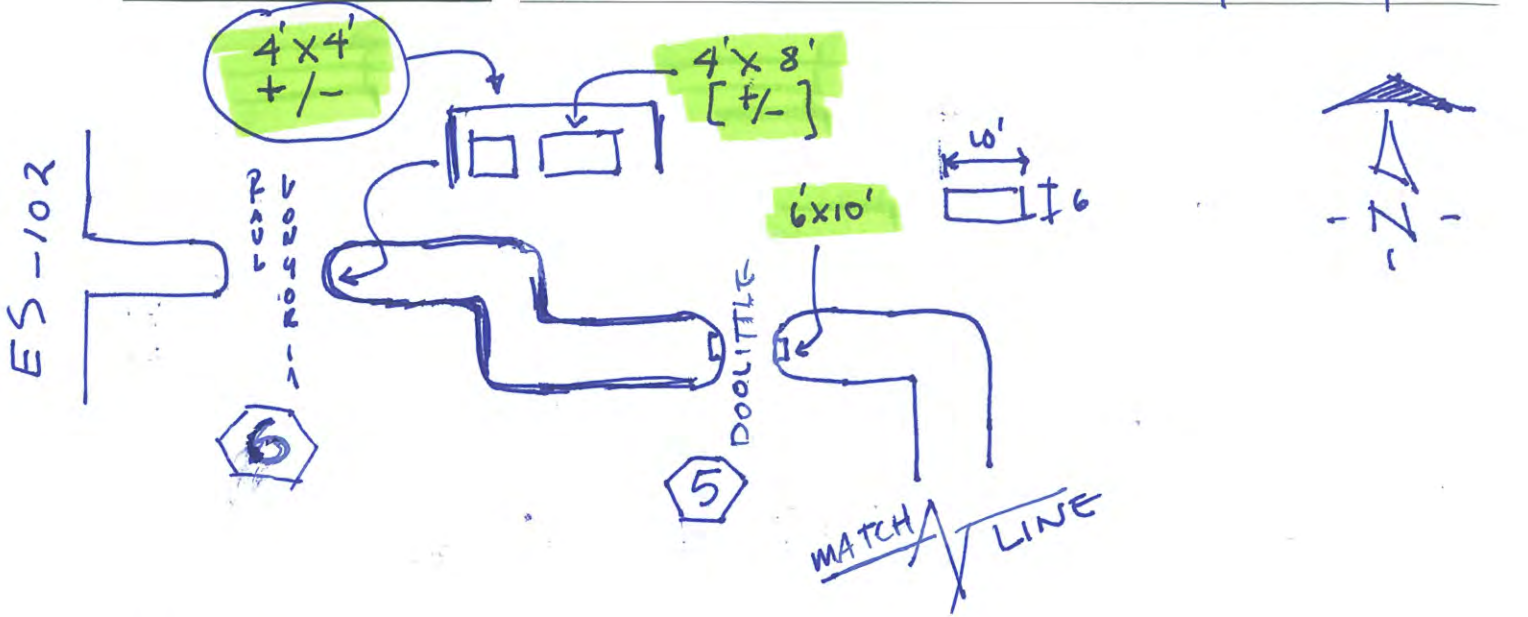


MC-101





TEDSI



EDINBURG STUB

**APPENDIX C
NORTH MAIN DRAIN
HEC-RAS 1D/2D MODELING**

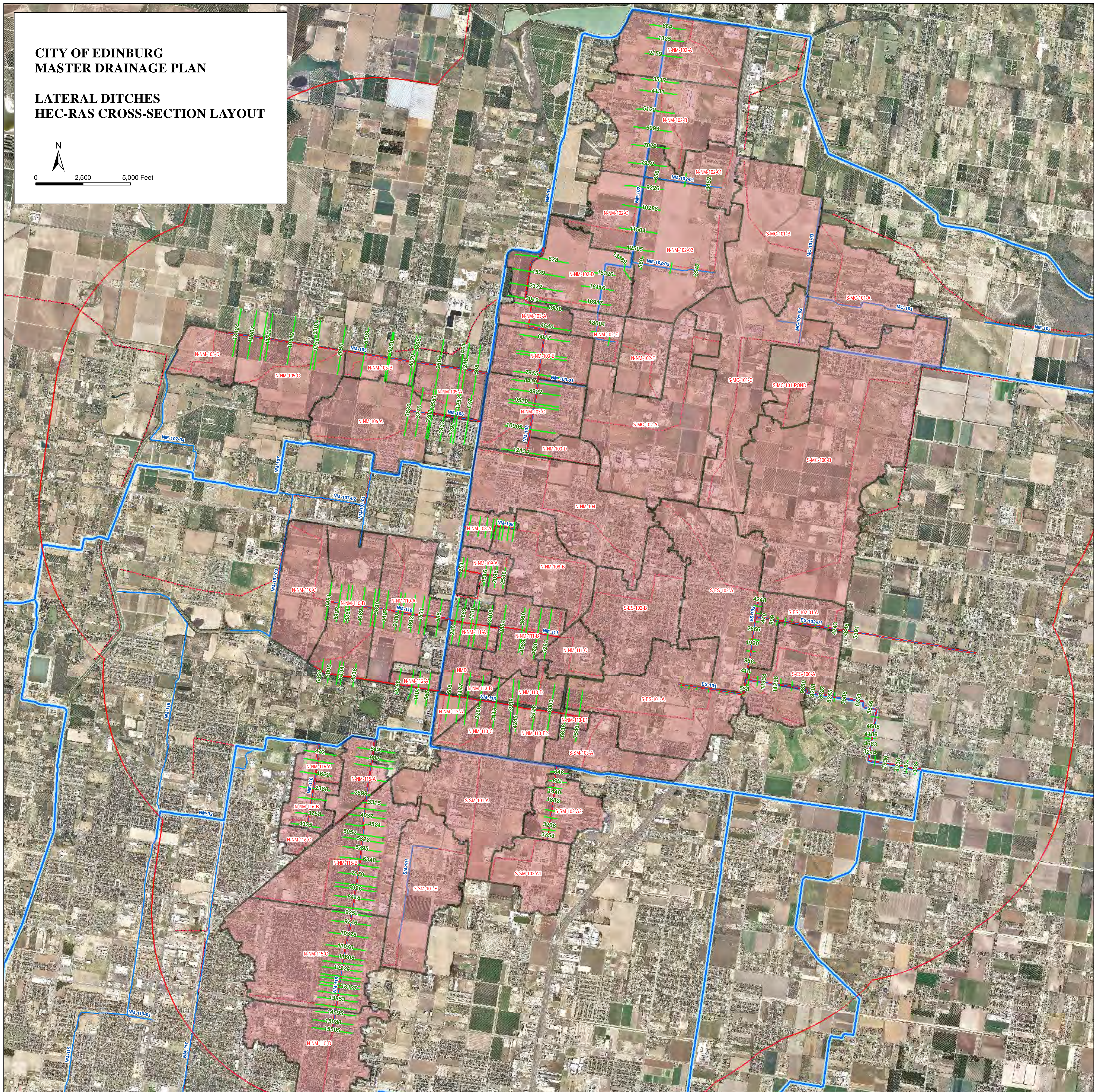
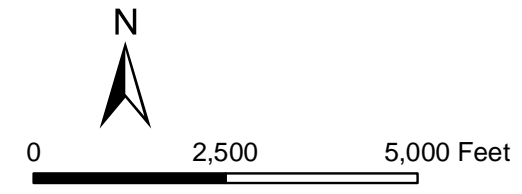
**MODELING OUTPUT NOT PROVIDED DUE TO
COMPLEXITY – SEE HEC-RAS MODEL FOR
DETAILS**

APPENDIX D

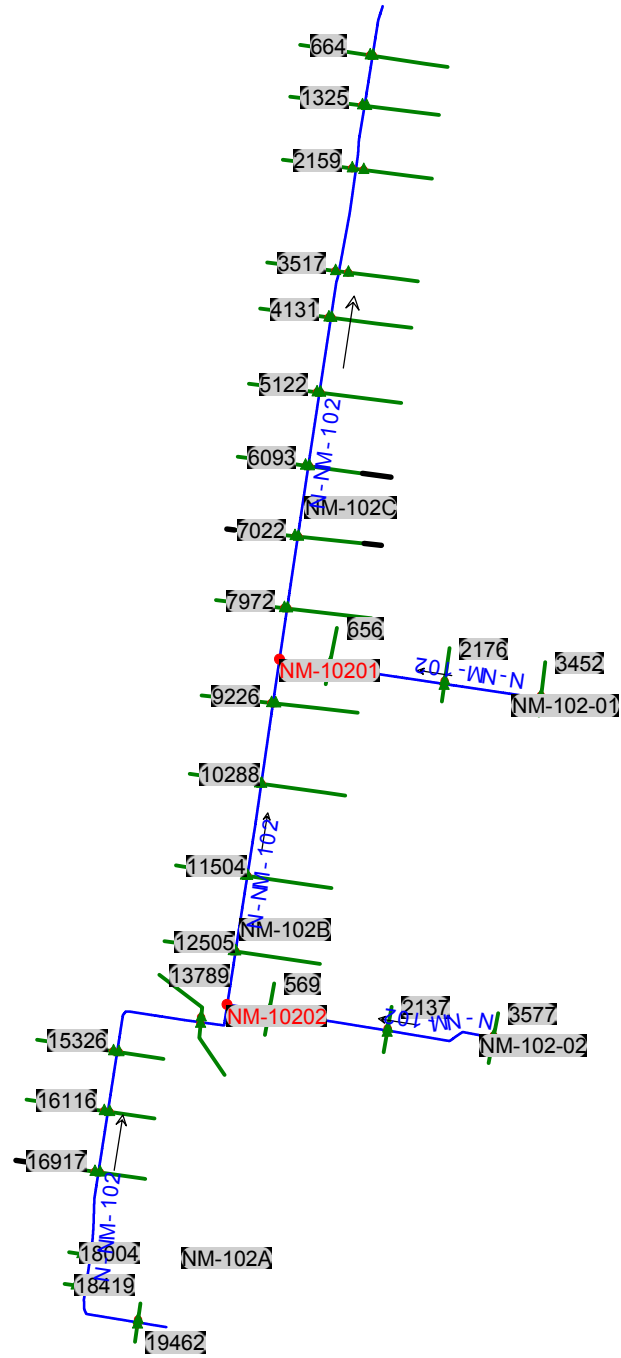
HEC-RAS HYDRAULIC OUTPUT

**CITY OF EDINBURG
MASTER DRAINAGE PLAN**

**LATERAL DITCHES
HEC-RAS CROSS-SECTION LAYOUT**



APPENDIX D
HEC-RAS HYDRAULIC OUTPUT
NM-102 BASE CONDITION



HEC-RAS Plan: BASE

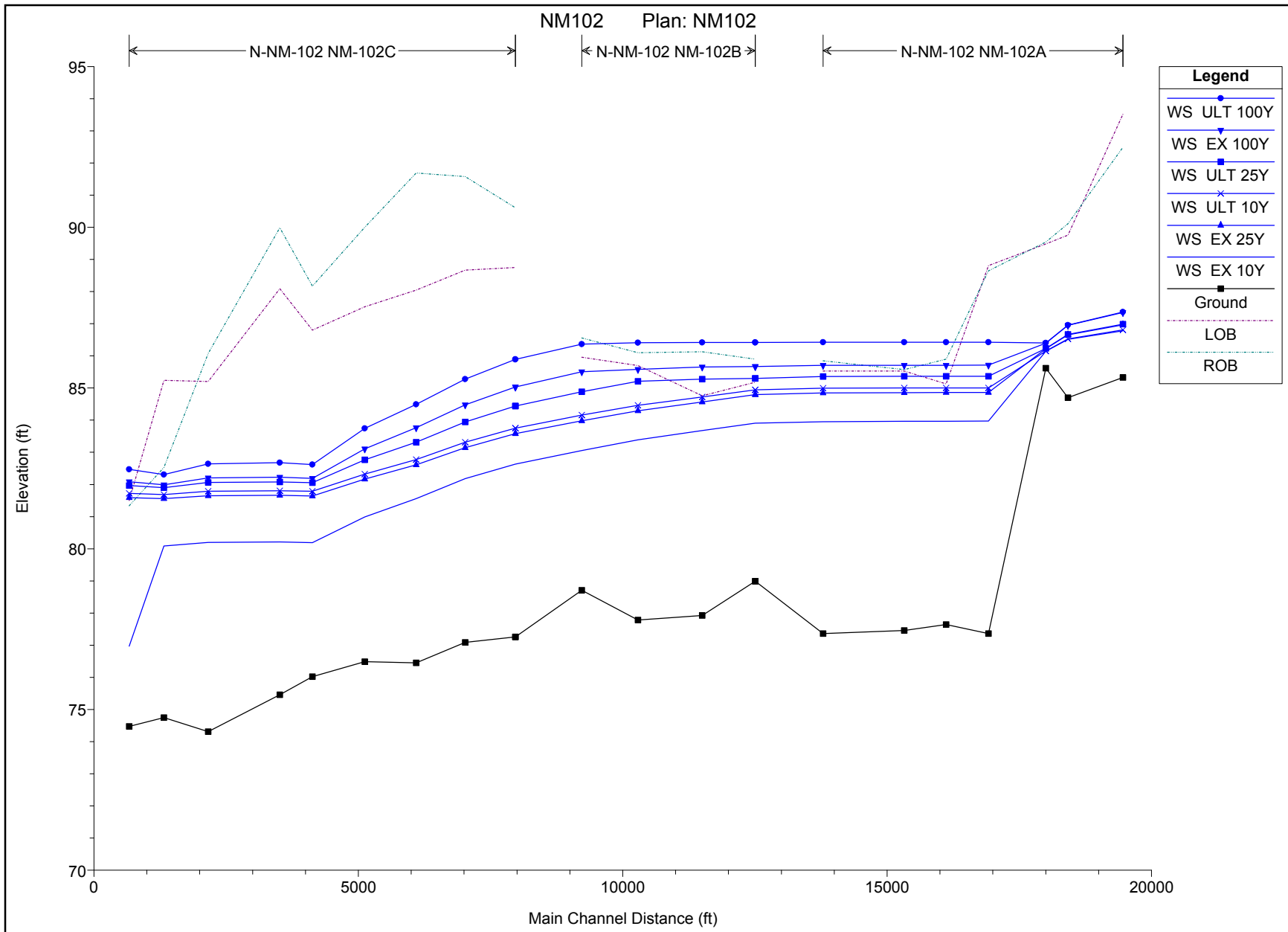
Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
NM-102C	664	EX 10Y	147.00	74.47	76.97	76.97	77.67	0.028638	6.76	21.76	15.35	1.00
NM-102C	664	EX 25Y	205.00	74.47	81.59	77.37	81.59	0.000010	0.23	2135.68	1905.08	0.02
NM-102C	664	EX 100Y	356.00	74.47	82.08	78.17	82.08	0.000010	0.26	3086.11	1920.53	0.02
NM-102C	664	ULT 10Y	241.00	74.47	81.72	77.58	81.72	0.000010	0.24	2390.88	1916.22	0.02
NM-102C	664	ULT 25Y	316.00	74.47	81.97	77.98	81.97	0.000010	0.25	2859.54	1919.12	0.02
NM-102C	664	ULT 100Y	498.00	74.47	82.47	78.74	82.47	0.000010	0.27	3824.80	1926.08	0.02
NM-102C	1325	EX 10Y	134.00	74.75	80.09	77.36	80.17	0.001268	2.29	58.44	17.91	0.22
NM-102C	1325	EX 25Y	186.00	74.75	81.56	77.78	81.63	0.000869	2.11	88.35	797.71	0.19
NM-102C	1325	EX 100Y	321.00	74.75	81.99	78.67	82.15	0.001980	3.25	98.88	1060.17	0.29
NM-102C	1325	ULT 10Y	211.00	74.75	81.68	77.96	81.77	0.001036	2.31	91.27	837.38	0.21
NM-102C	1325	ULT 25Y	276.00	74.75	81.90	78.39	82.02	0.001551	2.86	96.52	950.13	0.26
NM-102C	1325	ULT 100Y	436.00	74.75	82.31	79.29	82.57	0.002993	4.06	107.26	1425.18	0.36
NM-102C	2159	EX 10Y	134.00	74.31	80.20	74.97	80.20	0.000007	0.24	560.07	121.90	0.02
NM-102C	2159	EX 25Y	186.00	74.31	81.65	75.09	81.65	0.000006	0.25	742.12	128.39	0.02
NM-102C	2159	EX 100Y	321.00	74.31	82.20	75.36	82.21	0.000013	0.39	813.87	130.61	0.03
NM-102C	2159	ULT 10Y	211.00	74.31	81.79	75.14	81.79	0.000007	0.28	760.39	128.97	0.02
NM-102C	2159	ULT 25Y	276.00	74.31	82.06	75.27	82.07	0.000010	0.35	795.54	130.05	0.02
NM-102C	2159	ULT 100Y	436.00	74.31	82.64	75.53	82.65	0.000019	0.50	871.47	132.39	0.03
NM-102C	3517	EX 10Y	134.00	75.46	80.21	76.47	80.21	0.000016	0.31	428.15	116.36	0.03
NM-102C	3517	EX 25Y	186.00	75.46	81.66	76.58	81.66	0.000012	0.31	604.69	130.91	0.03
NM-102C	3517	EX 100Y	321.00	75.46	82.23	76.82	82.23	0.000024	0.47	679.89	134.08	0.04
NM-102C	3517	ULT 10Y	211.00	75.46	81.80	76.63	81.81	0.000014	0.34	623.65	132.25	0.03
NM-102C	3517	ULT 25Y	276.00	75.46	82.08	76.75	82.08	0.000020	0.42	660.47	133.45	0.03
NM-102C	3517	ULT 100Y	436.00	75.46	82.67	76.99	82.68	0.000034	0.59	740.46	136.02	0.04
NM-102C	4131	EX 10Y	115.00	76.02	80.19	78.00	80.26	0.001179	2.10	54.75	19.28	0.22
NM-102C	4131	EX 25Y	158.00	76.02	81.64	78.32	81.70	0.000653	1.86	85.02	22.45	0.17
NM-102C	4131	EX 100Y	268.00	76.02	82.19	79.00	82.30	0.001287	2.75	97.55	23.64	0.24
NM-102C	4131	ULT 10Y	168.00	76.02	81.79	78.39	81.84	0.000665	1.90	88.28	22.77	0.17
NM-102C	4131	ULT 25Y	218.00	76.02	82.06	78.72	82.14	0.000930	2.31	94.47	23.35	0.20
NM-102C	4131	ULT 100Y	346.00	76.02	82.62	79.41	82.78	0.001621	3.20	108.02	25.12	0.27
NM-102C	5122	EX 10Y	115.00	76.49	80.99	78.13	81.03	0.000538	1.55	74.16	23.15	0.15
NM-102C	5122	EX 25Y	158.00	76.49	82.16	78.45	82.20	0.000405	1.53	103.01	25.90	0.14
NM-102C	5122	EX 100Y	268.00	76.49	83.11	79.09	83.18	0.000633	2.09	128.50	28.11	0.17
NM-102C	5122	ULT 10Y	168.00	76.49	82.32	78.52	82.36	0.000412	1.57	107.03	26.26	0.14
NM-102C	5122	ULT 25Y	218.00	76.49	82.76	78.83	82.82	0.000518	1.83	118.93	27.30	0.15
NM-102C	5122	ULT 100Y	346.00	76.49	83.74	79.47	83.83	0.000735	2.36	146.81	30.74	0.19
NM-102C	6093	EX 10Y	115.00	76.45	81.56	78.85	81.60	0.000659	1.67	68.74	21.29	0.16
NM-102C	6093	EX 25Y	158.00	76.45	82.61	79.20	82.66	0.000541	1.72	92.05	23.08	0.15
NM-102C	6093	EX 100Y	268.00	76.45	83.77	79.82	83.84	0.000742	2.24	119.78	24.94	0.18
NM-102C	6093	ULT 10Y	168.00	76.45	82.77	79.27	82.82	0.000547	1.75	95.77	23.33	0.15
NM-102C	6093	ULT 25Y	218.00	76.45	83.32	79.55	83.38	0.000644	2.01	108.71	24.21	0.17
NM-102C	6093	ULT 100Y	346.00	76.45	84.49	80.18	84.59	0.000828	2.50	138.33	26.11	0.19
NM-102C	7022	EX 10Y	115.00	77.09	82.18	79.23	82.23	0.000683	1.76	65.48	19.27	0.17
NM-102C	7022	EX 25Y	158.00	77.09	83.15	79.59	83.20	0.000628	1.86	84.95	21.07	0.16
NM-102C	7022	EX 100Y	268.00	77.09	84.48	80.32	84.56	0.000797	2.34	114.59	23.54	0.19
NM-102C	7022	ULT 10Y	168.00	77.09	83.31	79.66	83.37	0.000635	1.90	88.47	21.37	0.16
NM-102C	7022	ULT 25Y	218.00	77.09	83.94	80.01	84.01	0.000718	2.13	102.28	22.55	0.18
NM-102C	7022	ULT 100Y	346.00	77.09	85.28	80.73	85.38	0.000871	2.58	134.14	25.20	0.20
NM-102C	7972	EX 10Y	115.00	77.26	82.63	79.02	82.66	0.000321	1.31	88.04	23.50	0.12
NM-102C	7972	EX 25Y	158.00	77.26	83.58	79.34	83.61	0.000316	1.42	111.20	25.38	0.12
NM-102C	7972	EX 100Y	268.00	77.26	85.03	80.03	85.08	0.000397	1.79	150.13	28.27	0.14
NM-102C	7972	ULT 10Y	168.00	77.26	83.75	79.42	83.79	0.000320	1.45	115.61	25.72	0.12
NM-102C	7972	ULT 25Y	218.00	77.26	84.44	79.74	84.48	0.000360	1.63	133.80	27.09	0.13
NM-102C	7972	ULT 100Y	346.00	77.26	85.89	80.41	85.95	0.000434	1.98	175.13	29.95	0.14
NM-102B	9226	EX 10Y	97.00	78.71	83.06	80.04	83.08	0.000351	1.27	76.60	23.47	0.12
NM-102B	9226	EX 25Y	133.00	78.71	83.98	80.31	84.01	0.000317	1.34	99.21	25.34	0.12
NM-102B	9226	EX 100Y	225.00	78.71	85.51	80.89	85.55	0.000345	1.60	140.27	290.20	0.13
NM-102B	9226	ULT 10Y	142.00	78.71	84.16	80.37	84.19	0.000319	1.37	103.72	25.69	0.12
NM-102B	9226	ULT 25Y	185.00	78.71	84.89	80.65	84.92	0.000336	1.50	122.97	42.14	0.12
NM-102B	9226	ULT 100Y	293.00	78.71	86.36	81.24	86.40	0.000285	1.57	280.87	1050.06	0.12
NM-102B	10288	EX 10Y	87.00	77.78	83.39	79.73	83.40	0.000264	1.12	77.88	22.10	0.10
NM-102B	10288	EX 25Y	117.00	77.78	84.29	80.04	84.31	0.000253	1.18	98.99	1004.23	0.10
NM-102B	10288	EX 100Y	197.00	77.78	85.58	80.77	85.61	0.000325	1.47	133.82	1869.30	0.12
NM-102B	10288	ULT 10Y	120.00	77.78	84.46	80.07	84.48	0.000238	1.16	103.30	1115.31	0.10
NM-102B	10288	ULT 25Y	156.00	77.78	85.21	80.43	85.24	0.000253	1.27	123.26	1750.92	0.11
NM-102B	10288	ULT 100Y	247.00	77.78	86.41	81.10	86.41	0.000002	0.13	4032.54	2014.14	0.01
NM-102B	11504	EX 10Y	87.00	77.92	83.67	79.65	83.69	0.000209	1.02	85.19	88.72	0.10
NM-102B	11504	EX 25Y	117.00	77.92	84.57	79.93	84.59	0.000203	1.08	107.87	953.54	0.10

HEC-RAS Plan: BASE (Continued)

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
NM-102B	11504	EX 100Y	197.00	77.92	85.65	80.53	85.65	0.000010	0.27	1632.83	1908.36	0.02
NM-102B	11504	ULT 10Y	120.00	77.92	84.73	79.95	84.74	0.000193	1.07	112.12	1000.25	0.09
NM-102B	11504	ULT 25Y	156.00	77.92	85.28	80.24	85.28	0.000013	0.29	1280.24	1680.96	0.02
NM-102B	11504	ULT 100Y	247.00	77.92	86.41	80.84	86.41	0.000003	0.15	3715.72	2021.44	0.01
NM-102B	12505	EX 10Y	87.00	78.99	83.91	80.68	83.92	0.000260	1.10	79.44	24.02	0.11
NM-102B	12505	EX 25Y	117.00	78.99	84.80	80.92	84.82	0.000259	1.14	102.66	280.44	0.11
NM-102B	12505	EX 100Y	197.00	78.99	85.67	81.43	85.68	0.000142	0.90	551.64	1926.36	0.08
NM-102B	12505	ULT 10Y	120.00	78.99	84.94	80.95	84.96	0.000250	1.12	107.07	516.58	0.11
NM-102B	12505	ULT 25Y	156.00	78.99	85.30	81.19	85.32	0.000234	1.11	258.96	1415.31	0.10
NM-102B	12505	ULT 100Y	247.00	78.99	86.42	81.70	86.42	0.000008	0.25	2651.48	2028.54	0.02
NM-102-02	569	EX 10Y	16.00	78.46	83.93	79.21	83.93	0.000001	0.10	167.86	43.19	0.01
NM-102-02	569	EX 25Y	23.00	78.46	84.82	79.29	84.82	0.000002	0.11	208.63	83.10	0.01
NM-102-02	569	EX 100Y	40.00	78.46	85.68	79.49	85.68	0.000002	0.13	501.67	597.48	0.01
NM-102-02	569	ULT 10Y	29.00	78.46	84.96	79.35	84.96	0.000002	0.13	215.71	188.41	0.01
NM-102-02	569	ULT 25Y	39.00	78.46	85.32	79.45	85.32	0.000003	0.16	330.99	380.07	0.01
NM-102-02	569	ULT 100Y	61.00	78.46	86.42	79.63	86.42	0.000002	0.13	998.06	686.29	0.01
NM-102-02	2137	EX 10Y	16.00	79.61	83.93	79.99	83.93	0.000005	0.13	119.37	44.46	0.01
NM-102-02	2137	EX 25Y	23.00	79.61	84.82	80.08	84.82	0.000004	0.14	203.51	313.82	0.01
NM-102-02	2137	EX 100Y	40.00	79.61	85.68	80.25	85.68	0.000002	0.12	624.69	577.22	0.01
NM-102-02	2137	ULT 10Y	29.00	79.61	84.97	80.14	84.97	0.000005	0.16	261.24	399.08	0.02
NM-102-02	2137	ULT 25Y	39.00	79.61	85.32	80.24	85.32	0.000005	0.16	425.48	519.10	0.02
NM-102-02	2137	ULT 100Y	61.00	79.61	86.42	80.42	86.42	0.000002	0.11	1063.56	602.13	0.01
NM-102-02	3577	EX 10Y	16.00	84.19	84.73	84.73	84.84	0.047398	2.63	6.08	27.30	0.98
NM-102-02	3577	EX 25Y	23.00	84.19	84.79	84.79	84.93	0.044417	2.97	7.76	27.77	0.99
NM-102-02	3577	EX 100Y	40.00	84.19	85.69	84.91	85.70	0.000966	0.87	46.14	492.84	0.17
NM-102-02	3577	ULT 10Y	29.00	84.19	84.93	84.84	85.03	0.018088	2.44	11.86	28.88	0.67
NM-102-02	3577	ULT 25Y	39.00	84.19	85.33	84.91	85.36	0.004527	1.49	26.16	204.68	0.35
NM-102-02	3577	ULT 100Y	61.00	84.19	86.43	85.05	86.43	0.000014	0.16	628.20	666.17	0.02
NM-102-01	656	EX 10Y	18.00	79.89	82.66	80.30	82.66	0.000020	0.24	75.77	35.69	0.03
NM-102-01	656	EX 25Y	25.00	79.89	83.61	80.36	83.62	0.000013	0.22	112.45	43.26	0.02
NM-102-01	656	EX 100Y	43.00	79.89	85.09	80.52	85.09	0.000010	0.24	181.24	50.58	0.02
NM-102-01	656	ULT 10Y	26.00	79.89	83.79	80.37	83.79	0.000012	0.22	120.10	44.25	0.02
NM-102-01	656	ULT 25Y	34.00	79.89	84.49	80.45	84.49	0.000010	0.22	151.93	47.30	0.02
NM-102-01	656	ULT 100Y	54.00	79.89	85.96	80.61	85.96	0.000008	0.24	227.31	55.14	0.02
NM-102-01	2176	EX 10Y	18.00	81.06	82.73	81.53	82.73	0.000189	0.51	35.25	29.23	0.08
NM-102-01	2176	EX 25Y	25.00	81.06	83.65	81.61	83.65	0.000062	0.39	64.79	35.25	0.05
NM-102-01	2176	EX 100Y	43.00	81.06	85.11	81.79	85.11	0.000030	0.35	124.27	45.70	0.04
NM-102-01	2176	ULT 10Y	26.00	81.06	83.82	81.63	83.82	0.000052	0.37	70.89	36.63	0.05
NM-102-01	2176	ULT 25Y	34.00	81.06	84.51	81.71	84.51	0.000036	0.35	98.13	41.86	0.04
NM-102-01	2176	ULT 100Y	54.00	81.06	85.98	81.88	85.98	0.000020	0.33	165.44	49.11	0.03
NM-102-01	3452	EX 10Y	18.00	81.05	82.89	81.47	82.89	0.000091	0.37	48.46	37.42	0.06
NM-102-01	3452	EX 25Y	25.00	81.05	83.71	81.54	83.71	0.000037	0.31	81.54	42.94	0.04
NM-102-01	3452	EX 100Y	43.00	81.05	85.14	81.71	85.14	0.000019	0.29	148.92	50.73	0.03
NM-102-01	3452	ULT 10Y	26.00	81.05	83.87	81.55	83.87	0.000032	0.29	88.51	44.01	0.04
NM-102-01	3452	ULT 25Y	34.00	81.05	84.55	81.63	84.55	0.000022	0.28	119.74	48.07	0.03
NM-102-01	3452	ULT 100Y	54.00	81.05	86.00	81.80	86.00	0.000014	0.28	194.03	54.65	0.03
NM-102A	13789	EX 10Y	74.00	77.36	83.95	78.19	83.96	0.000007	0.23	317.53	71.25	0.02
NM-102A	13789	EX 25Y	99.00	77.36	84.85	78.35	84.85	0.000008	0.26	385.27	892.27	0.02
NM-102A	13789	EX 100Y	165.00	77.36	85.70	78.61	85.70	0.000006	0.25	1319.39	1431.00	0.02
NM-102A	13789	ULT 10Y	95.00	77.36	84.99	78.33	84.99	0.000006	0.24	396.64	918.53	0.02
NM-102A	13789	ULT 25Y	123.00	77.36	85.36	78.45	85.36	0.000009	0.29	425.99	1196.23	0.02
NM-102A	13789	ULT 100Y	196.00	77.36	86.42	78.72	86.42	0.000003	0.17	2652.79	1689.66	0.01
NM-102A	15326	EX 10Y	45.00	77.46	83.96	78.06	83.96	0.000004	0.17	270.06	60.93	0.01
NM-102A	15326	EX 25Y	59.00	77.46	84.86	78.17	84.86	0.000004	0.18	327.07	1264.69	0.01
NM-102A	15326	EX 100Y	95.00	77.46	85.71	78.39	85.71	0.000002	0.12	1871.28	1484.65	0.01
NM-102A	15326	ULT 10Y	47.00	77.46	85.00	78.08	85.00	0.000002	0.14	336.44	1302.58	0.01
NM-102A	15326	ULT 25Y	61.00	77.46	85.37	78.18	85.37	0.000003	0.17	361.23	1400.49	0.01
NM-102A	15326	ULT 100Y	97.00	77.46	86.43	78.40	86.43	0.000001	0.08	3013.24	1671.03	0.01
NM-102A	16116	EX 10Y	45.00	77.64	83.97	78.27	83.97	0.000004	0.17	267.93	61.70	0.01
NM-102A	16116	EX 25Y	59.00	77.64	84.86	78.37	84.86	0.000004	0.18	326.96	976.64	0.01
NM-102A	16116	EX 100Y	95.00	77.64	85.71	78.55	85.71	0.000003	0.15	1270.30	1502.37	0.01
NM-102A	16116	ULT 10Y	47.00	77.64	85.00	78.29	85.00	0.000002	0.14	336.80	1134.21	0.01
NM-102A	16116	ULT 25Y	61.00	77.64	85.37	78.37	85.37	0.000002	0.13	952.42	1322.14	0.01
NM-102A	16116	ULT 100Y	97.00	77.64	86.43	78.56	86.43	0.000001	0.08	2695.89	1582.85	0.01
NM-102A	16917	EX 10Y	45.00	77.36	83.97	78.41	83.97	0.000008	0.23	192.68	46.99	0.02
NM-102A	16917	EX 25Y	59.00	77.36	84.87	78.56	84.87	0.000008	0.25	236.12	50.07	0.02
NM-102A	16917	EX 100Y	95.00	77.36	85.71	78.89	85.71	0.000013	0.34	279.76	60.06	0.03
NM-102A	16917	ULT 10Y	47.00	77.36	85.00	78.43	85.00	0.000005	0.19	243.07	50.54	0.02

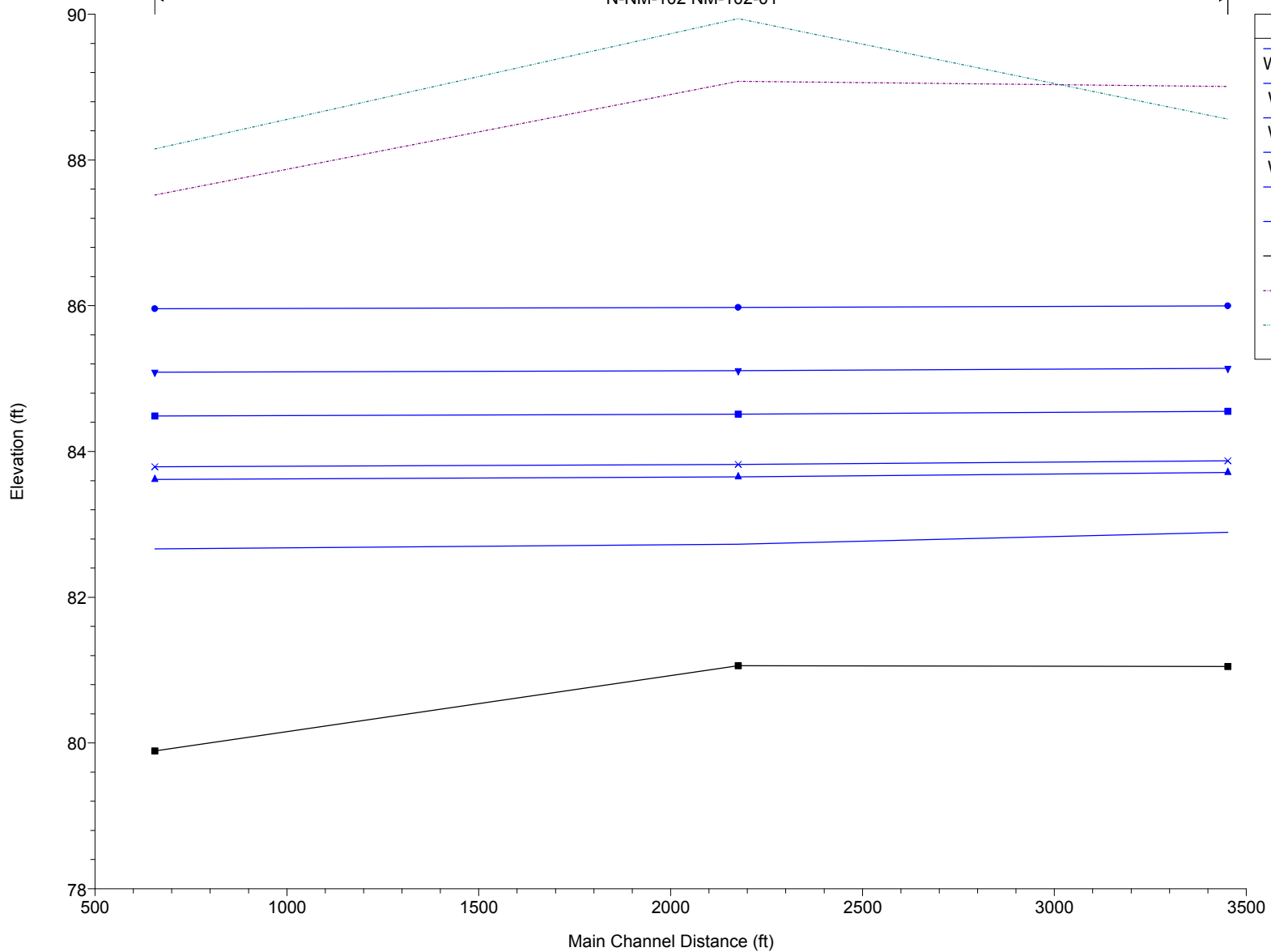
HEC-RAS Plan: BASE (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
NM-102A	16917	ULT 25Y	61.00	77.36	85.37	78.58	85.37	0.000006	0.23	261.78	51.80	0.02
NM-102A	16917	ULT 100Y	97.00	77.36	86.43	78.90	86.43	0.000009	0.30	318.53	247.60	0.02
NM-102A	18004	EX 10Y	26.00	85.62	86.14	86.14	86.32	0.041623	3.43	7.59	20.83	1.00
NM-102A	18004	EX 25Y	34.00	85.62	86.22	86.22	86.43	0.039723	3.63	9.37	22.77	1.00
NM-102A	18004	EX 100Y	55.00	85.62	86.39	86.39	86.65	0.037347	4.04	13.61	26.82	1.00
NM-102A	18004	ULT 10Y	27.00	85.62	86.15	86.15	86.34	0.042826	3.50	7.72	20.98	1.02
NM-102A	18004	ULT 25Y	35.00	85.62	86.23	86.23	86.44	0.040492	3.68	9.51	22.91	1.01
NM-102A	18004	ULT 100Y	56.00	85.62	86.40	86.40	86.66	0.036738	4.04	13.88	27.06	0.99
NM-102A	18419	EX 10Y	26.00	84.70	86.51	85.17	86.51	0.000115	0.40	65.31	54.41	0.06
NM-102A	18419	EX 25Y	34.00	84.70	86.65	85.24	86.66	0.000139	0.47	73.01	55.66	0.07
NM-102A	18419	EX 100Y	55.00	84.70	86.95	85.39	86.95	0.000194	0.61	89.90	58.16	0.09
NM-102A	18419	ULT 10Y	27.00	84.70	86.53	85.18	86.53	0.000118	0.41	66.36	54.58	0.07
NM-102A	18419	ULT 25Y	35.00	84.70	86.67	85.24	86.67	0.000142	0.47	73.94	55.81	0.07
NM-102A	18419	ULT 100Y	56.00	84.70	86.96	85.39	86.97	0.000196	0.62	90.60	58.25	0.09
NM-102A	19462	EX 10Y	26.00	85.33	86.78	86.09	86.80	0.001293	1.14	22.87	24.09	0.21
NM-102A	19462	EX 25Y	34.00	85.33	86.97	86.16	86.99	0.001289	1.24	27.38	25.18	0.21
NM-102A	19462	EX 100Y	55.00	85.33	87.35	86.34	87.39	0.001331	1.47	37.53	27.45	0.22
NM-102A	19462	ULT 10Y	27.00	85.33	86.81	86.09	86.83	0.001290	1.15	23.47	24.24	0.21
NM-102A	19462	ULT 25Y	35.00	85.33	86.99	86.17	87.01	0.001289	1.25	27.92	25.30	0.21
NM-102A	19462	ULT 100Y	56.00	85.33	87.37	86.34	87.40	0.001334	1.48	37.96	27.55	0.22



NM102 Plan: NM102

N-NM-102 NM-102-01

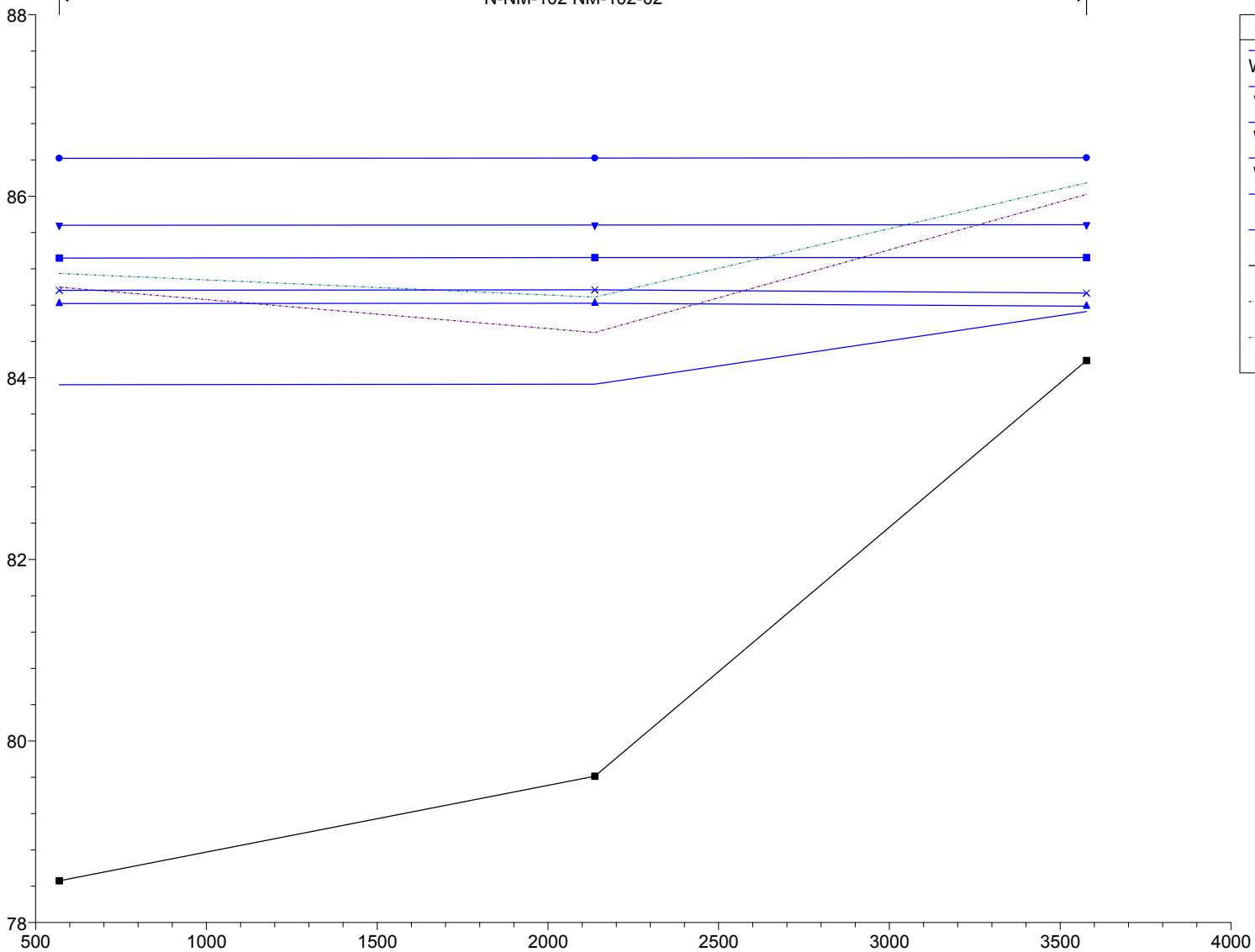


Legend	
WS ULT 100Y	●
WS EX 100Y	▼
WS ULT 25Y	■
WS ULT 10Y	×
WS EX 25Y	▲
WS EX 10Y	▲
Ground	■
LOB	- - -
ROB	· · ·

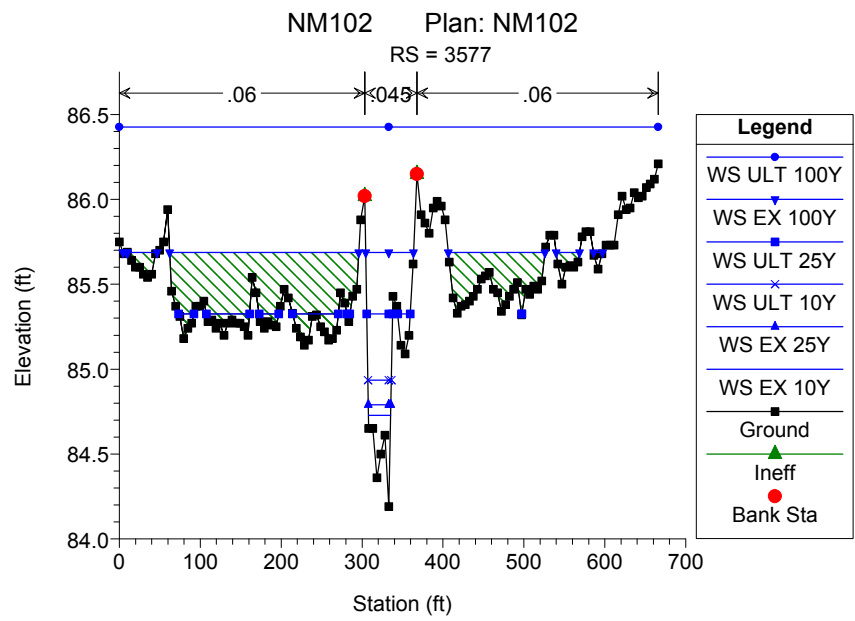
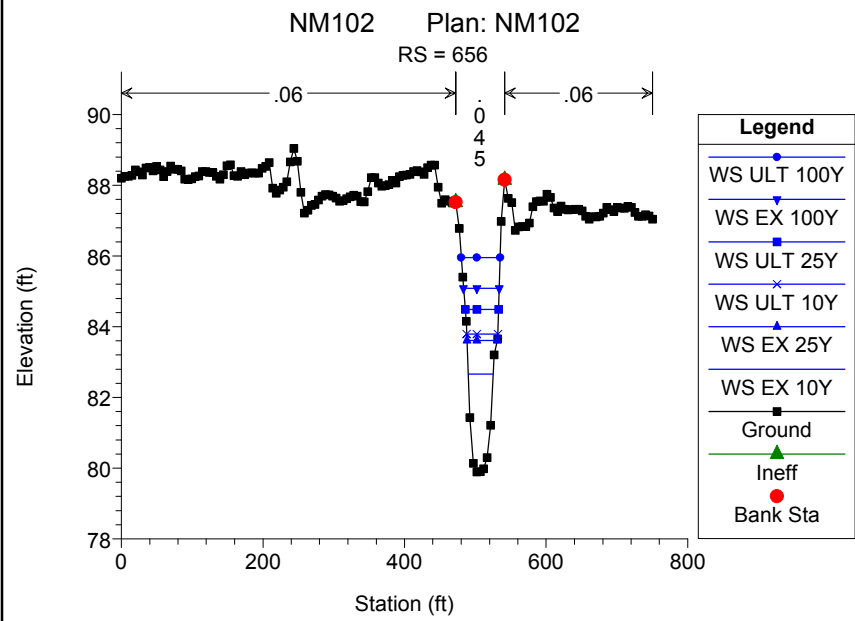
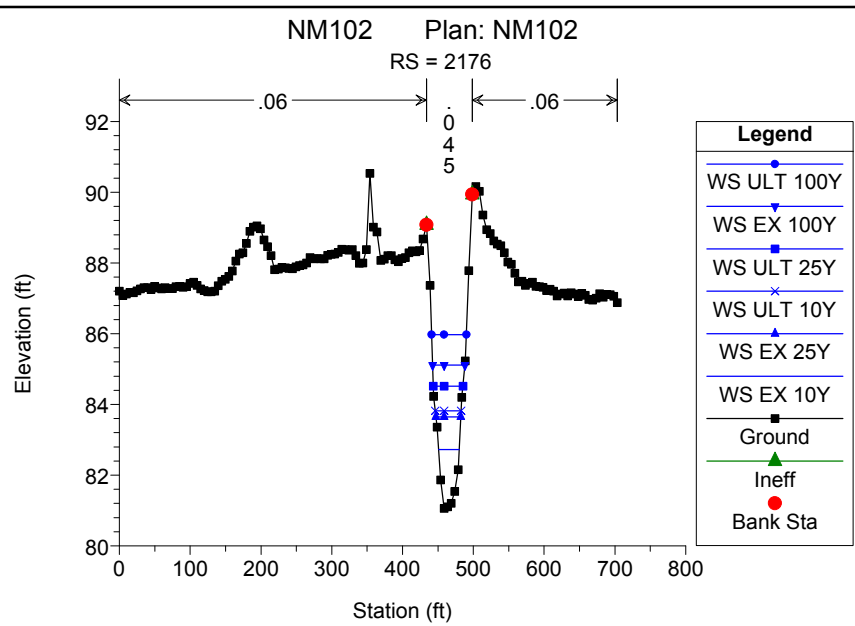
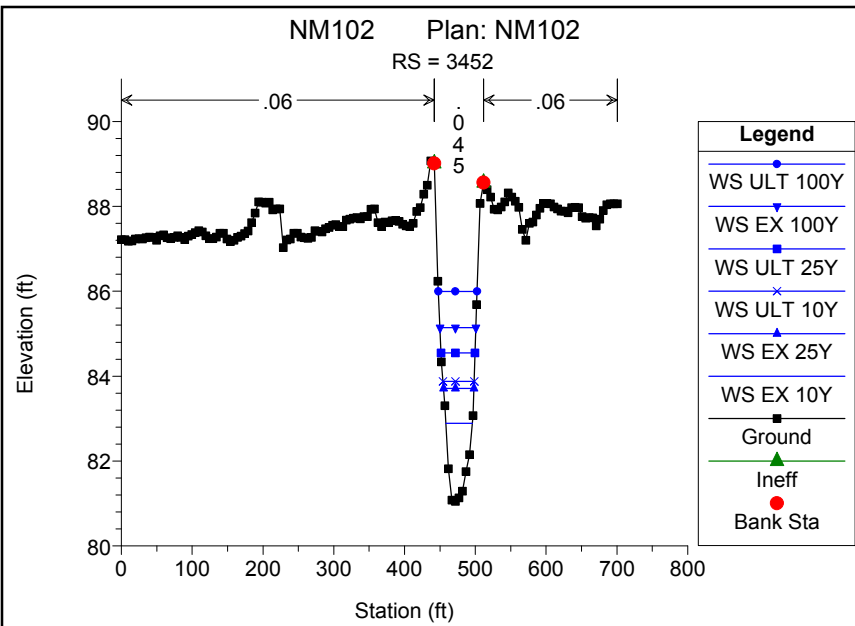
NM102 Plan: NM102

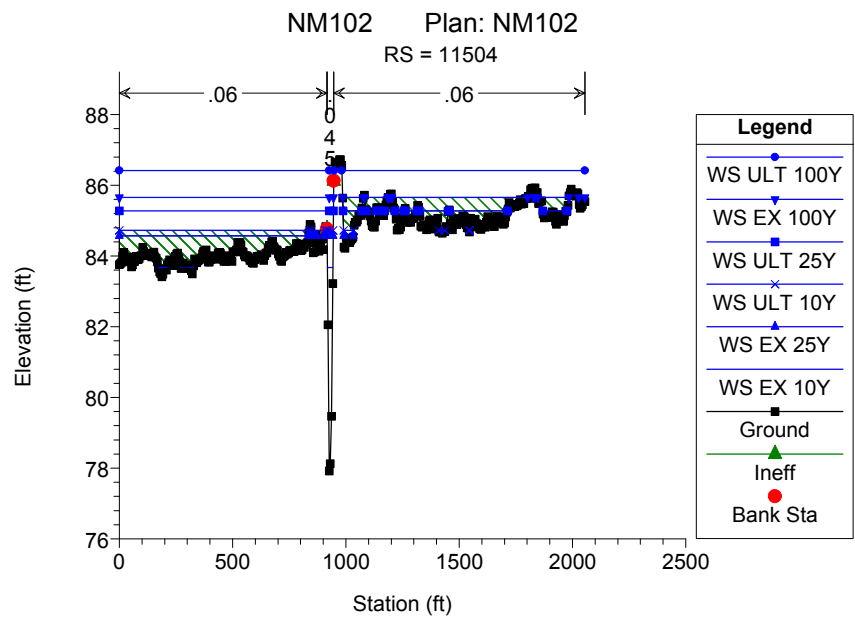
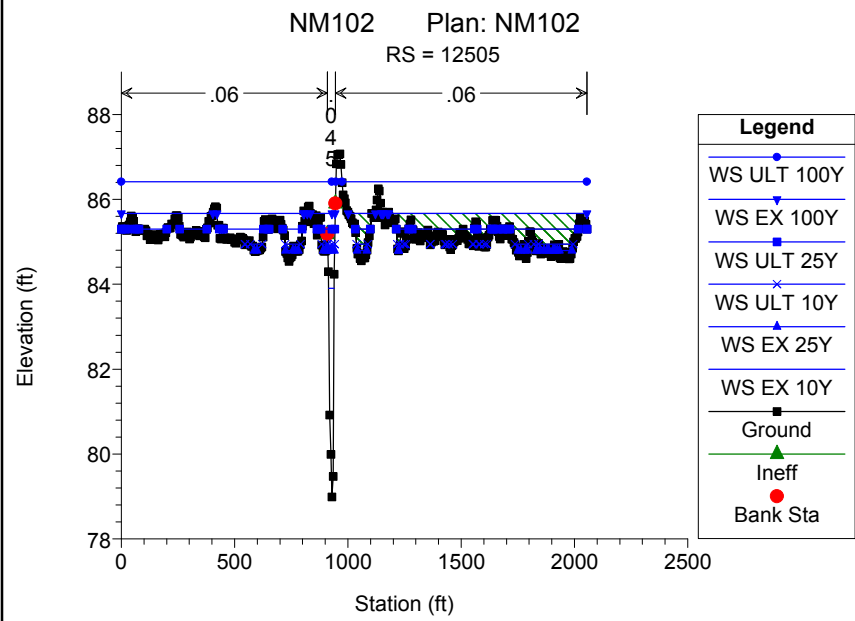
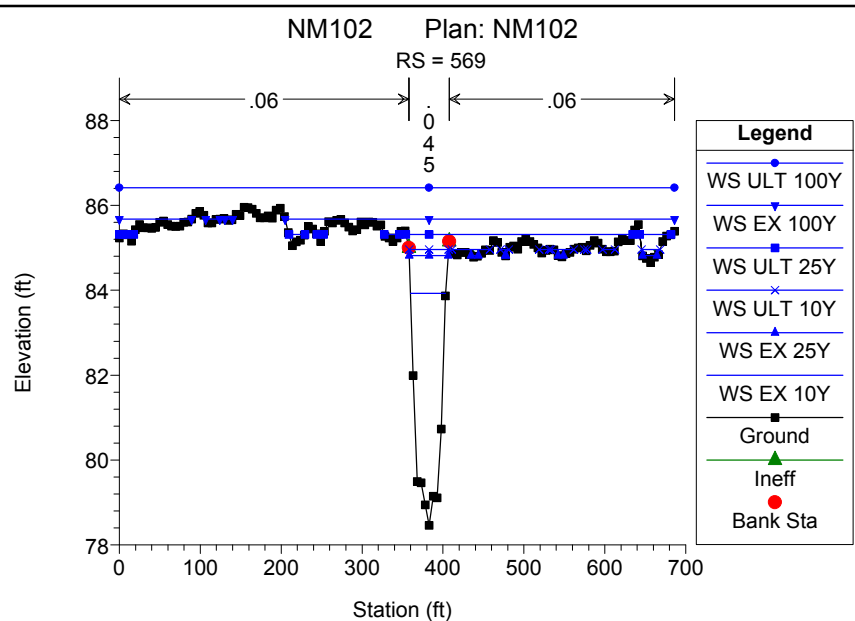
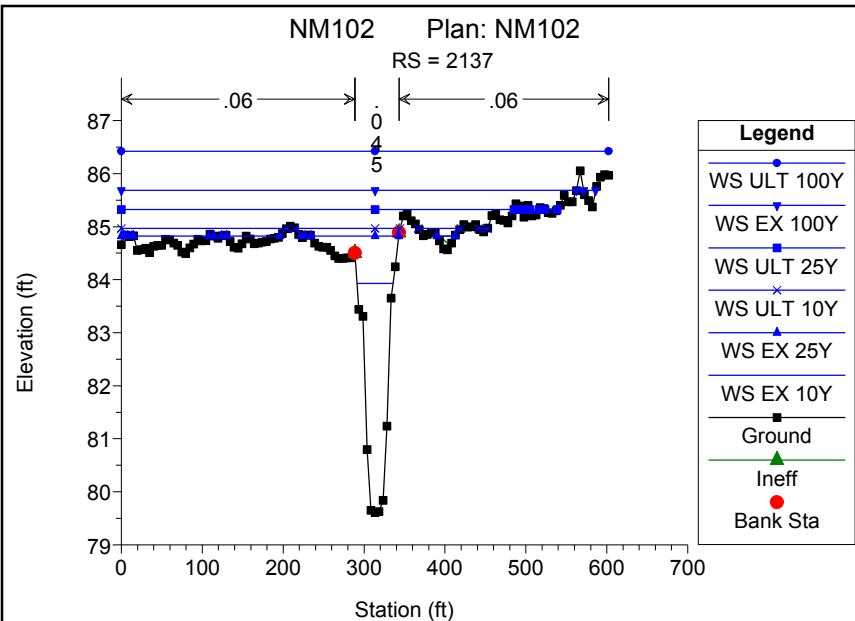
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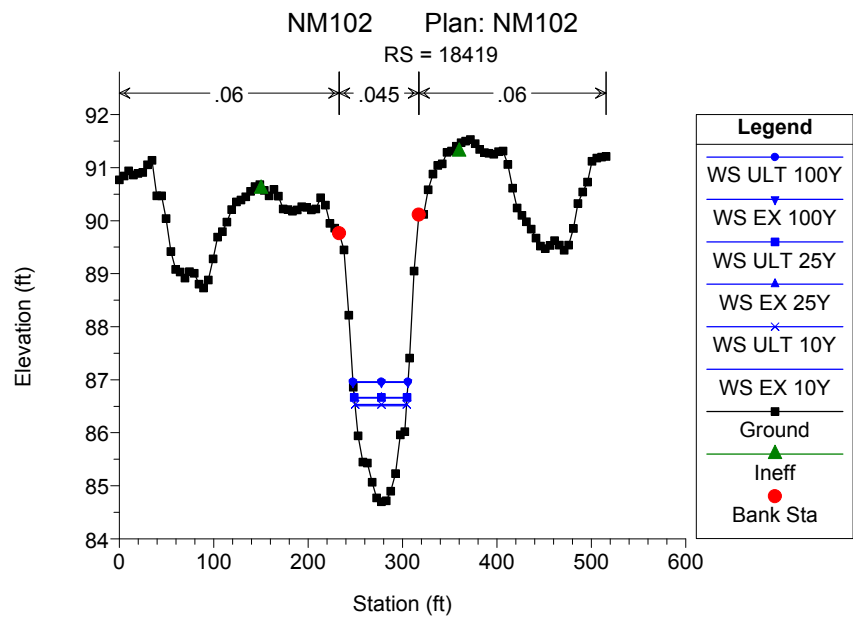
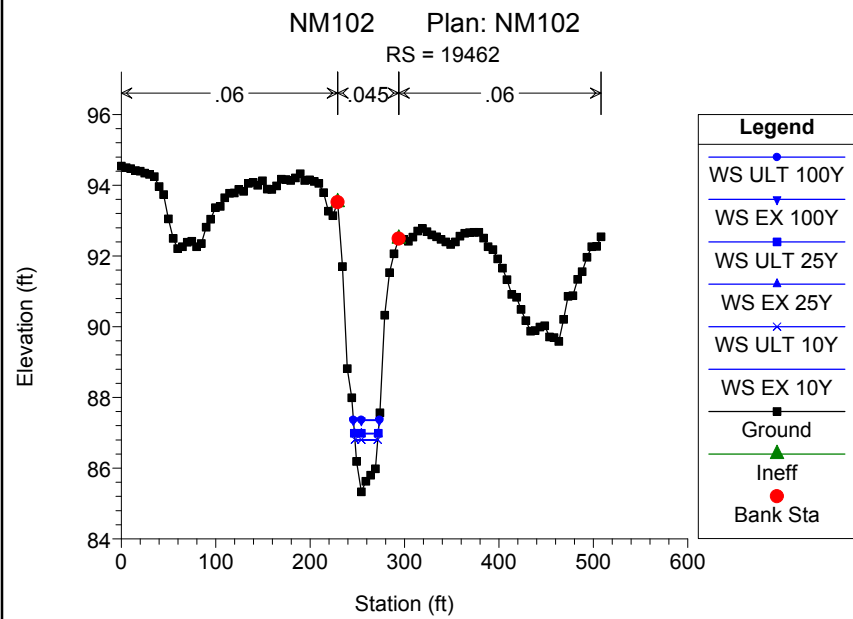
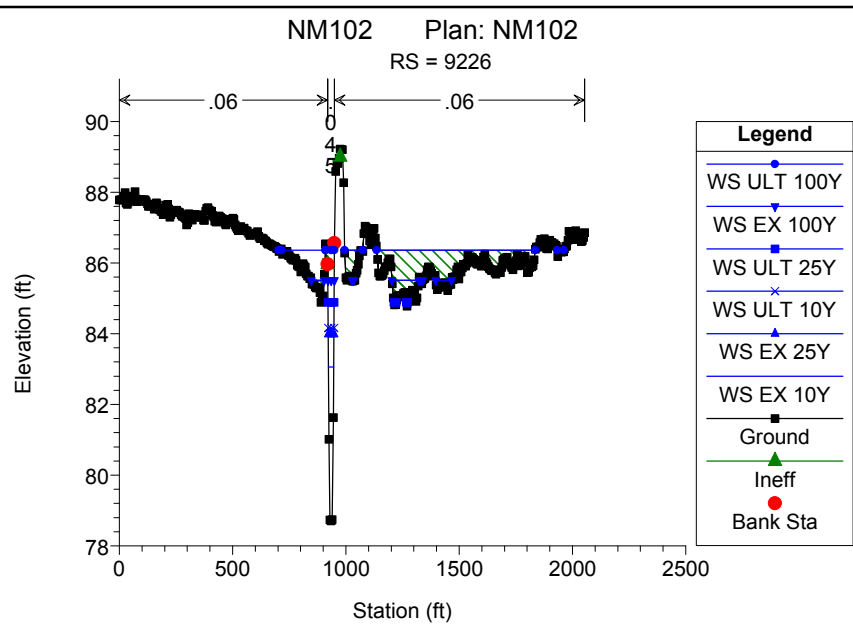
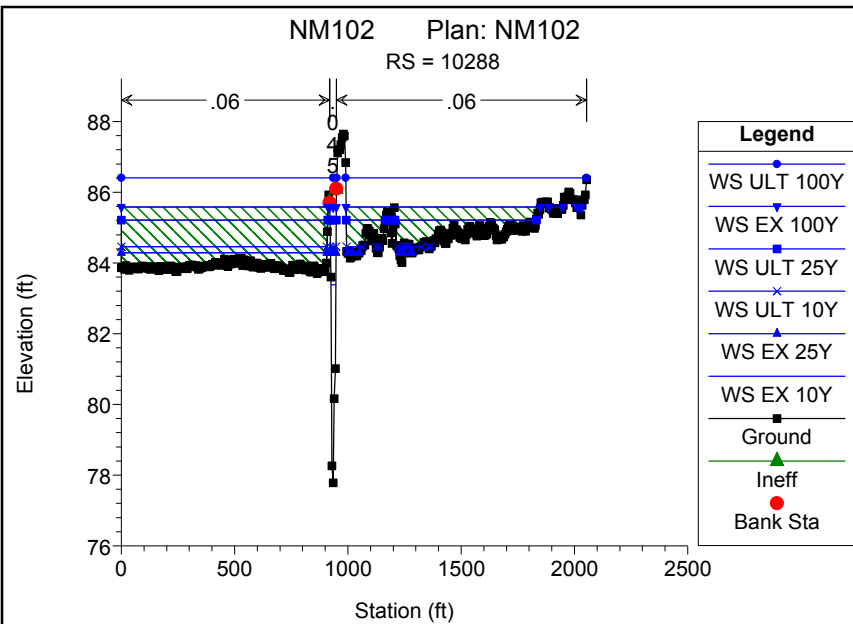
Elevation (ft)

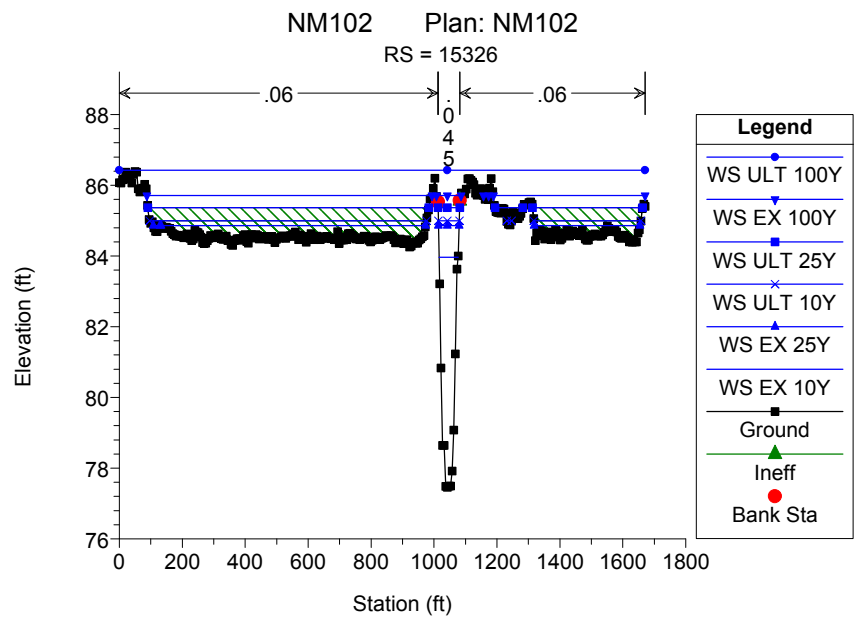
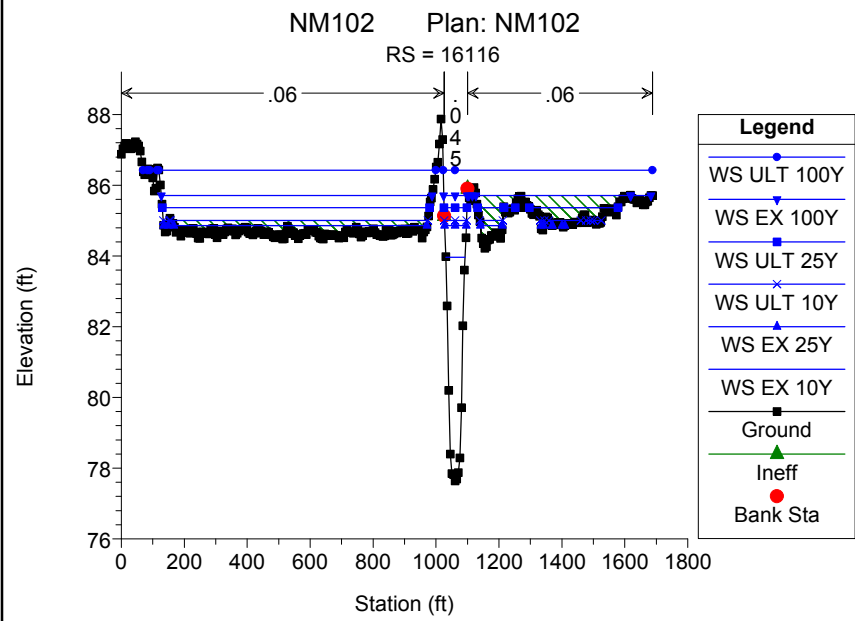
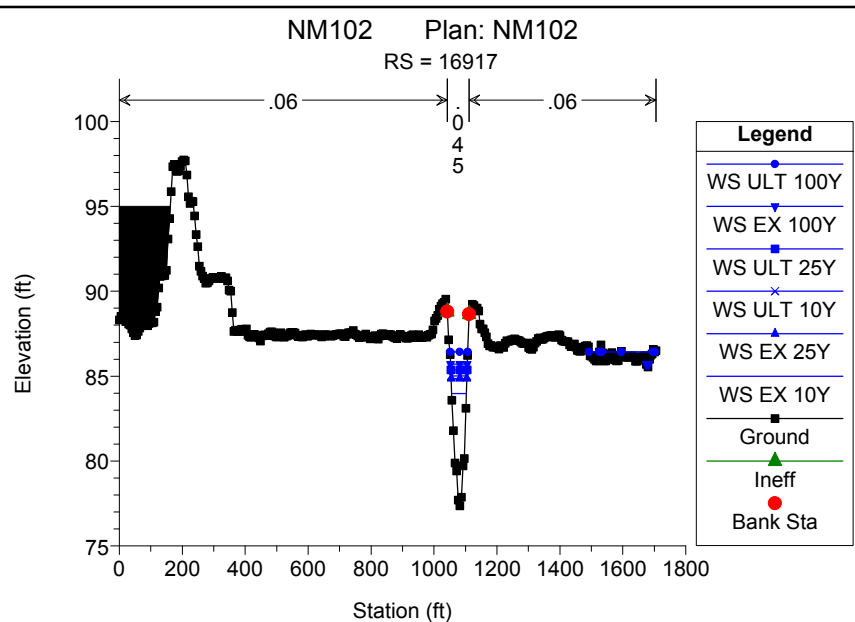
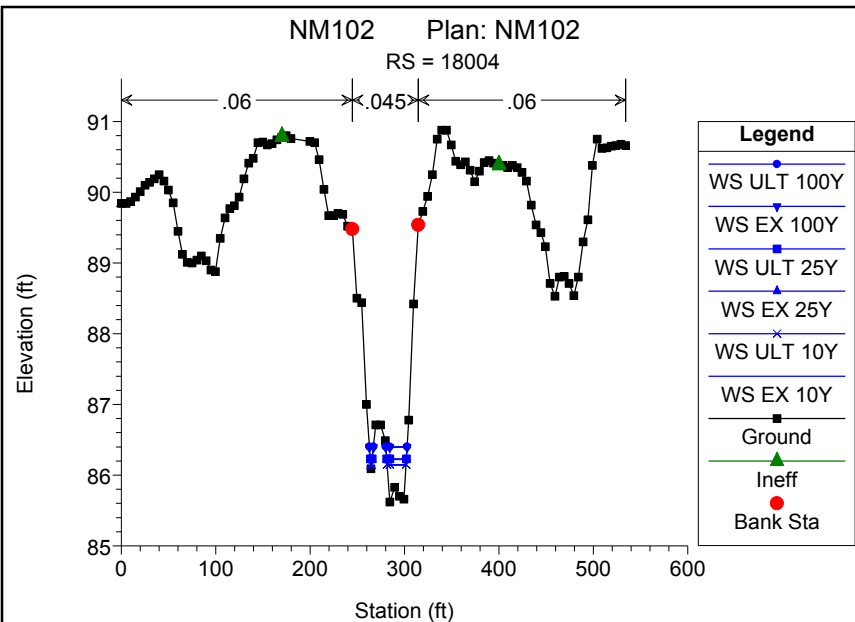


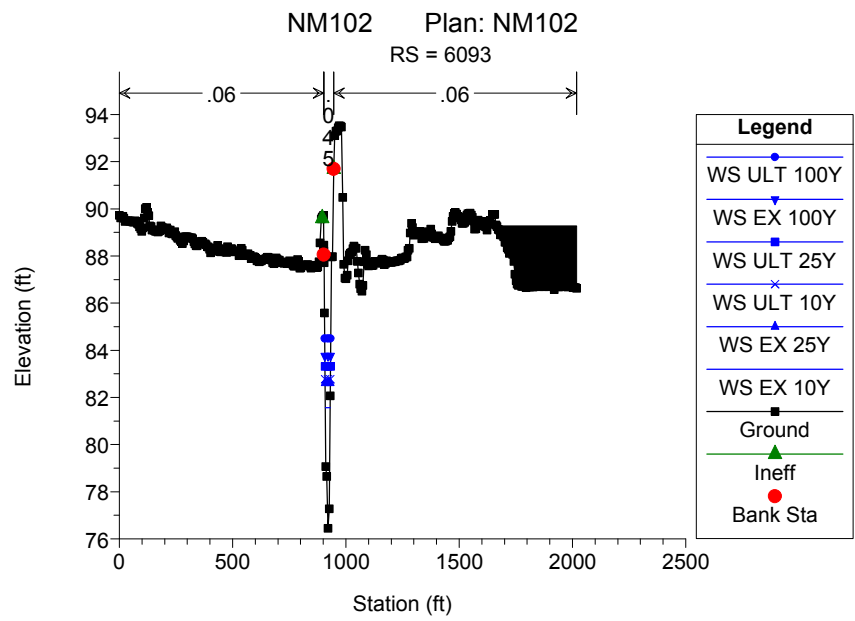
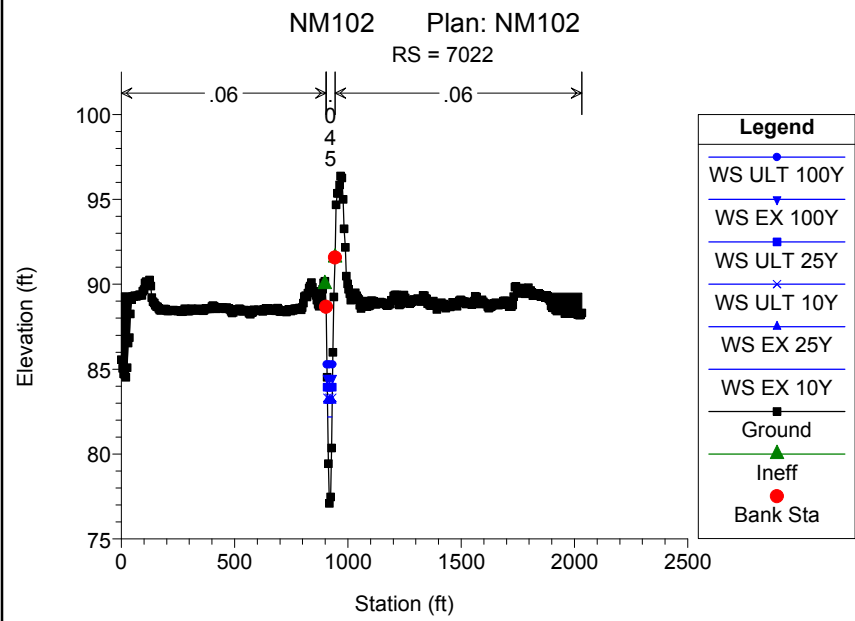
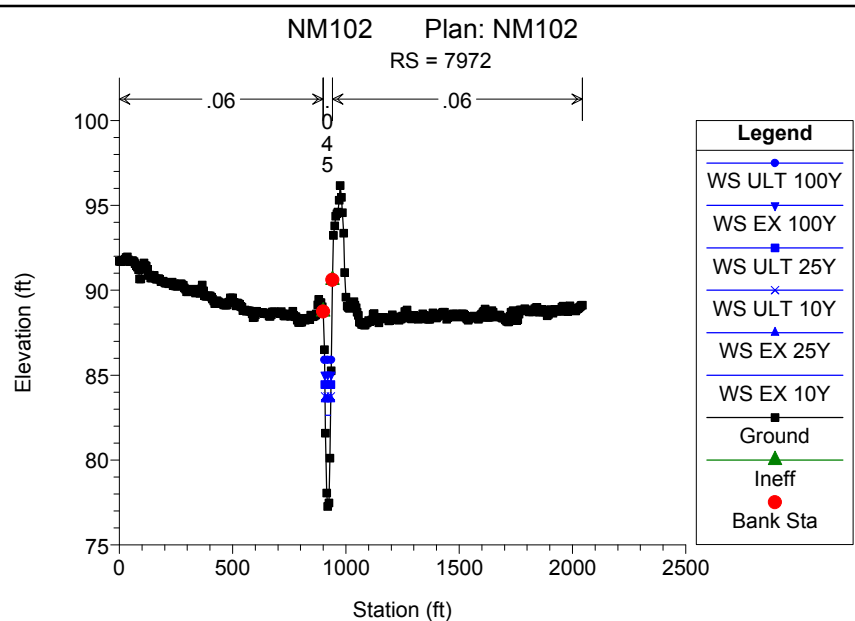
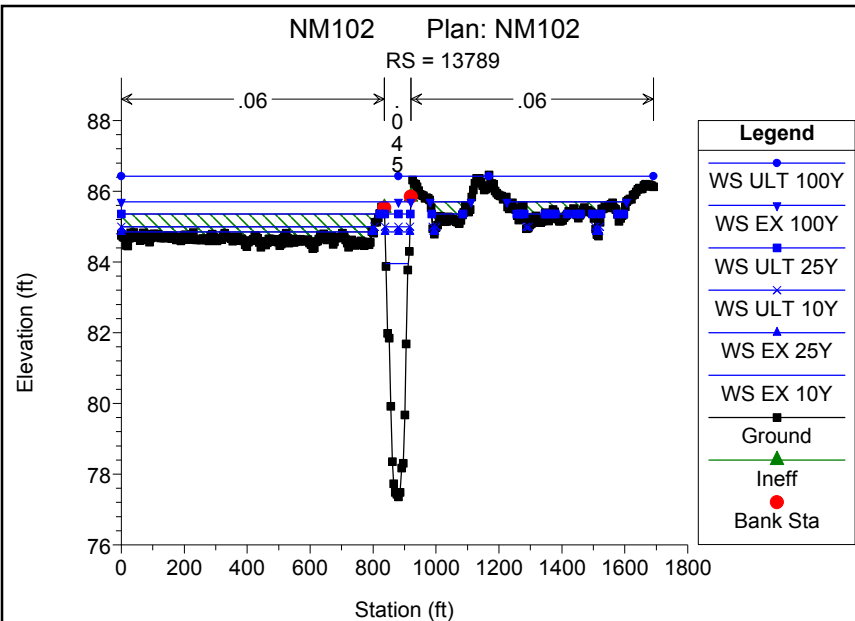
Legend	
WS ULT 100Y	●
WS EX 100Y	▼
WS ULT 25Y	■
WS ULT 10Y	×
WS EX 25Y	▲
WS EX 10Y	■
Ground	■
LOB	- - -
ROB	- · - · -

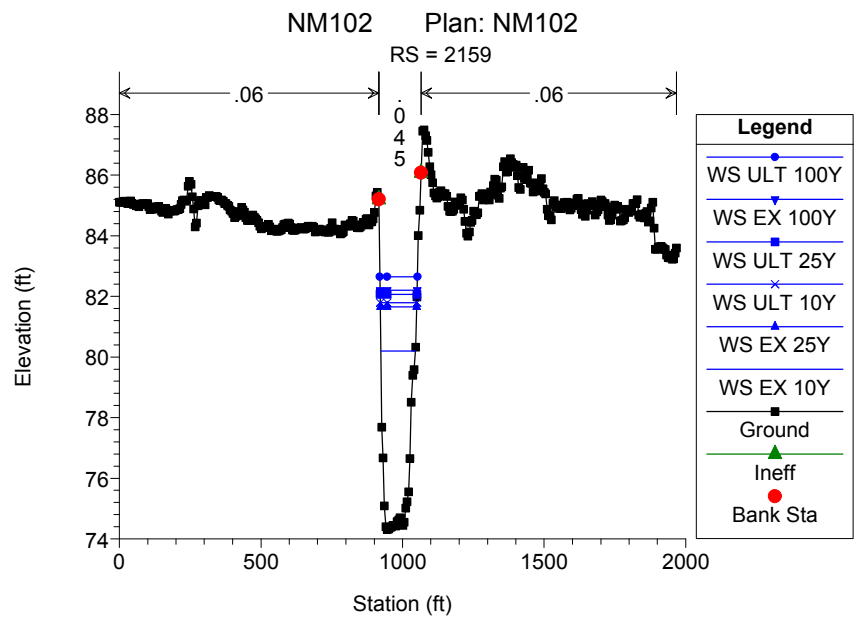
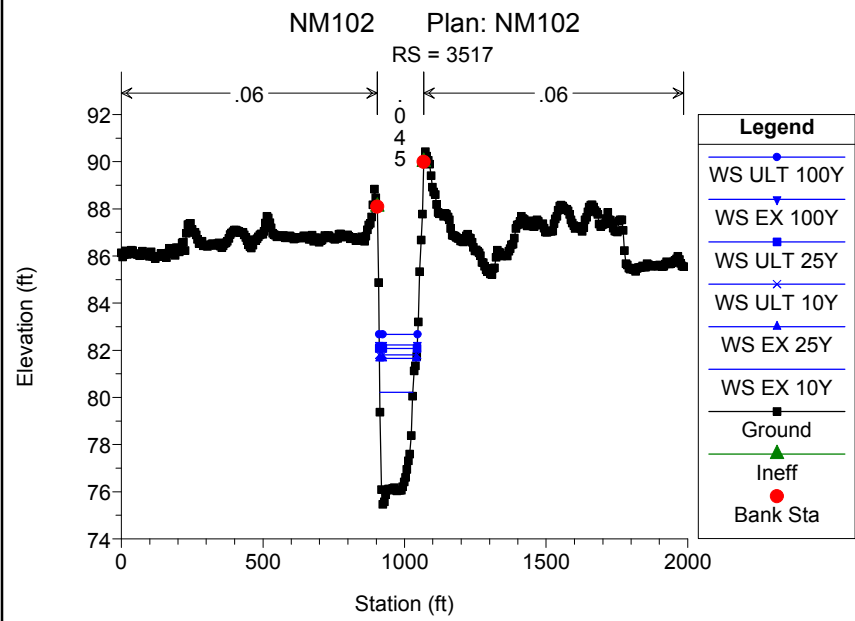
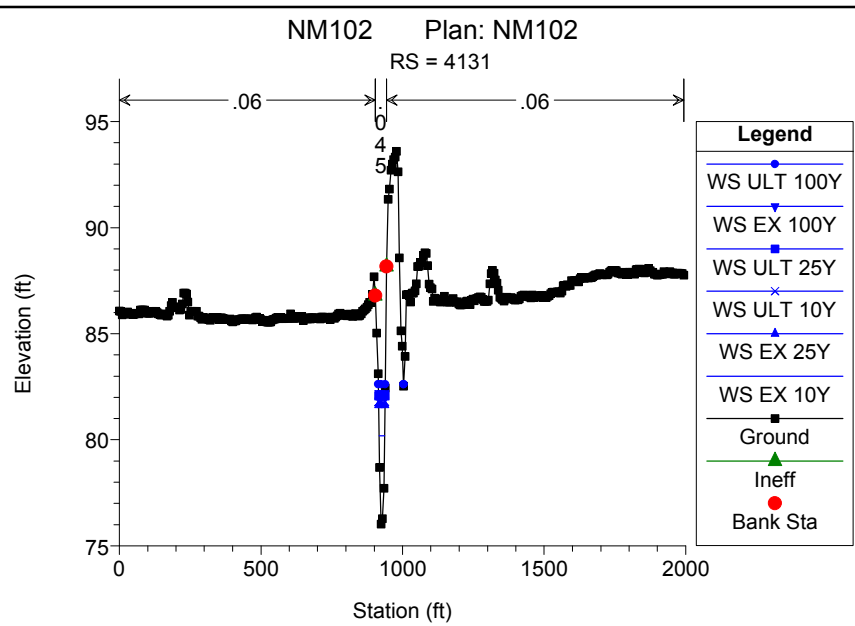
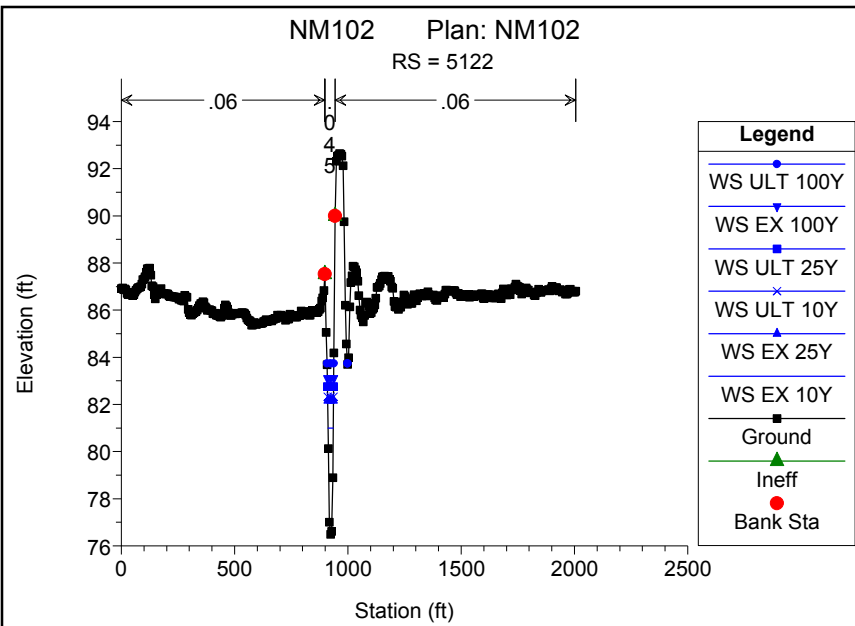


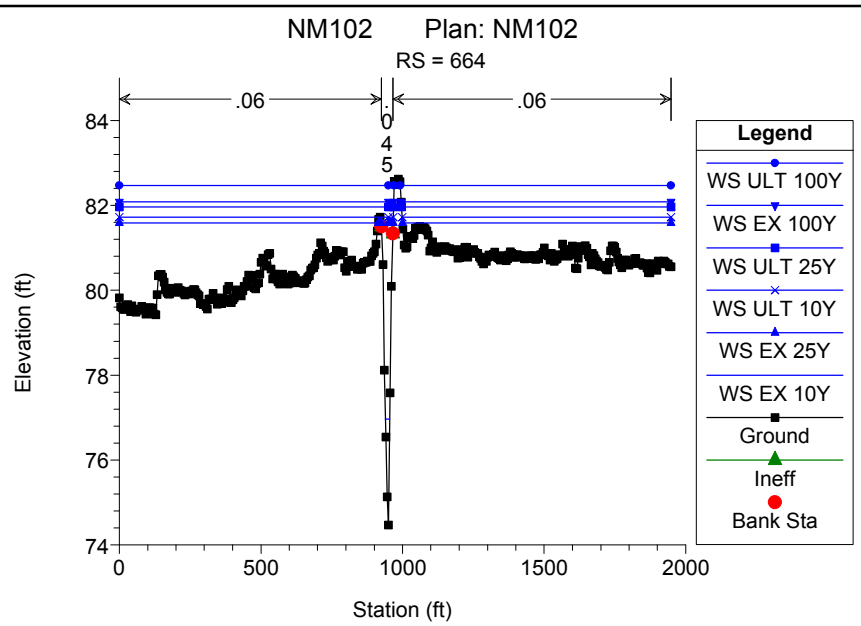
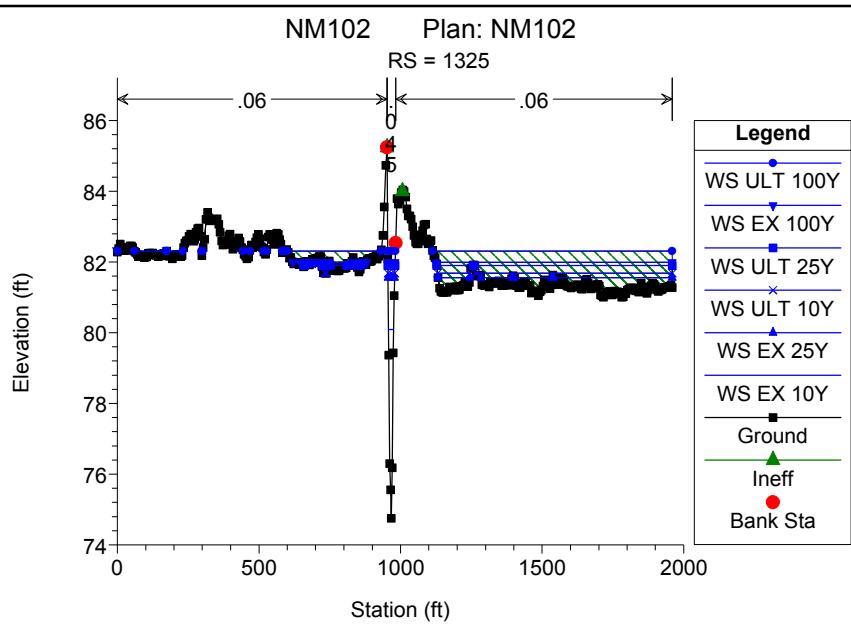












NM102 OUTPUT REPORT.TXT

HEC-RAS Version 4.1.0 Jan 2010
U.S. Army Corps of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

```

X      X  XXXXXXX  XXXX      XXXX      XX      XXXX
X      X  X        X      X      X  X  X  X  X
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PROJECT DATA

Project Title: NM102
Project File : NM102.prj

Project in English units

PLAN DATA

Plan Title: NM102
Plan File : K:\2014PROJECTS\COE_MDP_TEDSI\MODEL\APPENDIX C -
HYDRAULICS\NM102\NM102.p01

Geometry Title: NM102
Geometry File : K:\2014PROJECTS\COE_MDP_TEDSI\MODEL\APPENDIX C -
HYDRAULICS\NM102\NM102.g02

Flow Title : NM102 FLOW
Flow File : K:\2014PROJECTS\COE_MDP_TEDSI\MODEL\APPENDIX C -
HYDRAULICS\NM102\NM102.f01

Plan Summary Information:

Number of: Cross Sections	=	26	Multiple Openings	=	0
Culverts	=	0	Inline Structures	=	0
Bridges	=	0	Lateral Structures	=	0

Computational Information

Water surface calculation tolerance	=	0.01
Critical depth calculation tolerance	=	0.01
Maximum number of iterations	=	20
Maximum difference tolerance	=	0.3
Flow tolerance factor	=	0.001

Computation Options

Critical depth computed only where necessary
Conveyance Calculation Method: At breaks in n values only
Friction Slope Method: Average Conveyance
Computational Flow Regime: Subcritical Flow

NM102 OUTPUT REPORT.TXT

FLOW DATA

Flow Title: NM102 FLOW
 Flow File : K:\2014PROJECTS\COE_MDP_TEDSI\MODEL\APPENDIX C -
 HYDRAULICS\NM102\NM102.f01

Flow Data (cfs)

River	Reach	RS	EX 10Y	EX 25Y
EX 100Y	ULT 10Y	ULT 25Y	ULT 100Y	
N-NM-102	NM-102-01	3452	18	25
43	26	34	54	
N-NM-102	NM-102-02	3577	16	23
40	29	39	61	
N-NM-102	NM-102B	12505	87	117
197	120	156	247	
N-NM-102	NM-102B	9226	97	133
225	142	185	293	
N-NM-102	NM-102A	19462	26	34
55	27	35	56	
N-NM-102	NM-102A	16917	45	59
95	47	61	97	
N-NM-102	NM-102A	13789	74	99
165	95	123	196	
N-NM-102	NM-102C	7972	115	158
268	168	218	346	
N-NM-102	NM-102C	3517	134	186
321	211	276	436	
N-NM-102	NM-102C	664	147	205
356	241	316	498	

Boundary Conditions

River	Reach	Profile	Upstream
Downstream			
N-NM-102	NM-102C	EX 10Y	
Normal S = 0.00001			
N-NM-102	NM-102C	EX 25Y	
Normal S = 0.00001			
N-NM-102	NM-102C	EX 100Y	
Normal S = 0.00001			
N-NM-102	NM-102C	ULT 10Y	
Normal S = 0.00001			
N-NM-102	NM-102C	ULT 25Y	
Normal S = 0.00001			
N-NM-102	NM-102C	ULT 100Y	
Normal S = 0.00001			

GEOMETRY DATA

Geometry Title: NM102
 Geometry File : K:\2014PROJECTS\COE_MDP_TEDSI\MODEL\APPENDIX C -
 HYDRAULICS\NM102\NM102.g02

NM102 OUTPUT REPORT.TXT

Reach Connection Table

River	Reach	Upstream Boundary	Downstream Boundary
N-NM-102	NM-102-01		NM-10201
N-NM-102	NM-102-02		NM-10202
N-NM-102	NM-102B	NM-10202	NM-10201
N-NM-102	NM-102A		NM-10202
N-NM-102	NM-102C	NM-10201	

JUNCTION INFORMATION

Name: NM-10201
 Description:
 Energy computation Method

Length across Junction		Tributary		Reach	Length	Angle
River	Reach	River	Reach			
N-NM-102	NM-102B	to N-NM-102	NM-102C		1254	0
N-NM-102	NM-102-01	to N-NM-102	NM-102C		0	0

Name: NM-10202
 Description:
 Energy computation Method

Length across Junction		Tributary		Reach	Length	Angle
River	Reach	River	Reach			
N-NM-102	NM-102A	to N-NM-102	NM-102B		1284	0
N-NM-102	NM-102-02	to N-NM-102	NM-102B		0	0

CROSS SECTION

RIVER: N-NM-102
 REACH: NM-102-01 RS: 3452

INPUT

Description: 3451.867

Station Elevation Data				num=	142					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	
0	87.22	4.97	87.22	9.94	87.18	14.9	87.19	19.87	87.23	
24.84	87.24	29.81	87.23	34.78	87.26	39.74	87.28	44.71	87.27	
49.68	87.2	54.65	87.31	59.62	87.33	64.58	87.26	69.55	87.24	
74.52	87.27	79.49	87.31	84.46	87.27	89.42	87.22	94.39	87.3	
99.36	87.34	104.33	87.38	109.29	87.43	114.26	87.4	119.23	87.31	
124.2	87.24	129.17	87.24	134.14	87.28	139.1	87.37	144.07	87.37	
149.04	87.23	154.01	87.17	158.97	87.2	163.94	87.27	168.91	87.3	
173.88	87.36	178.85	87.42	183.81	87.62	188.78	87.84	193.75	88.11	
198.72	88.1	203.69	88.08	208.65	88.1	213.62	87.92	218.59	87.94	
223.56	87.94	228.53	87.03	233.49	87.21	238.46	87.23	243.43	87.37	
248.4	87.37	253.37	87.28	258.33	87.26	263.3	87.25	268.27	87.27	
273.24	87.43	278.21	87.41	283.17	87.4	288.14	87.47	293.11	87.5	
298.08	87.56	303.05	87.57	308.01	87.53	312.98	87.53	317.95	87.68	
322.92	87.7	327.89	87.72	332.85	87.74	337.82	87.71	342.79	87.76	
347.76	87.76	352.72	87.93	357.69	87.94	362.66	87.62	367.63	87.53	
372.6	87.63	377.56	87.62	382.53	87.66	387.5	87.67	392.47	87.65	
397.44	87.58	402.4	87.54	407.37	87.53	412.34	87.6	417.31	87.88	
422.28	87.97	427.24	88.29	432.21	88.5	437.18	89.07	442.15	89.01	
447.12	86.24	452.08	84.34	457.05	83.3	462.02	81.82	466.99	81.08	
471.96	81.05	476.92	81.13	481.89	81.29	486.86	81.75	491.83	82.15	
496.8	83.07	501.76	85.69	506.73	88.07	511.7	88.56	516.67	88.39	

NM102 OUTPUT REPORT.TXT

521.64	88.22	526.6	87.93	531.57	87.92	536.54	87.99	541.51	88.11
546.48	88.32	551.44	88.22	556.41	88.12	561.38	87.98	566.35	87.46
571.32	87.2	576.28	87.6	581.25	87.63	586.22	87.8	591.19	87.96
596.15	88.07	601.12	88.07	606.09	88.06	611.06	87.99	616.03	87.94
620.99	87.89	625.96	87.89	630.93	87.85	635.9	87.97	640.87	87.98
645.83	87.97	650.8	87.76	655.77	87.72	660.74	87.74	665.71	87.73
670.67	87.54	675.64	87.7	680.61	87.9	685.58	88.04	690.55	88.06
695.51	88.06	700.48	88.06						

Manning's n Values	num=	3
Sta n Val	Sta n Val	Sta n Val
0 .06	442.15 .045	511.7 .06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.	Expan.
442.15	511.7	1276	1276	1276	.1	.3	
Ineffective Flow	num=	2					
Sta L Sta R Elev	Permanent						
0 442.15 89.01	F						
511.7 700.48 88.56	F						

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	82.89	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-Val.		0.045
w.s. Elev (ft)	82.89	Reach Len. (ft)	1276.00	1276.00
1276.00 Crit w.s. (ft)	81.47	Flow Area (sq ft)		48.46
E.G. Slope (ft/ft)	0.000091	Area (sq ft)		48.46
Q Total (cfs)	18.00	Flow (cfs)		18.00
Top width (ft)	37.42	Top width (ft)		37.42
Vel Total (ft/s)	0.37	Avg. Vel. (ft/s)		0.37
Max Chl Dpth (ft)	1.84	Hydr. Depth (ft)		1.30
Conv. Total (cfs)	1890.4	Conv. (cfs)		1890.4
Length wtd. (ft)	1276.00	wetted Per. (ft)		37.74
Min Ch El (ft)	81.05	Shear (lb/sq ft)		0.01
Alpha	1.00	Stream Power (lb/ft s)	700.48	0.00
0.00 Frctn Loss (ft)	0.16	Cum Volume (acre-ft)		3.16
C & E Loss (ft)	0.00	Cum SA (acres)		2.11

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

NM102 OUTPUT REPORT.TXT

E.G. Elev (ft)	83.71	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-val.		0.045
W.S. Elev (ft)	83.71	Reach Len. (ft)	1276.00	1276.00
1276.00 Crit W.S. (ft)	81.54	Flow Area (sq ft)		81.54
E.G. Slope (ft/ft)	0.000037	Area (sq ft)		81.54
Q Total (cfs)	25.00	Flow (cfs)		25.00
Top width (ft)	42.94	Top width (ft)		42.94
Vel Total (ft/s)	0.31	Avg. Vel. (ft/s)		0.31
Max chl Dpth (ft)	2.66	Hydr. Depth (ft)		1.90
Conv. Total (cfs)	4090.9	Conv. (cfs)		4090.9
Length wtd. (ft)	1276.00	wetted Per. (ft)		43.54
Min ch El (ft)	81.05	Shear (lb/sq ft)		0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	700.48	0.00
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)		5.24
C & E Loss (ft)	0.00	Cum SA (acres)		2.51

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	85.14	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-val.		0.045
W.S. Elev (ft)	85.14	Reach Len. (ft)	1276.00	1276.00
1276.00 Crit W.S. (ft)	81.71	Flow Area (sq ft)		148.92
E.G. Slope (ft/ft)	0.000019	Area (sq ft)		148.92
Q Total (cfs)	43.00	Flow (cfs)		43.00
Top width (ft)	50.73	Top width (ft)		50.73
Vel Total (ft/s)	0.29	Avg. Vel. (ft/s)		0.29
Max chl Dpth (ft)	4.09	Hydr. Depth (ft)		2.94
Conv. Total (cfs)	9930.0	Conv. (cfs)		9930.0
Length wtd. (ft)	1276.00	wetted Per. (ft)		51.89

NM102 OUTPUT REPORT.TXT				
Min Ch El (ft)	81.05	Shear (lb/sq ft)		0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	700.48	0.00
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)		9.33
C & E Loss (ft)	0.00	Cum SA (acres)		3.09

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

Profile #ULT 10Y				
E.G. Elev (ft)	83.87	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-Val.		0.045
W.S. Elev (ft)	83.87	Reach Len. (ft)	1276.00	1276.00
1276.00 Crit w.s. (ft)	81.55	Flow Area (sq ft)		88.51
E.G. Slope (ft/ft)	0.000032	Area (sq ft)		88.51
Q Total (cfs)	26.00	Flow (cfs)		26.00
Top width (ft)	44.01	Top width (ft)		44.01
Vel Total (ft/s)	0.29	Avg. Vel. (ft/s)		0.29
Max Chl Dpth (ft)	2.82	Hydr. Depth (ft)		2.01
Conv. Total (cfs)	4610.8	Conv. (cfs)		4610.8
Length wtd. (ft)	1276.00	wetted Per. (ft)		44.67
Min Ch El (ft)	81.05	Shear (lb/sq ft)		0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	700.48	0.00
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)		5.67
C & E Loss (ft)	0.00	Cum SA (acres)		2.59

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

Profile #ULT 25Y				
E.G. Elev (ft)	84.55	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-Val.		0.045
W.S. Elev (ft)	84.55	Reach Len. (ft)	1276.00	1276.00
1276.00 Crit w.s. (ft)	81.63	Flow Area (sq ft)		119.74

NM102 OUTPUT REPORT.TXT

E.G. Slope (ft/ft)	0.000022	Area (sq ft)		119.74
Q Total (cfs)	34.00	Flow (cfs)		34.00
Top width (ft)	48.07	Top width (ft)		48.07
Vel Total (ft/s)	0.28	Avg. Vel. (ft/s)		0.28
Max Chl Dpth (ft)	3.50	Hydr. Depth (ft)		2.49
Conv. Total (cfs)	7175.4	Conv. (cfs)		7175.4
Length wtd. (ft)	1276.00	wetted Per. (ft)		48.98
Min Ch El (ft)	81.05	Shear (lb/sq ft)		0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	700.48	0.00
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)		7.55
C & E Loss (ft)	0.00	Cum SA (acres)		2.87

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	86.00	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-Val.		0.045
w.s. Elev (ft)	86.00	Reach Len. (ft)	1276.00	1276.00
1276.00 Crit w.s. (ft)	81.80	Flow Area (sq ft)		194.03
E.G. Slope (ft/ft)	0.000014	Area (sq ft)		194.03
Q Total (cfs)	54.00	Flow (cfs)		54.00
Top width (ft)	54.65	Top width (ft)		54.65
Vel Total (ft/s)	0.28	Avg. Vel. (ft/s)		0.28
Max Chl Dpth (ft)	4.95	Hydr. Depth (ft)		3.55
Conv. Total (cfs)	14640.3	Conv. (cfs)		14640.3
Length wtd. (ft)	1276.00	wetted Per. (ft)		56.17
Min Ch El (ft)	81.05	Shear (lb/sq ft)		0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	700.48	0.00
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)		12.12
C & E Loss (ft)	0.00	Cum SA (acres)		3.34

NM102 OUTPUT REPORT.TXT

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-102
 REACH: NM-102-01 RS: 2176

INPUT

Description: 2176.495

Station Elevation Data		num= 142							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	87.2	4.99	87.08	9.97	87.12	14.96	87.17	19.95	87.16
24.93	87.21	29.92	87.27	34.91	87.3	39.9	87.3	44.88	87.25
49.87	87.34	54.86	87.29	59.84	87.27	64.83	87.3	69.82	87.28
74.81	87.28	79.79	87.33	84.78	87.34	89.77	87.31	94.75	87.33
99.74	87.42	104.73	87.46	109.71	87.37	114.7	87.27	119.69	87.22
124.67	87.19	129.66	87.19	134.65	87.2	139.64	87.36	144.62	87.48
149.61	87.54	154.6	87.62	159.58	87.77	164.57	88.05	169.56	88.25
174.54	88.29	179.53	88.55	184.52	88.9	189.51	89.01	194.49	89.05
199.48	88.97	204.47	88.65	209.45	88.46	214.44	88.21	219.43	87.81
224.42	87.83	229.4	87.87	234.39	87.86	239.38	87.85	244.36	87.84
249.35	87.89	254.34	87.93	259.32	87.95	264.31	88	269.3	88.15
274.28	88.12	279.27	88.13	284.26	88.12	289.25	88.12	294.23	88.22
299.22	88.24	304.21	88.25	309.19	88.3	314.18	88.39	319.17	88.38
324.15	88.36	329.14	88.38	334.13	88.21	339.12	87.99	344.1	88
349.09	88.38	354.08	90.53	359.06	89.01	364.05	88.88	369.04	88.07
374.02	88.11	379.01	88.21	384	88.21	388.99	88.09	393.97	88.04
398.96	88.13	403.95	88.15	408.93	88.29	413.92	88.34	418.91	88.32
423.89	88.35	428.88	88.68	433.87	89.08	438.86	87.37	443.84	84.23
448.83	83.36	453.82	81.86	458.8	81.06	463.79	81.1	468.78	81.2
473.77	81.54	478.75	82.15	483.74	84.2	488.73	85.23	493.71	87.78
498.7	89.94	503.69	90.16	508.67	90.03	513.66	89.36	518.65	88.94
523.63	88.83	528.62	88.62	533.61	88.53	538.6	88.49	543.58	88.29
548.57	88.03	553.56	87.96	558.54	87.71	563.53	87.47	568.52	87.48
573.5	87.37	578.49	87.42	583.48	87.46	588.47	87.34	593.45	87.33
598.44	87.31	603.43	87.22	608.41	87.26	613.4	87.2	618.39	87.07
623.37	87.12	628.36	87.15	633.35	87.07	638.34	87.16	643.32	87.12
648.31	87.05	653.3	87.14	658.28	87.09	663.27	86.97	668.26	86.95
673.24	87	678.23	87.13	683.22	87.03	688.21	87.11	693.19	87.1
698.18	87.06	703.17	86.88						

Manning's n Values		num= 3			
Sta	n Val	Sta	n Val	Sta	n Val
0	.06	433.87	.045	498.7	.06

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	433.87	498.7		1520	1520		.1	.3
Ineffective Flow	num= 2							
Sta L	Sta R	Elev	Permanent					
0	433.87	89.08	F					
498.7	703.17	89.94	F					

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	82.73	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-Val.		0.045

NM102 OUTPUT REPORT.TXT				
W.S. Elev (ft)	82.73	Reach Len. (ft)	1520.00	1520.00
1520.00 Crit W.S. (ft)	81.53	Flow Area (sq ft)		35.25
E.G. Slope (ft/ft)	0.000189	Area (sq ft)		35.25
Q Total (cfs)	18.00	Flow (cfs)		18.00
Top width (ft)	29.23	Top width (ft)		29.23
Vel Total (ft/s)	0.51	Avg. Vel. (ft/s)		0.51
Max Chl Dpth (ft)	1.67	Hydr. Depth (ft)		1.21
Conv. Total (cfs)	1308.3	Conv. (cfs)		1308.3
Length wtd. (ft)	1520.00	wetted Per. (ft)		29.58
Min ch El (ft)	81.06	Shear (lb/sq ft)		0.01
Alpha 0.00	1.00	Stream Power (lb/ft s)	703.17	0.00
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)		1.94
C & E Loss (ft)	0.00	Cum SA (acres)		1.13

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	83.65	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-Val.		0.045
W.S. Elev (ft)	83.65	Reach Len. (ft)	1520.00	1520.00
1520.00 Crit W.S. (ft)	81.61	Flow Area (sq ft)		64.79
E.G. Slope (ft/ft)	0.000062	Area (sq ft)		64.79
Q Total (cfs)	25.00	Flow (cfs)		25.00
Top width (ft)	35.25	Top width (ft)		35.25
Vel Total (ft/s)	0.39	Avg. Vel. (ft/s)		0.39
Max Chl Dpth (ft)	2.59	Hydr. Depth (ft)		1.84
Conv. Total (cfs)	3171.2	Conv. (cfs)		3171.2
Length wtd. (ft)	1520.00	wetted Per. (ft)		35.90
Min ch El (ft)	81.06	Shear (lb/sq ft)		0.01
Alpha	1.00	Stream Power (lb/ft s)	703.17	0.00

NM102 OUTPUT REPORT.TXT

0.00			
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	3.09
C & E Loss (ft)	0.00	Cum SA (acres)	1.37

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	85.11	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-Val.		0.045
W.S. Elev (ft)	85.11	Reach Len. (ft)	1520.00	1520.00
1520.00 Crit w.s. (ft)	81.79	Flow Area (sq ft)		124.27
E.G. Slope (ft/ft)	0.000030	Area (sq ft)		124.27
Q Total (cfs)	43.00	Flow (cfs)		43.00
Top width (ft)	45.70	Top width (ft)		45.70
Vel Total (ft/s)	0.35	Avg. Vel. (ft/s)		0.35
Max Chl Dpth (ft)	4.05	Hydr. Depth (ft)		2.72
Conv. Total (cfs)	7861.3	Conv. (cfs)		7861.3
Length wtd. (ft)	1520.00	wetted Per. (ft)		46.86
Min Ch El (ft)	81.06	Shear (lb/sq ft)		0.00
Alpha	1.00	Stream Power (lb/ft s)	703.17	0.00
0.00 Frctn Loss (ft)	0.02	Cum Volume (acre-ft)		5.33
C & E Loss (ft)	0.00	Cum SA (acres)		1.68

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	83.82	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-Val.		0.045

NM102 OUTPUT REPORT.TXT				
W.S. Elev (ft)	83.82	Reach Len. (ft)	1520.00	1520.00
1520.00 Crit W.S. (ft)	81.63	Flow Area (sq ft)		70.89
E.G. Slope (ft/ft)	0.000052	Area (sq ft)		70.89
Q Total (cfs)	26.00	Flow (cfs)		26.00
Top width (ft)	36.63	Top width (ft)		36.63
Vel Total (ft/s)	0.37	Avg. Vel. (ft/s)		0.37
Max Chl Dpth (ft)	2.76	Hydr. Depth (ft)		1.94
Conv. Total (cfs)	3589.1	Conv. (cfs)		3589.1
Length wtd. (ft)	1520.00	wetted Per. (ft)		37.34
Min Ch El (ft)	81.06	Shear (lb/sq ft)		0.01
Alpha 0.00	1.00	Stream Power (lb/ft s)	703.17	0.00
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)		3.33
C & E Loss (ft)	0.00	Cum SA (acres)		1.41

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	84.51	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-Val.		0.045
W.S. Elev (ft)	84.51	Reach Len. (ft)	1520.00	1520.00
1520.00 Crit W.S. (ft)	81.71	Flow Area (sq ft)		98.13
E.G. Slope (ft/ft)	0.000036	Area (sq ft)		98.13
Q Total (cfs)	34.00	Flow (cfs)		34.00
Top width (ft)	41.86	Top width (ft)		41.86
Vel Total (ft/s)	0.35	Avg. Vel. (ft/s)		0.35
Max Chl Dpth (ft)	3.45	Hydr. Depth (ft)		2.34
Conv. Total (cfs)	5635.2	Conv. (cfs)		5635.2
Length wtd. (ft)	1520.00	wetted Per. (ft)		42.79
Min Ch El (ft)	81.06	Shear (lb/sq ft)		0.01
Alpha	1.00	Stream Power (lb/ft s)	703.17	0.00

NM102 OUTPUT REPORT.TXT

0.00			
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	4.36
C & E Loss (ft)	0.00	Cum SA (acres)	1.56

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	85.98	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-Val.		0.045
W.S. Elev (ft)	85.98	Reach Len. (ft)	1520.00	1520.00
1520.00				
Crit w.s. (ft)	81.88	Flow Area (sq ft)		165.44
E.G. Slope (ft/ft)	0.000020	Area (sq ft)		165.44
Q Total (cfs)	54.00	Flow (cfs)		54.00
Top width (ft)	49.11	Top width (ft)		49.11
Vel Total (ft/s)	0.33	Avg. Vel. (ft/s)		0.33
Max Chl Dpth (ft)	4.92	Hydr. Depth (ft)		3.37
Conv. Total (cfs)	12015.1	Conv. (cfs)		12015.1
Length wtd. (ft)	1520.00	wetted Per. (ft)		50.72
Min Ch El (ft)	81.06	Shear (lb/sq ft)		0.00
Alpha	1.00	Stream Power (lb/ft s)	703.17	0.00
0.00				
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)		6.85
C & E Loss (ft)	0.00	Cum SA (acres)		1.82

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-102
 REACH: NM-102-01 RS: 656

INPUT

NM102 OUTPUT REPORT.TXT

Description: 656.3965

Station Elevation Data			num= 152						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	88.2	4.97	88.25	9.94	88.25	14.91	88.28	19.88	88.43
24.85	88.38	29.82	88.29	34.79	88.49	39.76	88.51	44.73	88.41
49.7	88.53	54.67	88.43	59.63	88.24	64.6	88.39	69.57	88.54
74.54	88.45	79.51	88.45	84.48	88.41	89.45	88.17	94.42	88.16
99.39	88.18	104.36	88.24	109.33	88.26	114.3	88.39	119.27	88.39
124.24	88.36	129.21	88.36	134.18	88.25	139.15	88.17	144.12	88.3
149.09	88.55	154.06	88.58	159.03	88.27	164	88.25	168.96	88.39
173.93	88.3	178.9	88.34	183.87	88.35	188.84	88.34	193.81	88.34
198.78	88.48	203.75	88.53	208.72	88.64	213.69	87.92	218.66	87.77
223.63	87.86	228.6	87.95	233.57	88.1	238.54	88.66	243.51	89.04
248.48	88.68	253.45	87.8	258.42	87.21	263.39	87.29	268.36	87.43
273.33	87.46	278.3	87.58	283.26	87.69	288.23	87.74	293.2	87.73
298.17	87.69	303.14	87.64	308.11	87.55	313.08	87.57	318.05	87.62
323.02	87.67	327.99	87.72	332.96	87.69	337.93	87.54	342.9	87.53
347.87	87.82	352.84	88.22	357.81	88.22	362.78	88.06	367.75	87.97
372.72	87.99	377.69	88.02	382.66	88.14	387.63	88.06	392.6	88.24
397.56	88.28	402.53	88.29	407.5	88.31	412.47	88.39	417.44	88.42
422.41	88.38	427.38	88.31	432.35	88.5	437.32	88.57	442.29	88.57
447.26	87.95	452.23	87.49	457.2	87.59	462.17	87.55	467.14	87.5
472.11	87.52	477.08	86.78	482.05	85.4	487.02	84.15	491.99	81.43
496.96	80.14	501.93	79.89	506.9	79.9	511.86	79.98	516.83	80.3
521.8	81.21	526.77	83.2	531.74	83.66	536.71	86.98	541.68	88.15
546.65	87.63	551.62	87.51	556.59	86.72	561.56	86.82	566.53	86.83
571.5	86.83	576.47	86.93	581.44	87.39	586.41	87.54	591.38	87.56
596.35	87.55	601.32	87.75	606.29	87.66	611.26	87.36	616.23	87.26
621.19	87.41	626.16	87.32	631.13	87.3	636.1	87.31	641.07	87.32
646.04	87.32	651.01	87.28	655.98	87.12	660.95	87.04	665.92	87.11
670.89	87.1	675.86	87.12	680.83	87.21	685.8	87.38	690.77	87.31
695.74	87.26	700.71	87.38	705.68	87.36	710.65	87.35	715.62	87.4
720.59	87.38	725.56	87.23	730.52	87.12	735.49	87.12	740.46	87.17
745.43	87.13	750.4	87.04						

Manning's n Values			num= 3		
Sta	n Val	Sta	n Val	Sta	n Val
0	.06	472.11	.045	541.68	.06

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	472.11	541.68		656	656		.1	.3
Ineffective Flow	num= 2							
Sta L	Sta R	Elev	Permanent					
0	472.11	87.52	F					
541.68	750.4	88.15	F					

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	82.66	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-val.		0.045
w.s. Elev (ft)	82.66	Reach Len. (ft)	0.00	0.00
0.00				
Crit w.s. (ft)	80.30	Flow Area (sq ft)		75.77
E.G. slope (ft/ft)	0.000020	Area (sq ft)		75.77
Q Total (cfs)	18.00	Flow (cfs)		18.00
Top width (ft)	35.69	Top width (ft)		35.69

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Vel Total (ft/s)	0.24	Avg. Vel. (ft/s)	0.24
Max Chl Dpth (ft)	2.77	Hydr. Depth (ft)	2.12
Conv. Total (cfs)	4067.8	Conv. (cfs)	4067.8
Length wtd. (ft)	0.00	wetted Per. (ft)	36.55
Min Ch El (ft)	79.89	Shear (lb/sq ft)	0.00
Alpha	1.00	Stream Power (lb/ft s)	750.40
0.00			0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	
C & E Loss (ft)	0.00	Cum SA (acres)	

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	83.62	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-val.		0.045
w.s. Elev (ft)	83.61	Reach Len. (ft)	0.00	0.00
0.00				
Crit w.s. (ft)	80.36	Flow Area (sq ft)		112.45
E.G. slope (ft/ft)	0.000013	Area (sq ft)		112.45
Q Total (cfs)	25.00	Flow (cfs)		25.00
Top width (ft)	43.26	Top width (ft)		43.26
Vel Total (ft/s)	0.22	Avg. Vel. (ft/s)		0.22
Max Chl Dpth (ft)	3.72	Hydr. Depth (ft)		2.60
Conv. Total (cfs)	6891.2	Conv. (cfs)		6891.2
Length wtd. (ft)	0.00	wetted Per. (ft)		44.48
Min Ch El (ft)	79.89	Shear (lb/sq ft)		0.00
Alpha	1.00	Stream Power (lb/ft s)	750.40	0.00
0.00				
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		
C & E Loss (ft)	0.00	Cum SA (acres)		

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

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		Element	Left OB	Channel
E.G. Elev (ft)	85.09			
Right OB				
Vel Head (ft)	0.00	wt. n-val.		0.045
W.S. Elev (ft)	85.09	Reach Len. (ft)	0.00	0.00
0.00				
Crit W.S. (ft)	80.52	Flow Area (sq ft)		181.24
E.G. slope (ft/ft)	0.000010	Area (sq ft)		181.24
Q Total (cfs)	43.00	Flow (cfs)		43.00
Top width (ft)	50.58	Top width (ft)		50.58
Vel Total (ft/s)	0.24	Avg. vel. (ft/s)		0.24
Max Chl Dpth (ft)	5.20	Hydr. Depth (ft)		3.58
Conv. Total (cfs)	13671.6	Conv. (cfs)		13671.6
Length wtd. (ft)	0.00	wetted Per. (ft)		52.49
Min Ch El (ft)	79.89	Shear (lb/sq ft)		0.00
Alpha	1.00	Stream Power (lb/ft s)	750.40	0.00
0.00				
Frctn Loss (ft)	0.00	Cum volume (acre-ft)		
C & E Loss (ft)	0.00	Cum SA (acres)		

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

		Element	Left OB	Channel
E.G. Elev (ft)	83.79			
Right OB				
Vel Head (ft)	0.00	wt. n-val.		0.045
W.S. Elev (ft)	83.79	Reach Len. (ft)	0.00	0.00
0.00				
Crit W.S. (ft)	80.37	Flow Area (sq ft)		120.10
E.G. slope (ft/ft)	0.000012	Area (sq ft)		120.10
Q Total (cfs)	26.00	Flow (cfs)		26.00
Top width (ft)	44.25	Top width (ft)		44.25
Vel Total (ft/s)	0.22	Avg. vel. (ft/s)		0.22
Max Chl Dpth (ft)	3.90	Hydr. Depth (ft)		2.71
Conv. Total (cfs)	7567.0	Conv. (cfs)		7567.0
Length wtd. (ft)	0.00	wetted Per. (ft)		45.57
Min Ch El (ft)	79.89	Shear (lb/sq ft)		0.00

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Alpha	1.00	Stream Power (lb/ft s)	750.40	0.00
0.00				
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		
C & E Loss (ft)	0.00	Cum SA (acres)		

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	84.49	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-val.		0.045
W.S. Elev (ft)	84.49	Reach Len. (ft)	0.00	0.00
0.00				
Crit w.s. (ft)	80.45	Flow Area (sq ft)		151.93
E.G. slope (ft/ft)	0.000010	Area (sq ft)		151.93
Q Total (cfs)	34.00	Flow (cfs)		34.00
Top width (ft)	47.30	Top width (ft)		47.30
vel Total (ft/s)	0.22	Avg. vel. (ft/s)		0.22
Max chl Dpth (ft)	4.60	Hydr. Depth (ft)		3.21
Conv. Total (cfs)	10673.2	Conv. (cfs)		10673.2
Length wtd. (ft)	0.00	wetted Per. (ft)		48.96
Min ch El (ft)	79.89	Shear (lb/sq ft)		0.00
Alpha	1.00	Stream Power (lb/ft s)	750.40	0.00
0.00				
Frctn Loss (ft)	0.00	Cum volume (acre-ft)		
C & E Loss (ft)	0.00	Cum SA (acres)		

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	85.96	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-val.		0.045
W.S. Elev (ft)	85.96	Reach Len. (ft)	0.00	0.00
0.00				
Crit w.s. (ft)	80.61	Flow Area (sq ft)		227.31

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E.G. Slope (ft/ft)	0.000008	Area (sq ft)	227.31
Q Total (cfs)	54.00	Flow (cfs)	54.00
Top width (ft)	55.14	Top width (ft)	55.14
Vel Total (ft/s)	0.24	Avg. Vel. (ft/s)	0.24
Max Ch1 Dpth (ft)	6.07	Hydr. Depth (ft)	4.12
Conv. Total (cfs)	18781.9	Conv. (cfs)	18781.9
Length wtd. (ft)	0.00	wetted Per. (ft)	57.43
Min ch El (ft)	79.89	Shear (lb/sq ft)	0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	750.40
Frctn Loss (ft)	0.00	cum volume (acre-ft)	0.00
C & E Loss (ft)	0.01	cum SA (acres)	

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-102
 REACH: NM-102-02 RS: 3577

INPUT

Description:

Station	Elevation	Data	num=	135	Sta	Elev	Sta	Elev	Sta	Elev
0	85.75	4.97	85.68	9.94	85.69	14.91	85.64	19.89	85.6	
24.86	85.6	29.83	85.56	34.8	85.54	39.77	85.56	44.74	85.68	
49.71	85.7	54.69	85.75	59.66	85.94	64.63	85.46	69.6	85.37	
74.57	85.31	79.54	85.18	84.51	85.24	89.49	85.27	94.46	85.37	
99.43	85.37	104.4	85.4	109.37	85.28	114.34	85.29	119.31	85.24	
124.29	85.27	129.26	85.2	134.23	85.27	139.2	85.29	144.17	85.27	
149.14	85.27	154.11	85.25	159.09	85.2	164.06	85.54	169.03	85.45	
174	85.28	178.97	85.24	183.94	85.28	188.91	85.26	193.89	85.25	
198.86	85.37	203.83	85.47	208.8	85.42	213.77	85.33	218.74	85.24	
223.71	85.19	228.69	85.14	233.66	85.17	238.63	85.31	243.6	85.32	
248.57	85.25	253.54	85.22	258.51	85.17	263.49	85.18	268.46	85.23	
273.43	85.45	278.4	85.39	283.37	85.28	288.34	85.43	293.31	85.47	
298.29	85.88	303.26	86.02	308.23	84.65	313.2	84.65	318.17	84.36	
323.14	84.5	328.11	84.61	333.09	84.19	338.06	85.43	343.03	85.37	
348	85.14	352.97	85.09	357.94	85.2	362.91	85.62	367.89	86.15	
372.86	85.91	377.83	85.86	382.8	85.8	387.77	85.95	392.74	85.99	
397.71	85.96	402.69	85.88	407.66	85.63	412.63	85.42	417.6	85.33	
422.57	85.37	427.54	85.38	432.51	85.4	437.49	85.43	442.46	85.47	
447.43	85.53	452.4	85.55	457.37	85.57	462.34	85.47	467.31	85.45	
472.29	85.34	477.26	85.38	482.23	85.43	487.2	85.47	492.17	85.51	
497.14	85.32	502.11	85.47	507.09	85.44	512.06	85.49	517.03	85.47	
522	85.52	526.97	85.72	531.94	85.79	536.91	85.79	541.89	85.62	
546.86	85.5	551.83	85.6	556.8	85.61	561.77	85.6	566.74	85.63	
571.71	85.78	576.69	85.81	581.66	85.81	586.63	85.67	591.6	85.59	
596.57	85.68	601.54	85.73	606.51	85.73	611.49	85.73	616.46	85.91	

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621.43	86.02	626.4	85.94	631.37	85.95	636.34	86.04	641.31	86.01
646.29	86.02	651.26	86.07	656.23	86.09	661.2	86.12	666.17	86.21

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	303.26	.045	367.89	.06

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	303.26	367.89		1440	1440		.1	.3
Ineffective Flow	num=		2					
Sta L	Sta R	Elev	Permanent					
0	303.26	86.02	F					
367.89	666.17	86.15	F					

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	84.84	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.11	wt. n-Val.		0.045
W.S. Elev (ft)	84.73	Reach Len. (ft)	1440.00	1440.00
1440.00				
Crit w.s. (ft)	84.73	Flow Area (sq ft)		6.08
E.G. Slope (ft/ft)	0.047398	Area (sq ft)		6.08
Q Total (cfs)	16.00	Flow (cfs)		16.00
Top width (ft)	27.30	Top width (ft)		27.30
Vel Total (ft/s)	2.63	Avg. Vel. (ft/s)		2.63
Max Chl Dpth (ft)	0.54	Hydr. Depth (ft)		0.22
Conv. Total (cfs)	73.5	Conv. (cfs)		73.5
Length wtd. (ft)	1440.00	wetted Per. (ft)		27.41
Min Ch El (ft)	84.19	Shear (lb/sq ft)		0.66
Alpha	1.00	Stream Power (lb/ft s)	666.17	0.00
0.00				
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)		7.24
C & E Loss (ft)	0.03	Cum SA (acres)		2.76

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

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CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	84.93	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.14	wt. n-val.		0.045
W.S. Elev (ft)	84.79	Reach Len. (ft)	1440.00	1440.00
1440.00				
Crit w.s. (ft)	84.79	Flow Area (sq ft)		7.76
E.G. slope (ft/ft)	0.044417	Area (sq ft)		7.76
Q Total (cfs)	23.00	Flow (cfs)		23.00
Top width (ft)	27.77	Top width (ft)		27.77
vel Total (ft/s)	2.97	Avg. vel. (ft/s)		2.97
Max Chl Dpth (ft)	0.60	Hydr. Depth (ft)		0.28
Conv. Total (cfs)	109.1	Conv. (cfs)		109.1
Length wtd. (ft)	1440.00	wetted Per. (ft)		27.89
Min Ch El (ft)	84.19	Shear (lb/sq ft)		0.77
Alpha	1.00	Stream Power (lb/ft s)	666.17	0.00
0.00				
Frctn Loss (ft)	0.02	Cum volume (acre-ft)	1.37	9.54
0.15				
C & E Loss (ft)	0.04	Cum SA (acres)	8.19	3.20
1.40				

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	85.70	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	wt. n-val.		0.045
W.S. Elev (ft)	85.69	Reach Len. (ft)	1440.00	1440.00
1440.00				
Crit w.s. (ft)	84.91	Flow Area (sq ft)		46.14
E.G. slope (ft/ft)	0.000966	Area (sq ft)	92.92	46.14

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31.10				
Q Total (cfs)	40.00	Flow (cfs)		40.00
Top width (ft)	492.84	Top width (ft)	274.14	59.08
159.63				
Vel Total (ft/s)	0.87	Avg. Vel. (ft/s)		0.87
Max Chl Dpth (ft)	1.50	Hydr. Depth (ft)		0.78
Conv. Total (cfs)	1287.2	Conv. (cfs)		1287.2
Length wtd. (ft)	1440.00	wetted Per. (ft)		59.43
Min Ch El (ft)	84.19	Shear (lb/sq ft)		0.05
Alpha	1.00	Stream Power (lb/ft s)	666.17	0.00
0.00				
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	12.46	12.57
8.38				
C & E Loss (ft)	0.00	Cum SA (acres)	19.34	3.76
15.73				

Warning: Divided flow computed for this cross-section.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	85.03	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.09	wt. n-val.		0.045
W.S. Elev (ft)	84.93	Reach Len. (ft)	1440.00	1440.00
1440.00				
Crit w.s. (ft)	84.84	Flow Area (sq ft)		11.86
E.G. slope (ft/ft)	0.018088	Area (sq ft)		11.86
Q Total (cfs)	29.00	Flow (cfs)		29.00
Top width (ft)	28.88	Top width (ft)		28.88
Vel Total (ft/s)	2.44	Avg. Vel. (ft/s)		2.44
Max Chl Dpth (ft)	0.74	Hydr. Depth (ft)		0.41
Conv. Total (cfs)	215.6	Conv. (cfs)		215.6
Length wtd. (ft)	1440.00	wetted Per. (ft)		29.04
Min Ch El (ft)	84.19	Shear (lb/sq ft)		0.46
Alpha	1.00	Stream Power (lb/ft s)	666.17	0.00
0.00				
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	2.74	10.02
0.59				
C & E Loss (ft)	0.03	Cum SA (acres)	9.64	3.25

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4.76

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	85.36	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.03	wt. n-val.		0.045
W.S. Elev (ft)	85.33	Reach Len. (ft)	1440.00	1440.00
1440.00				
Crit w.s. (ft)	84.91	Flow Area (sq ft)		26.16
E.G. slope (ft/ft)	0.004527	Area (sq ft)	12.05	26.16
0.00				
Q Total (cfs)	39.00	Flow (cfs)		39.00
Top width (ft)	204.68	Top width (ft)	157.03	47.31
0.34				
vel Total (ft/s)	1.49	Avg. vel. (ft/s)		1.49
Max Chl Dpth (ft)	1.14	Hydr. Depth (ft)		0.55
Conv. Total (cfs)	579.7	Conv. (cfs)		579.7
Length wtd. (ft)	1440.00	wetted Per. (ft)		47.58
Min Ch El (ft)	84.19	Shear (lb/sq ft)		0.16
Alpha	1.00	Stream Power (lb/ft s)	666.17	0.00
0.00				
Frctn Loss (ft)	0.02	Cum volume (acre-ft)	6.59	11.24
3.45				
C & E Loss (ft)	0.01	Cum SA (acres)	13.73	3.57
10.85				

Warning: Divided flow computed for this cross-section.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	86.43	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-val.	0.060	0.045
0.060				
W.S. Elev (ft)	86.43	Reach Len. (ft)	1440.00	1440.00
1440.00				
Crit w.s. (ft)	85.05	Flow Area (sq ft)	313.82	92.65

NM102 OUTPUT REPORT.TXT

221.73					
E.G. slope (ft/ft)	0.000014	Area (sq ft)	313.82	92.65	
221.73					
Q Total (cfs)	61.00	Flow (cfs)	29.68	14.48	
16.84					
Top width (ft)	666.17	Top width (ft)	303.26	64.63	
298.28					
Vel Total (ft/s)	0.10	Avg. Vel. (ft/s)	0.09	0.16	
0.08					
Max Chl Dpth (ft)	2.24	Hydr. Depth (ft)	1.03	1.43	
0.74					
Conv. Total (cfs)	16314.1	Conv. (cfs)	7937.7	3872.9	
4503.5					
Length wtd. (ft)	1440.00	wetted Per. (ft)	304.02	65.05	
298.55					
Min ch El (ft)	84.19	Shear (lb/sq ft)	0.00	0.00	
0.00					
Alpha	1.25	Stream Power (lb/ft s)	666.17	0.00	
0.00					
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	28.03	15.39	
21.64					
C & E Loss (ft)	0.00	Cum SA (acres)	21.42	3.85	
18.88					

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-102
 REACH: NM-102-02 RS: 2137

INPUT

Description:

Station	Elevation	Data	num=	122							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	84.66	4.98	84.84	9.95	84.81	14.93	84.83	19.91	84.55		
24.88	84.57	29.86	84.59	34.83	84.51	39.81	84.63	44.79	84.65		
49.76	84.65	54.74	84.76	59.72	84.75	64.69	84.69	69.67	84.65		
74.64	84.52	79.62	84.49	84.6	84.6	89.57	84.67	94.55	84.76		
99.53	84.73	104.5	84.74	109.48	84.86	114.45	84.82	119.43	84.78		
124.41	84.83	129.38	84.84	134.36	84.72	139.34	84.61	144.31	84.59		
149.29	84.68	154.27	84.82	159.24	84.77	164.22	84.68	169.19	84.69		
174.17	84.71	179.15	84.72	184.12	84.77	189.1	84.78	194.08	84.8		
199.05	84.87	204.03	84.96	209	85.01	213.98	84.98	218.96	84.85		
223.93	84.79	228.91	84.84	233.89	84.84	238.86	84.69	243.84	84.63		
248.82	84.61	253.79	84.61	258.77	84.55	263.74	84.45	268.72	84.4		
273.7	84.4	278.67	84.41	283.65	84.41	288.63	84.5	293.6	83.44		
298.58	83.31	303.55	80.8	308.53	79.65	313.51	79.61	318.48	79.63		
323.46	79.84	328.44	81.24	333.41	83.65	338.39	84.24	343.36	84.89		
348.34	85.2	353.32	85.24	358.29	85.11	363.27	85.05	368.25	84.94		
373.22	84.83	378.2	84.85	383.18	84.88	388.15	84.88	393.13	84.73		
398.1	84.58	403.08	84.56	408.06	84.69	413.03	84.84	418.01	84.94		
422.99	85.04	427.96	84.99	432.94	85	437.91	85.04	442.89	84.94		
447.87	84.9	452.84	84.97	457.82	85.21	462.8	85.24	467.77	85.13		

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472.75	85.12	477.72	85.07	482.7	85.2	487.68	85.43	492.65	85.39
497.63	85.18	502.61	85.4	507.58	85.2	512.56	85.22	517.54	85.36
522.51	85.34	527.49	85.26	532.46	85.25	537.44	85.3	542.42	85.4
547.39	85.59	552.37	85.47	557.35	85.47	562.32	85.68	567.3	86.05
572.27	85.6	577.25	85.49	582.23	85.37	587.2	85.76	592.18	85.93
597.16	85.98	602.13	85.97						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	288.63	.045	343.36	.06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

288.63	343.36	1568	1568	1568	.1	.3
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Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	288.63	84.5	F
343.36	602.13	84.89	F

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	83.93	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-Val.		0.045
W.S. Elev (ft)	83.93	Reach Len. (ft)	1568.00	1568.00
1568.00				
Crit w.s. (ft)	79.99	Flow Area (sq ft)		119.37
E.G. Slope (ft/ft)	0.000005	Area (sq ft)		119.37
Q Total (cfs)	16.00	Flow (cfs)		16.00
Top width (ft)	44.46	Top width (ft)		44.46
Vel Total (ft/s)	0.13	Avg. Vel. (ft/s)		0.13
Max Chl Dpth (ft)	4.32	Hydr. Depth (ft)		2.69
Conv. Total (cfs)	7442.7	Conv. (cfs)		7442.7
Length wtd. (ft)	1568.00	wetted Per. (ft)		46.01
Min Ch El (ft)	79.61	Shear (lb/sq ft)		0.00
Alpha	1.00	Stream Power (lb/ft s)	602.13	0.00
0.00				
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		5.17
C & E Loss (ft)	0.00	Cum SA (acres)		1.58

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

NM102 OUTPUT REPORT.TXT				
		Element	Left OB	Channel
E.G. Elev (ft)	84.82			
Right OB				
Vel Head (ft)	0.00	wt. n-Val.	0.060	0.045
W.S. Elev (ft)	84.82	Reach Len. (ft)	1568.00	1568.00
1568.00				
Crit w.s. (ft)	80.08	Flow Area (sq ft)	39.58	163.93
E.G. Slope (ft/ft)	0.000004	Area (sq ft)	39.58	163.93
3.50				
Q Total (cfs)	23.00	Flow (cfs)	0.68	22.32
Top width (ft)	313.82	Top width (ft)	237.24	54.21
22.36				
Vel Total (ft/s)	0.11	Avg. Vel. (ft/s)	0.02	0.14
Max Chl Dpth (ft)	5.21	Hydr. Depth (ft)	0.17	3.02
Conv. Total (cfs)	11433.1	Conv. (cfs)	339.7	11093.5
Length wtd. (ft)	1568.00	wetted Per. (ft)	237.44	55.88
Min Ch El (ft)	79.61	Shear (lb/sq ft)	0.00	0.00
Alpha	1.41	Stream Power (lb/ft s)	602.13	0.00
0.00				
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.71	6.71
0.09				
C & E Loss (ft)	0.00	Cum SA (acres)	4.27	1.84
1.03				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

		Element	Left OB	Channel
E.G. Elev (ft)	85.68			
Right OB				
Vel Head (ft)	0.00	wt. n-Val.	0.060	0.045
0.060				
W.S. Elev (ft)	85.68	Reach Len. (ft)	1568.00	1568.00
1568.00				
Crit w.s. (ft)	80.25	Flow Area (sq ft)	284.99	211.03
128.67				
E.G. Slope (ft/ft)	0.000002	Area (sq ft)	284.99	211.03
128.67				
Q Total (cfs)	40.00	Flow (cfs)	10.76	25.88
3.36				
Top width (ft)	577.22	Top width (ft)	288.63	54.73
233.86				
Vel Total (ft/s)	0.06	Avg. Vel. (ft/s)	0.04	0.12
0.03				
Max Chl Dpth (ft)	6.07	Hydr. Depth (ft)	0.99	3.86
0.55				

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Conv. Total (cfs)	25955.9	Conv. (cfs)	6981.3	16794.3
2180.3				
Length wtd. (ft)	1568.00	Wetted Per. (ft)	289.69	56.40
233.95				
Min Ch El (ft)	79.61	Shear (lb/sq ft)	0.00	0.00
0.00				
Alpha	2.48	Stream Power (lb/ft s)	602.13	0.00
0.00				
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	6.22	8.32
5.74				
C & E Loss (ft)	0.00	Cum SA (acres)	10.04	1.88
9.22				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

Profile #ULT 10Y				
E.G. Elev (ft)	84.97	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-Val.	0.060	0.045
0.060				
W.S. Elev (ft)	84.97	Reach Len. (ft)	1568.00	1568.00
1568.00				
Crit w.s. (ft)	80.14	Flow Area (sq ft)	79.22	171.97
10.04				
E.G. Slope (ft/ft)	0.000005	Area (sq ft)	79.22	171.97
10.04				
Q Total (cfs)	29.00	Flow (cfs)	1.93	26.89
0.17				
Top width (ft)	399.08	Top width (ft)	279.19	54.73
65.17				
Vel Total (ft/s)	0.11	Avg. Vel. (ft/s)	0.02	0.16
0.02				
Max Chl Dpth (ft)	5.36	Hydr. Depth (ft)	0.28	3.14
0.15				
Conv. Total (cfs)	12875.3	Conv. (cfs)	857.6	11940.3
77.4				
Length wtd. (ft)	1568.00	Wetted Per. (ft)	279.53	56.40
65.18				
Min Ch El (ft)	79.61	Shear (lb/sq ft)	0.00	0.00
0.00				
Alpha	1.84	Stream Power (lb/ft s)	602.13	0.00
0.00				
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	1.43	6.98
0.43				
C & E Loss (ft)	0.00	Cum SA (acres)	5.02	1.87
3.68				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.

NM102 OUTPUT REPORT.TXT

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

		Element	Left OB	Channel
E.G. Elev (ft)	85.32			
Right OB				
Vel Head (ft)	0.00	wt. n-val.	0.060	0.045
0.060				
W.S. Elev (ft)	85.32	Reach Len. (ft)	1568.00	1568.00
1568.00				
Crit w.s. (ft)	80.24	Flow Area (sq ft)	181.58	191.42
52.48				
E.G. Slope (ft/ft)	0.000005	Area (sq ft)	181.58	191.42
52.48				
Q Total (cfs)	39.00	Flow (cfs)	7.06	30.58
1.35				
Top width (ft)	519.10	Top width (ft)	288.63	54.73
175.74				
Vel Total (ft/s)	0.09	Avg. Vel. (ft/s)	0.04	0.16
0.03				
Max Chl Dpth (ft)	5.71	Hydr. Depth (ft)	0.63	3.50
0.30				
Conv. Total (cfs)	18203.6	Conv. (cfs)	3296.3	14274.9
632.4				
Length wtd. (ft)	1568.00	wetted Per. (ft)	289.33	56.40
175.79				
Min Ch El (ft)	79.61	Shear (lb/sq ft)	0.00	0.00
0.00				
Alpha	2.42	Stream Power (lb/ft s)	602.13	0.00
0.00				
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	3.39	7.64
2.58				
C & E Loss (ft)	0.00	Cum SA (acres)	6.36	1.88
7.94				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

		Element	Left OB	Channel
E.G. Elev (ft)	86.42			
Right OB				
Vel Head (ft)	0.00	wt. n-val.	0.060	0.045
0.060				
W.S. Elev (ft)	86.42	Reach Len. (ft)	1568.00	1568.00
1568.00				
Crit w.s. (ft)	80.42	Flow Area (sq ft)	497.90	251.40
314.26				
E.G. Slope (ft/ft)	0.000002	Area (sq ft)	497.90	251.40
314.26				
Q Total (cfs)	61.00	Flow (cfs)	21.99	27.99
11.01				
Top width (ft)	602.13	Top width (ft)	288.63	54.73
258.77				
Vel Total (ft/s)	0.06	Avg. vel. (ft/s)	0.04	0.11

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0.04				
Max Chl Dpth (ft)	6.81	Hydr. Depth (ft)	1.73	4.59
1.21				
Conv. Total (cfs)	48992.6	Conv. (cfs)	17662.8	22484.0
8845.8				
Length wtd. (ft)	1568.00	Wetted Per. (ft)	290.43	56.40
259.34				
Min Ch El (ft)	79.61	Shear (lb/sq ft)	0.00	0.00
0.00				
Alpha	2.01	Stream Power (lb/ft s)	602.13	0.00
0.00				
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	14.62	9.71
12.78				
C & E Loss (ft)	0.00	Cum SA (acres)	11.64	1.88
9.67				

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-102
 REACH: NM-102-02 RS: 569

INPUT

Description:

Station	Elevation	Data	num=	139							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	85.23	4.97	85.33	9.95	85.31	14.92	85.16	19.89	85.43		
24.87	85.55	29.84	85.47	34.81	85.47	39.79	85.46	44.76	85.48		
49.73	85.6	54.7	85.63	59.68	85.55	64.65	85.51	69.62	85.5		
74.6	85.51	79.57	85.6	84.54	85.61	89.52	85.68	94.49	85.81		
99.46	85.86	104.44	85.77	109.41	85.59	114.38	85.59	119.36	85.67		
124.33	85.68	129.3	85.69	134.27	85.65	139.25	85.66	144.22	85.79		
149.19	85.76	154.17	85.96	159.14	85.95	164.11	85.91	169.09	85.81		
174.06	85.71	179.03	85.71	184.01	85.75	188.98	85.7	193.95	85.89		
198.93	85.93	203.9	85.74	208.87	85.36	213.84	85.05	218.82	85.14		
223.79	85.18	228.76	85.3	233.74	85.5	238.71	85.44	243.68	85.33		
248.66	85.15	253.63	85.39	258.6	85.62	263.58	85.59	268.55	85.65		
273.52	85.67	278.5	85.59	283.47	85.49	288.44	85.4	293.42	85.43		
298.39	85.61	303.36	85.54	308.33	85.61	313.31	85.6	318.28	85.51		
323.25	85.54	328.23	85.27	333.2	85.23	338.17	85.15	343.15	85.23		
348.12	85.39	353.09	85.4	358.07	85	363.04	81.99	368.01	79.49		
372.99	79.46	377.96	78.94	382.93	78.46	387.9	79.15	392.88	79.11		
397.85	80.73	402.82	83.87	407.8	85.15	412.77	84.86	417.74	84.83		
422.72	84.89	427.69	84.89	432.66	84.84	437.64	84.78	442.61	84.8		
447.58	84.87	452.56	84.95	457.53	84.94	462.5	85.17	467.47	85.13		
472.45	84.89	477.42	84.81	482.39	85.01	487.37	85.04	492.34	84.97		
497.31	85.15	502.29	85.22	507.26	85.15	512.23	85.08	517.21	85		
522.18	84.88	527.15	84.94	532.13	84.97	537.1	84.95	542.07	84.82		
547.05	84.79	552.02	84.86	556.99	84.89	561.96	84.97	566.94	85		
571.91	85.01	576.88	84.93	581.86	85.06	586.83	85.17	591.8	85.11		
596.78	84.97	601.75	84.91	606.72	84.91	611.7	84.92	616.67	85.14		
621.64	85.2	626.62	85.17	631.59	85.17	636.56	85.42	641.53	85.55		
646.51	84.81	651.48	84.75	656.45	84.65	661.43	84.78	666.4	84.84		
671.37	85.15	676.35	85.28	681.32	85.31	686.29	85.39				

Manning's n Values

num= 3

NM102 OUTPUT REPORT.TXT

Sta	n Val	Sta	n Val	Sta	n Val			
0	.06	358.07	.045	407.8	.06			
Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	358.07	407.8		569	569		.1	.3
Ineffective Flow		num=	2					
Sta L	Sta R	Elev	Permanent					
0	358.07	85	F					
407.8	686.29	85.15	F					

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	83.93	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-val.		0.045
w.s. Elev (ft)	83.93	Reach Len. (ft)	0.00	0.00
0.00				
Crit w.s. (ft)	79.21	Flow Area (sq ft)		167.86
E.G. slope (ft/ft)	0.000001	Area (sq ft)		167.86
Q Total (cfs)	16.00	Flow (cfs)		16.00
Top width (ft)	43.19	Top width (ft)		43.19
vel Total (ft/s)	0.10	Avg. vel. (ft/s)		0.10
Max Chl Dpth (ft)	5.47	Hydr. Depth (ft)		3.89
Conv. Total (cfs)	13215.4	Conv. (cfs)		13215.4
Length wtd. (ft)	0.00	wetted Per. (ft)		45.60
Min Ch El (ft)	78.46	Shear (lb/sq ft)		0.00
Alpha	1.00	Stream Power (lb/ft s)	686.29	0.00
0.00				
Frctn Loss (ft)	0.00	Cum volume (acre-ft)		
C & E Loss (ft)	0.00	Cum SA (acres)		

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	84.82	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-val.		0.045
w.s. Elev (ft)	84.82	Reach Len. (ft)	0.00	0.00
0.00				
Crit w.s. (ft)	79.29	Flow Area (sq ft)		208.63
E.G. slope (ft/ft)	0.000002	Area (sq ft)		208.63
1.66				
Q Total (cfs)	23.00	Flow (cfs)		23.00

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Top width (ft)	83.10	Top width (ft)	48.14
34.96			
Vel Total (ft/s)	0.11	Avg. Vel. (ft/s)	0.11
Max Chl Dpth (ft)	6.36	Hydr. Depth (ft)	4.33
Conv. Total (cfs)	17642.9	Conv. (cfs)	17642.9
Length wtd. (ft)	0.00	wetted Per. (ft)	50.91
Min Ch El (ft)	78.46	Shear (lb/sq ft)	0.00
Alpha	1.00	Stream Power (lb/ft s)	686.29
0.00			0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	
C & E Loss (ft)	0.00	Cum SA (acres)	

Warning: Divided flow computed for this cross-section.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	85.68	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-Val.	0.060	0.045
0.060				
W.S. Elev (ft)	85.68	Reach Len. (ft)	0.00	0.00
0.00				
Crit w.s. (ft)	79.49	Flow Area (sq ft)	60.37	251.22
190.08				
E.G. slope (ft/ft)	0.000002	Area (sq ft)	60.37	251.22
190.08				
Q Total (cfs)	40.00	Flow (cfs)	0.84	33.91
5.25				
Top width (ft)	597.48	Top width (ft)	269.26	49.73
278.49				
Vel Total (ft/s)	0.08	Avg. Vel. (ft/s)	0.01	0.13
0.03				
Max Chl Dpth (ft)	7.22	Hydr. Depth (ft)	0.22	5.05
0.68				
Conv. Total (cfs)	27757.2	Conv. (cfs)	583.3	23528.3
3645.7				
Length wtd. (ft)	0.00	wetted Per. (ft)	269.81	52.59
278.91				
Min Ch El (ft)	78.46	Shear (lb/sq ft)	0.00	0.00
0.00				
Alpha	2.45	Stream Power (lb/ft s)	686.29	0.00
0.00				
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		
C & E Loss (ft)	0.00	Cum SA (acres)		

Warning: Divided flow computed for this cross-section.

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Warning: The cross-section end points had to be extended vertically for the computed water surface.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	84.96	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-val.		0.045
0.00				
w.s. Elev (ft)	84.96	Reach Len. (ft)	0.00	0.00
0.00				
Crit w.s. (ft)	79.35	Flow Area (sq ft)		215.71
E.G. Slope (ft/ft)	0.000002	Area (sq ft)		215.71
13.73				
Q Total (cfs)	29.00	Flow (cfs)		29.00
Top width (ft)	188.41	Top width (ft)		48.95
139.47				
Vel Total (ft/s)	0.13	Avg. Vel. (ft/s)		0.13
Max chl Dpth (ft)	6.50	Hydr. Depth (ft)		4.41
Conv. Total (cfs)	18442.4	Conv. (cfs)		18442.4
Length wtd. (ft)	0.00	wetted Per. (ft)		51.77
Min ch El (ft)	78.46	Shear (lb/sq ft)		0.00
Alpha	1.00	Stream Power (lb/ft s)	686.29	0.00
0.00				
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		
C & E Loss (ft)	0.00	Cum SA (acres)		

Warning: Divided flow computed for this cross-section.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	85.32	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-val.	0.060	0.045
0.060				
w.s. Elev (ft)	85.32	Reach Len. (ft)	0.00	0.00
0.00				
Crit w.s. (ft)	79.45	Flow Area (sq ft)	6.81	233.28
90.90				
E.G. Slope (ft/ft)	0.000003	Area (sq ft)	6.81	233.28
90.90				
Q Total (cfs)	39.00	Flow (cfs)	0.07	36.97
1.96				
Top width (ft)	380.07	Top width (ft)	64.83	49.73
265.51				
Vel Total (ft/s)	0.12	Avg. Vel. (ft/s)	0.01	0.16

NM102 OUTPUT REPORT.TXT

0.02				
Max Chl Dpth (ft)	6.86	Hydr. Depth (ft)	0.11	4.69
0.34				
Conv. Total (cfs)	21937.6	Conv. (cfs)	39.9	20795.5
1102.1				
Length wtd. (ft)	0.00	Wetted Per. (ft)	64.96	52.59
265.62				
Min Ch El (ft)	78.46	Shear (lb/sq ft)	0.00	0.00
0.00				
Alpha	1.72	Stream Power (lb/ft s)	686.29	0.00
0.00				
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		
C & E Loss (ft)	0.00	Cum SA (acres)		

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	86.42	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-Val.	0.060	0.045
0.060				
W.S. Elev (ft)	86.42	Reach Len. (ft)	0.00	0.00
0.00				
Crit w.s. (ft)	79.63	Flow Area (sq ft)	314.29	287.95
395.82				
E.G. Slope (ft/ft)	0.000002	Area (sq ft)	314.29	287.95
395.82				
Q Total (cfs)	61.00	Flow (cfs)	8.86	36.76
15.38				
Top Width (ft)	686.29	Top Width (ft)	358.07	49.73
278.49				
Vel Total (ft/s)	0.06	Avg. Vel. (ft/s)	0.03	0.13
0.04				
Max Chl Dpth (ft)	7.96	Hydr. Depth (ft)	0.88	5.79
1.42				
Conv. Total (cfs)	49013.6	Conv. (cfs)	7118.0	29538.1
12357.4				
Length wtd. (ft)	0.00	Wetted Per. (ft)	359.38	52.59
279.65				
Min Ch El (ft)	78.46	Shear (lb/sq ft)	0.00	0.00
0.00				
Alpha	2.76	Stream Power (lb/ft s)	686.29	0.00
0.00				
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		
C & E Loss (ft)	0.00	Cum SA (acres)		

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Note: Multiple critical depths were found at this location. The critical depth

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with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-102
 REACH: NM-102B

RS: 12505

INPUT

Description:

Station Elevation Data

num= 414

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	85.3	4.92	85.36	9.83	85.36	14.75	85.33	19.66	85.28
24.58	85.27	29.5	85.36	34.41	85.4	39.33	85.47	44.24	85.61
49.16	85.57	54.08	85.48	58.99	85.31	63.91	85.24	68.82	85.31
73.74	85.31	78.66	85.3	83.57	85.27	88.49	85.29	93.4	85.27
98.32	85.28	103.24	85.3	108.15	85.26	113.07	85.14	117.98	85.17
122.9	85.15	127.81	85.05	132.73	85.15	137.65	85.15	142.56	85.17
147.48	85.15	152.39	85.12	157.31	85.05	162.23	85.04	167.14	85.11
172.06	85.18	176.97	85.15	181.89	85.16	186.81	85.19	191.72	85.12
196.64	85.22	201.55	85.31	206.47	85.34	211.39	85.32	216.3	85.33
221.22	85.42	226.13	85.41	231.05	85.42	235.97	85.54	240.88	85.62
245.8	85.62	250.71	85.57	255.7	85.37	260.69	85.18	265.69	85.17
270.68	85.14	275.67	85.11	280.66	85.17	285.65	85.21	290.64	85.23
295.63	85.19	300.62	85.07	305.61	85.11	310.6	85.2	315.59	85.18
320.58	85.16	325.57	85.22	330.56	85.27	335.55	85.25	340.54	85.17
345.53	85.14	350.52	85.19	355.52	85.22	360.51	85.24	365.5	85.12
370.49	85.1	375.48	85.29	380.47	85.33	385.46	85.48	390.45	85.44
395.44	85.6	400.43	85.62	405.42	85.7	410.41	85.78	415.4	85.83
420.39	85.8	425.38	85.39	430.37	85.39	435.36	85.08	440.35	85.07
445.35	85.32	450.34	85.32	455.33	85.1	460.32	85.09	465.31	85.06
470.3	85.07	475.29	85.07	480.28	85.1	485.27	85.05	490.26	85.07
495.25	85.07	500.24	84.99	505.23	84.97	510.22	85.05	515.21	85.07
520.2	85.04	525.19	85.11	530.18	85.1	535.17	85.08	540.17	85.05
545.16	84.93	550.15	85.01	555.14	85.02	560.13	84.99	565.12	85.03
570.11	84.92	575.1	84.89	580.09	84.9	585.08	84.8	590.07	84.77
595.06	84.78	600.05	84.8	605.04	84.8	610.03	84.81	615.02	84.85
620.01	84.88	625.01	85.11	630	85.48	634.99	85.53	639.98	85.37
644.97	85.3	649.96	85.29	654.95	85.32	659.94	85.44	664.93	85.54
669.92	85.47	674.91	85.34	679.9	85.33	684.89	85.36	689.88	85.31
694.87	85.33	699.86	85.51	704.85	85.41	709.85	85.32	714.84	85.28
719.83	85.15	724.82	84.77	729.81	84.73	734.8	84.62	739.79	84.54
744.78	84.62	749.77	84.65	754.76	84.7	759.75	84.9	764.74	84.83
769.73	84.78	774.72	84.78	779.71	84.78	784.7	84.82	789.69	84.93
794.68	85.02	799.68	85.37	804.67	85.73	809.66	85.49	814.65	85.47
819.64	85.64	824.63	85.82	829.62	85.84	834.61	85.67	839.6	85.64
844.59	85.64	849.58	85.43	854.57	85.59	859.56	85.62	864.55	85.16
869.54	85.49	874.53	85.57	879.52	85.58	884.52	84.92	889.51	84.81
894.5	84.78	899.49	84.78	904.48	84.8	909.47	85.18	914.46	84.3
919.45	80.92	924.44	79.99	929.43	78.99	934.42	79.47	939.41	84.24
944.4	85.9	949.39	86.84	954.38	87.06	959.37	87.06	964.36	87.07
969.35	86.82	974.35	86.39	979.34	86.11	984.33	86.02	989.32	85.92
994.31	85.74	999.3	85.7	1004.29	85.64	1009.28	85.6	1014.27	85.54
1019.26	85.45	1024.25	85.42	1029.24	85.42	1034.23	85.22	1039.22	84.85
1044.21	84.71	1049.2	84.72	1054.19	84.61	1059.18	84.55	1064.18	84.63
1069.17	84.62	1074.16	84.62	1079.15	84.7	1084.14	84.8	1089.13	84.98
1094.12	85.14	1099.11	85.3	1104.1	85.67	1109.09	85.67	1114.08	85.57
1119.07	85.62	1124.06	85.75	1129.05	85.99	1134.04	86.25	1139.03	86.2
1144.02	85.91	1149.02	85.57	1154.01	85.7	1159	85.64	1163.99	85.4
1168.98	85.48	1173.97	85.68	1178.96	85.7	1183.95	85.59	1188.94	85.45
1193.93	85.45	1198.92	85.47	1203.91	85.48	1208.9	85.54	1213.89	85.3
1218.88	84.83	1223.87	84.79	1228.86	84.9	1233.85	85.2	1238.85	85.22
1243.84	85.24	1248.83	84.84	1253.82	84.9	1258.81	85.06	1263.8	85.07

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1268.79	85.31	1273.78	85.42	1278.77	85.52	1283.76	85.3	1288.75	85.27
1293.74	85.16	1298.73	85.06	1303.72	85.15	1308.71	85.22	1313.7	85.07
1318.69	85.02	1323.68	85.14	1328.68	85.17	1333.67	85.1	1338.66	85.17
1343.65	85.17	1348.64	85.15	1353.63	85.28	1358.62	85.11	1363.61	84.93
1368.6	84.99	1373.59	85.09	1378.58	85.01	1383.57	85.03	1388.56	85.14
1393.55	85.19	1398.54	85.23	1403.53	85.12	1408.52	85.13	1413.52	85.2
1418.51	85.17	1423.5	85.02	1428.49	84.93	1433.48	84.94	1438.47	85.01
1443.46	85.06	1448.45	84.88	1453.44	84.82	1458.43	84.91	1463.42	84.94
1468.41	85	1473.4	85.06	1478.39	85.04	1483.38	85.03	1488.37	85.08
1493.36	85.22	1498.35	85.14	1503.35	85.18	1508.34	85.3	1513.33	85.16
1518.32	85.13	1523.31	85.1	1528.3	85.06	1533.29	84.95	1538.28	84.95
1543.27	85.04	1548.26	84.99	1553.25	84.91	1558.24	85.33	1563.23	85.47
1568.22	85.42	1573.21	85.12	1578.2	84.89	1583.19	84.97	1588.19	85.01
1593.18	85.07	1598.17	85.08	1603.16	84.88	1608.15	84.88	1613.14	84.94
1618.13	85.11	1623.12	85.16	1628.11	85.29	1633.08	85.27	1638.05	85.5
1643.02	85.29	1647.98	85.51	1652.95	85.5	1657.92	85.37	1662.89	85.24
1667.86	85.13	1672.83	85.07	1677.8	85.18	1682.77	85.31	1687.73	85.29
1692.7	85.3	1697.67	85.16	1702.64	85.15	1707.61	85.31	1712.58	85.36
1717.55	85.2	1722.51	85.07	1727.48	85.06	1732.45	84.98	1737.42	84.94
1742.39	84.8	1747.36	84.83	1752.33	84.75	1757.29	84.67	1762.26	84.8
1767.23	84.88	1772.2	84.87	1777.17	84.94	1782.14	84.81	1787.11	84.61
1792.08	84.75	1797.04	85.01	1802.01	85.24	1806.98	85.23	1811.95	85.04
1816.92	84.99	1821.89	84.93	1826.86	84.9	1831.82	84.79	1836.79	84.89
1841.76	84.96	1846.73	84.79	1851.7	84.71	1856.67	84.73	1861.64	84.75
1866.6	84.8	1871.57	84.84	1876.54	84.82	1881.51	84.74	1886.48	84.8
1891.45	84.73	1896.42	84.65	1901.39	84.67	1906.35	84.81	1911.32	84.93
1916.29	84.7	1921.26	84.71	1926.23	84.88	1931.2	84.94	1936.17	84.62
1941.13	84.61	1946.1	84.71	1951.07	84.77	1956.04	84.75	1961.01	84.74
1965.98	84.74	1970.95	84.66	1975.92	84.6	1980.88	84.61	1985.85	84.71
1990.82	84.85	1995.79	85	2000.76	85.08	2005.73	85.08	2010.7	85.13
2015.66	85.23	2020.63	85.43	2025.6	85.56	2030.57	85.32	2035.54	85.32
2040.51	85.43	2045.48	85.49	2050.44	85.41	2055.41	85.3		

Manning's n values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 909.47 .045 944.4 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 909.47 944.4 1001 1001 1001 .1 .3
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 909.47 85.18 F
 944.4 2055.41 85.9 F

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	83.92	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-Val.		0.045
w.s. Elev (ft)	83.91	Reach Len. (ft)	1001.00	1001.00
1001.00 Crit w.s. (ft)	80.68	Flow Area (sq ft)		79.44
E.G. slope (ft/ft)	0.000260	Area (sq ft)		79.44
Q Total (cfs)	87.00	Flow (cfs)		87.00
Top width (ft)	24.02	Top width (ft)		24.02
Vel Total (ft/s)	1.10	Avg. Vel. (ft/s)		1.10

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Max Chl Dpth (ft)	4.92	Hydr. Depth (ft)		3.31
Conv. Total (cfs)	5396.9	Conv. (cfs)		5396.9
Length Wtd. (ft)	1001.00	Wetted Per. (ft)		26.92
Min Ch El (ft)	78.99	Shear (lb/sq ft)		0.05
Alpha 0.00	1.00	Stream Power (lb/ft s)	2055.41	0.00
Frctn Loss (ft)	0.23	Cum Volume (acre-ft)	0.15	8.42
C & E Loss (ft)	0.00	Cum SA (acres)	1.65	1.74

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	84.82	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-Val.		0.045
W.S. Elev (ft)	84.80	Reach Len. (ft)	1001.00	1001.00
1001.00 Crit w.s. (ft)	80.92	Flow Area (sq ft)		102.66
E.G. Slope (ft/ft)	0.000259	Area (sq ft)	5.05	102.66
17.18 Q Total (cfs)	117.00	Flow (cfs)		117.00
Top width (ft)	280.44	Top width (ft)	71.43	29.44
179.58 Vel Total (ft/s)	1.14	Avg. Vel. (ft/s)		1.14
Max Chl Dpth (ft)	5.81	Hydr. Depth (ft)		3.49
Conv. Total (cfs)	7264.6	Conv. (cfs)		7264.6
Length Wtd. (ft)	1001.00	Wetted Per. (ft)		32.73
Min Ch El (ft)	78.99	Shear (lb/sq ft)		0.05
Alpha 0.00	1.00	Stream Power (lb/ft s)	2055.41	0.00
Frctn Loss (ft)	0.23	Cum Volume (acre-ft)	22.34	10.75
0.52 C & E Loss (ft)	0.00	Cum SA (acres)	47.04	1.98
5.03				

Warning: Divided flow computed for this cross-section.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

NM102 OUTPUT REPORT.TXT				
		Element	Left OB	Channel
E.G. Elev (ft)	85.68			
Right OB				
Vel Head (ft)	0.01	wt. n-Val.	0.060	0.045
W.S. Elev (ft)	85.67	Reach Len. (ft)	1001.00	1001.00
1001.00				
Crit w.s. (ft)	81.43	Flow Area (sq ft)	420.59	131.05
E.G. Slope (ft/ft)	0.000142	Area (sq ft)	420.59	131.05
605.61				
Q Total (cfs)	197.00	Flow (cfs)	78.53	118.47
Top width (ft)	1926.36	Top width (ft)	874.99	34.24
1017.13				
Vel Total (ft/s)	0.36	Avg. Vel. (ft/s)	0.19	0.90
Max Chl Dpth (ft)	6.68	Hydr. Depth (ft)	0.48	3.83
Conv. Total (cfs)	16510.4	Conv. (cfs)	6581.9	9928.5
Length wtd. (ft)	1001.00	wetted Per. (ft)	875.63	37.71
Min Ch El (ft)	78.99	Shear (lb/sq ft)	0.00	0.03
Alpha	3.96	Stream Power (lb/ft s)	2055.41	0.00
0.00				
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	83.33	14.42
41.77				
C & E Loss (ft)	0.00	Cum SA (acres)	57.94	2.24
62.93				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

		Element	Left OB	Channel
E.G. Elev (ft)	84.96			
Right OB				
Vel Head (ft)	0.02	wt. n-Val.		0.045
W.S. Elev (ft)	84.94	Reach Len. (ft)	1001.00	1001.00
1001.00				
Crit w.s. (ft)	80.95	Flow Area (sq ft)		107.07
E.G. Slope (ft/ft)	0.000250	Area (sq ft)	21.98	107.07
54.86				
Q Total (cfs)	120.00	Flow (cfs)		120.00
Top width (ft)	516.58	Top width (ft)	143.48	30.71
342.39				
Vel Total (ft/s)	1.12	Avg. Vel. (ft/s)		1.12
Max Chl Dpth (ft)	5.95	Hydr. Depth (ft)		3.49

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Conv. Total (cfs)	7590.8	Conv. (cfs)	7590.8
Length Wtd. (ft)	1001.00	Wetted Per. (ft)	34.04
Min Ch El (ft)	78.99	Shear (lb/sq ft)	0.05
Alpha	1.00	Stream Power (lb/ft s)	2055.41
0.00			0.00
Frctn Loss (ft)	0.22	Cum Volume (acre-ft)	30.16
1.70			11.21
C & E Loss (ft)	0.00	Cum SA (acres)	48.25
10.59			2.03

Warning: Divided flow computed for this cross-section.
 Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	85.32	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	wt. n-val.	0.060	0.045
W.S. Elev (ft)	85.30	Reach Len. (ft)	1001.00	1001.00
1001.00				
Crit w.s. (ft)	81.19	Flow Area (sq ft)	140.36	118.60
E.G. slope (ft/ft)	0.000234	Area (sq ft)	140.36	118.60
264.92				
Q Total (cfs)	156.00	Flow (cfs)	24.61	131.39
Top width (ft)	1415.31	Top width (ft)	574.87	33.13
807.32				
Vel Total (ft/s)	0.60	Avg. vel. (ft/s)	0.18	1.11
Max Chl Dpth (ft)	6.31	Hydr. Depth (ft)	0.24	3.58
Conv. Total (cfs)	10192.9	Conv. (cfs)	1607.8	8585.2
Length Wtd. (ft)	1001.00	Wetted Per. (ft)	575.02	36.54
Min Ch El (ft)	78.99	Shear (lb/sq ft)	0.00	0.05
Alpha	2.86	Stream Power (lb/ft s)	2055.41	0.00
0.00				
Frctn Loss (ft)	0.03	Cum volume (acre-ft)	62.19	13.03
19.80				
C & E Loss (ft)	0.00	Cum SA (acres)	53.75	2.17
49.41				

Warning: Divided flow computed for this cross-section.
 Warning: The cross-section end points had to be extended vertically for the computed water surface.
 Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.
 Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

NM102 OUTPUT REPORT.TXT

CROSS SECTION OUTPUT Profile #ULT 100Y

		Element	Left OB	Channel
E.G. Elev (ft)	86.42			
Right OB				
Vel Head (ft)	0.00	wt. n-val.	0.060	0.045
0.060				
W.S. Elev (ft)	86.42	Reach Len. (ft)	1001.00	1001.00
1001.00				
Crit w.s. (ft)	81.70	Flow Area (sq ft)	1096.55	157.06
1397.87				
E.G. slope (ft/ft)	0.000008	Area (sq ft)	1096.55	157.06
1397.87				
Q Total (cfs)	247.00	Flow (cfs)	89.30	38.52
119.18				
Top width (ft)	2028.54	Top width (ft)	909.47	34.93
1084.14				
Vel Total (ft/s)	0.09	Avg. vel. (ft/s)	0.08	0.25
0.09				
Max Chl Dpth (ft)	7.43	Hydr. Depth (ft)	1.21	4.50
1.29				
Conv. Total (cfs)	85002.5	Conv. (cfs)	30731.5	13256.7
41014.3				
Length wtd. (ft)	1001.00	wetted Per. (ft)	910.88	38.43
1085.69				
Min Ch El (ft)	78.99	Shear (lb/sq ft)	0.00	0.00
0.00				
Alpha	1.76	Stream Power (lb/ft s)	2055.41	0.00
0.00				
Frctn Loss (ft)	0.00	Cum volume (acre-ft)	131.48	16.96
105.82				
C & E Loss (ft)	0.00	Cum SA (acres)	60.38	2.31
77.53				

Warning: Divided flow computed for this cross-section.
 Warning: The cross-section end points had to be extended vertically for the computed water surface.
 Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.
 Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-102
 REACH: NM-102B RS: 11504

INPUT

Description:

Station	Elevation	Data	num=	413							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	83.76	4.87	83.78	9.75	83.82	14.62	83.99	19.49	84.1		
24.37	83.97	29.24	83.86	34.11	83.91	38.99	83.96	43.86	83.95		
48.73	83.83	53.61	83.69	58.48	83.75	63.35	83.84	68.23	83.85		
73.1	83.99	77.97	83.97	82.85	83.9	87.72	83.93	92.59	84		
97.46	84.01	102.46	84.24	107.45	84.13	112.45	84.05	117.44	84.02		
122.43	84.02	127.43	84.06	132.42	84.08	137.41	84.01	142.41	83.97		
147.4	84.06	152.4	84.11	157.39	83.97	162.38	83.94	167.38	83.83		

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172.37	83.66	177.36	83.55	182.36	83.5	187.35	83.41	192.35	83.48
197.34	83.61	202.33	83.63	207.33	83.6	212.32	83.75	217.31	83.82
222.31	83.89	227.3	83.85	232.3	83.78	237.29	83.73	242.28	83.93
247.28	83.99	252.27	84.05	257.26	84.08	262.26	83.95	267.25	83.84
272.25	83.65	277.24	83.66	282.23	83.8	287.23	83.73	292.22	83.66
297.22	83.75	302.21	83.72	307.2	83.65	312.2	83.68	317.19	83.58
322.18	83.49	327.18	83.72	332.17	83.92	337.17	83.86	342.16	83.81
347.15	83.86	352.15	83.89	357.14	83.91	362.13	83.95	367.13	84.06
372.12	84.13	377.12	84.13	382.11	84.17	387.1	83.99	392.1	83.83
397.09	83.83	402.08	83.89	407.08	83.92	412.07	84.01	417.07	83.92
422.06	83.91	427.05	83.97	432.05	83.94	437.04	84.09	442.03	84.1
447.03	84.07	452.02	84	457.02	83.89	462.01	83.85	467	84.01
472	83.85	476.99	83.9	481.98	83.89	486.98	83.97	491.97	83.87
496.97	83.85	501.96	84.12	506.95	84.12	511.95	84.12	516.94	84.17
521.93	84.38	526.93	84.38	531.92	84.38	536.92	84.32	541.91	84.13
546.9	84.11	551.9	84.02	556.89	83.97	561.88	84.01	566.88	83.98
571.87	83.95	576.87	83.87	581.86	83.86	586.85	83.81	591.85	83.79
596.84	83.9	601.84	83.92	606.83	83.99	611.82	83.99	616.82	84
621.81	83.97	626.8	84.04	631.8	84.03	636.79	83.87	641.79	84.01
646.78	84.08	651.77	84.09	656.77	84.21	661.76	84.3	666.75	84.29
671.75	84.4	676.74	84.42	681.74	84.26	686.73	84.17	691.72	84.16
696.72	84.17	701.71	84.05	706.7	83.99	711.7	83.88	716.69	83.85
721.69	83.97	726.68	84	731.67	84.03	736.67	84.1	741.66	84.05
746.65	84.09	751.65	84.15	756.64	84.16	761.64	84.15	766.63	84.16
771.62	84.13	776.62	84.19	781.61	84.35	786.6	84.34	791.6	84.32
796.59	84.26	801.59	84.15	806.58	84.18	811.57	84.25	816.57	84.24
821.56	84.32	826.55	84.35	831.55	84.4	836.54	84.66	841.54	84.9
846.53	84.82	851.52	84.38	856.52	84.09	861.51	84.12	866.5	84.61
871.5	84.59	876.49	84.42	881.49	84.14	886.48	84.3	891.47	84.46
896.47	84.49	901.46	84.18	906.46	84.65	911.45	84.83	916.44	84.76
921.44	82.05	926.43	77.92	931.42	78.13	936.42	79.47	941.41	83.22
946.41	86.13	951.4	86.65	956.39	86.64	961.39	86.55	966.38	86.62
971.37	86.72	976.37	86.72	981.36	86.56	986.36	85.64	991.35	84.25
996.34	84.22	1001.34	84.5	1006.33	84.48	1011.32	84.39	1016.32	84.38
1021.31	84.44	1026.31	84.49	1031.3	84.53	1036.29	84.87	1041.29	84.95
1046.28	84.96	1051.27	85.01	1056.27	85.14	1061.26	85.17	1066.26	85.15
1071.25	85.36	1076.24	85.63	1081.24	85.72	1086.23	85.31	1091.22	85.27
1096.22	85.24	1101.21	85.2	1106.21	85.13	1111.2	84.99	1116.19	84.86
1121.19	84.82	1126.18	84.81	1131.18	84.99	1136.17	85.37	1141.16	85.37
1146.16	85.29	1151.15	85.16	1156.14	85.24	1161.14	85.23	1166.13	85.14
1171.12	85.3	1176.12	85.45	1181.11	85.57	1186.11	85.66	1191.1	85.63
1196.09	85.75	1201.09	85.76	1206.08	85.53	1211.08	85.36	1216.07	85.3
1221.06	85.04	1226.06	84.73	1231.05	84.78	1236.04	84.74	1241.04	84.81
1246.03	84.96	1251.03	85.09	1256.02	85.25	1261.01	85.35	1266.01	85
1271	84.95	1275.99	84.99	1280.99	85.01	1285.98	84.95	1290.98	85.06
1295.97	85.07	1300.96	85.08	1305.96	85.16	1310.95	85.13	1315.94	85.43
1320.94	85.38	1325.93	85.13	1330.93	84.84	1335.92	84.81	1340.91	84.85
1345.91	84.88	1350.9	84.84	1355.89	84.74	1360.89	84.78	1365.88	84.99
1370.88	85.02	1375.87	84.87	1380.86	84.88	1385.86	84.76	1390.85	84.97
1395.84	84.99	1400.84	84.95	1405.83	85.07	1410.83	84.68	1415.82	84.72
1420.81	84.69	1425.81	84.64	1430.8	84.69	1435.8	84.69	1440.79	84.83
1445.78	84.81	1450.78	85.26	1455.77	85.3	1460.76	84.92	1465.76	84.76
1470.75	84.74	1475.75	85.05	1480.74	85.06	1485.73	85.03	1490.73	84.89
1495.72	84.94	1500.71	84.93	1505.71	85.05	1510.7	85	1515.7	85.13
1520.69	85.11	1525.68	84.99	1530.68	84.89	1535.67	84.8	1540.66	84.79
1545.66	84.68	1550.65	85.07	1555.65	85.02	1560.64	84.92	1565.63	85
1570.63	85.04	1575.62	84.92	1580.61	84.82	1585.61	84.81	1590.6	84.77
1595.6	84.75	1600.59	84.81	1605.58	84.88	1610.58	84.9	1615.57	84.81
1620.56	84.96	1625.56	85.11	1630.55	85.03	1635.55	85.05	1640.54	85.03
1645.53	84.89	1650.53	84.88	1655.52	84.83	1660.51	84.94	1665.51	85.11
1670.5	85.11	1675.5	85.07	1680.49	85.02	1685.48	85	1690.48	84.92
1695.47	84.9	1700.46	84.93	1705.46	85.1	1710.45	85.24	1715.45	85.33
1720.44	85.51	1725.43	85.36	1730.43	85.39	1735.42	85.44	1740.42	85.43

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1745.41	85.39	1750.4	85.46	1755.4	85.42	1760.39	85.46	1765.38	85.5
1770.38	85.59	1775.37	85.47	1780.37	85.5	1785.36	85.48	1790.35	85.62
1795.34	85.62	1800.32	85.64	1805.3	85.68	1810.29	85.69	1815.27	85.87
1820.25	85.91	1825.23	85.92	1830.22	85.63	1835.2	85.93	1840.18	85.8
1845.17	85.79	1850.15	85.48	1855.13	85.53	1860.12	85.56	1865.1	85.56
1870.08	85.19	1875.07	85.08	1880.05	85.15	1885.03	85.18	1890.01	85.14
1895	85.1	1899.98	85.09	1904.96	85.1	1909.95	85.25	1914.93	85.24
1919.91	85.19	1924.9	84.98	1929.88	84.9	1934.86	84.98	1939.84	85.15
1944.83	85.13	1949.81	85.11	1954.79	85.1	1959.78	84.98	1964.76	85.14
1969.74	85.27	1974.73	85.25	1979.71	85.43	1984.69	85.7	1989.68	85.79
1994.66	85.89	1999.64	85.78	2004.63	85.71	2009.61	85.72	2014.59	85.69
2019.57	85.79	2024.56	85.76	2029.54	85.46	2034.52	85.35	2039.51	85.39
2044.49	85.45	2049.47	85.55	2054.46	85.54				

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 916.44 .045 946.41 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 916.44 946.41 1216 1216 1216 .1 .3
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 916.44 84.76 F
 946.41 2054.46 86.13 F

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	83.69	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-val.		0.045
w.s. Elev (ft)	83.67	Reach Len. (ft)	1216.00	1216.00
1216.00 Crit w.s. (ft)	79.65	Flow Area (sq ft)		85.19
E.G. slope (ft/ft)	0.000209	Area (sq ft)	6.08	85.19
Q Total (cfs)	87.00	Flow (cfs)		87.00
Top width (ft)	88.72	Top width (ft)	64.98	23.75
vel Total (ft/s)	1.02	Avg. vel. (ft/s)		1.02
Max Chl Dpth (ft)	5.75	Hydr. Depth (ft)		3.59
Conv. Total (cfs)	6022.0	Conv. (cfs)		6022.0
Length wtd. (ft)	1216.00	wetted Per. (ft)		27.20
Min Ch El (ft)	77.92	Shear (lb/sq ft)		0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	2054.46	0.00
Frctn Loss (ft)	0.28	Cum volume (acre-ft)	0.08	6.53
C & E Loss (ft)	0.00	Cum SA (acres)	0.91	1.20

Warning: Divided flow computed for this cross-section.
 Note: Multiple critical depths were found at this location. The critical depth
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NM102 OUTPUT REPORT.TXT

with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	84.59	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	Wt. n-Val.		0.045
W.S. Elev (ft)	84.57	Reach Len. (ft)	1216.00	1216.00
1216.00 Crit w.s. (ft)	79.93	Flow Area (sq ft)		107.87
E.G. slope (ft/ft)	0.000203	Area (sq ft)	507.04	107.87
6.48 Q Total (cfs)	117.00	Flow (cfs)		117.00
Top width (ft)	953.54	Top width (ft)	884.95	26.93
41.66 Vel Total (ft/s)	1.08	Avg. Vel. (ft/s)		1.08
Max chl Dpth (ft)	6.65	Hydr. Depth (ft)		4.00
Conv. Total (cfs)	8204.1	Conv. (cfs)		8204.1
Length wtd. (ft)	1216.00	wetted Per. (ft)		30.86
Min Ch El (ft)	77.92	Shear (lb/sq ft)		0.04
Alpha	1.00	Stream Power (lb/ft s)	2054.46	0.00
0.00 Frctn Loss (ft)	0.27	Cum Volume (acre-ft)	16.45	8.33
0.24 C & E Loss (ft)	0.00	Cum SA (acres)	36.05	1.33
2.49				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	85.65	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	Wt. n-Val.	0.060	0.045
W.S. Elev (ft)	85.65	Reach Len. (ft)	1216.00	1216.00
1216.00 Crit w.s. (ft)	80.53	Flow Area (sq ft)	1494.43	138.39
E.G. slope (ft/ft)	0.000010	Area (sq ft)	1494.43	138.39
557.92 Q Total (cfs)	197.00	Flow (cfs)	160.13	36.87
Top width (ft)	1908.36	Top width (ft)	916.44	29.15
962.77 Vel Total (ft/s)	0.12	Avg. Vel. (ft/s)	0.11	0.27

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Max Chl Dpth (ft)	7.73	Hydr. Depth (ft)	1.63	4.75
Conv. Total (cfs)	62981.2	Conv. (cfs)	51194.8	11786.3
Length Wtd. (ft)	1216.00	Wetted Per. (ft)	918.58	33.41
Min Ch El (ft)	77.92	Shear (lb/sq ft)	0.00	0.00
Alpha	1.55	Stream Power (lb/ft s)	2054.46	0.00
0.00		Cum Volume (acre-ft)	61.32	11.32
Frctn Loss (ft)	0.03	Cum SA (acres)	37.35	1.52
28.40				
C & E Loss (ft)	0.00			
40.18				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	84.74	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	wt. n-Val.		0.045
W.S. Elev (ft)	84.73	Reach Len. (ft)	1216.00	1216.00
1216.00				
Crit w.s. (ft)	79.95	Flow Area (sq ft)		112.12
E.G. Slope (ft/ft)	0.000193	Area (sq ft)	646.81	112.12
14.31				
Q Total (cfs)	120.00	Flow (cfs)		120.00
Top width (ft)	1000.25	Top width (ft)	898.83	27.49
73.94				
Vel Total (ft/s)	1.07	Avg. Vel. (ft/s)		1.07
Max Chl Dpth (ft)	6.81	Hydr. Depth (ft)		4.08
Conv. Total (cfs)	8632.0	Conv. (cfs)		8632.0
Length Wtd. (ft)	1216.00	Wetted Per. (ft)		31.50
Min Ch El (ft)	77.92	Shear (lb/sq ft)		0.04
Alpha	1.00	Stream Power (lb/ft s)	2054.46	0.00
0.00		Cum Volume (acre-ft)	22.47	8.69
Frctn Loss (ft)	0.26	Cum SA (acres)	36.27	1.36
0.91				
C & E Loss (ft)	0.00			
5.81				

Warning: Divided flow computed for this cross-section.

NM102 OUTPUT REPORT.TXT

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	85.28	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-Val.	0.060	0.045
0.060				
W.S. Elev (ft)	85.28	Reach Len. (ft)	1216.00	1216.00
1216.00				
Crit w.s. (ft)	80.24	Flow Area (sq ft)	1152.60	127.64
E.G. Slope (ft/ft)	0.000013	Area (sq ft)	1152.60	127.64
239.60				
Q Total (cfs)	156.00	Flow (cfs)	118.65	37.35
Top width (ft)	1680.96	Top width (ft)	916.44	28.51
736.01				
Vel Total (ft/s)	0.12	Avg. Vel. (ft/s)	0.10	0.29
Max chl Dpth (ft)	7.36	Hydr. Depth (ft)	1.26	4.48
Conv. Total (cfs)	43671.2	Conv. (cfs)	33216.0	10455.2
Length wtd. (ft)	1216.00	wetted Per. (ft)	918.21	32.67
Min ch El (ft)	77.92	Shear (lb/sq ft)	0.00	0.00
Alpha	1.92	Stream Power (lb/ft s)	2054.46	0.00
0.00				
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	47.33	10.20
14.00				
C & E Loss (ft)	0.00	Cum SA (acres)	36.62	1.46
31.68				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	86.41	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-Val.	0.060	0.045
0.060				
W.S. Elev (ft)	86.41	Reach Len. (ft)	1216.00	1216.00
1216.00				
Crit w.s. (ft)	80.84	Flow Area (sq ft)	2192.85	161.04
1361.83				
E.G. Slope (ft/ft)	0.000003	Area (sq ft)	2192.85	161.04
1361.83				

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Q Total (cfs) 64.47	247.00	Flow (cfs)	158.23	24.30
Top width (ft) 1075.03	2021.44	Top width (ft)	916.44	29.97
Vel Total (ft/s) 0.05	0.07	Avg. Vel. (ft/s)	0.07	0.15
Max Chl Dpth (ft) 1.27	8.49	Hydr. Depth (ft)	2.39	5.37
Conv. Total (cfs) 39498.6	151338.4	Conv. (cfs)	96948.5	14891.4
Length wtd. (ft) 1076.57	1216.00	wetted Per. (ft)	919.34	34.36
Min Ch El (ft) 0.00	77.92	Shear (lb/sq ft)	0.00	0.00
Alpha 0.00	1.39	Stream Power (lb/ft s)	2054.46	0.00
Frctn Loss (ft) 74.11	0.00	Cum Volume (acre-ft)	93.69	13.31
C & E Loss (ft) 52.72	0.00	Cum SA (acres)	39.40	1.56

Warning: Divided flow computed for this cross-section.
 Warning: The cross-section end points had to be extended vertically for the computed water surface.
 Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-102
 REACH: NM-102B RS: 10288

INPUT

Description:

Station	Elevation	Data	num=	414							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	83.86	4.86	83.87	9.73	83.87	14.59	83.82	19.45	83.93		
24.31	83.88	29.18	83.86	34.04	83.79	38.9	83.85	43.77	83.85		
48.63	83.87	53.49	83.89	58.35	83.87	63.22	83.88	68.08	83.87		
72.94	83.83	77.8	83.84	82.67	83.87	87.53	83.89	92.39	83.92		
97.26	83.9	102.12	83.87	106.98	83.88	111.84	83.86	116.71	83.85		
121.57	83.9	126.43	83.82	131.3	83.86	136.16	83.84	141.02	83.85		
145.88	83.89	150.88	83.86	155.87	83.85	160.86	83.85	165.85	83.78		
170.85	83.9	175.84	83.9	180.83	83.89	185.82	83.88	190.82	83.83		
195.81	83.82	200.8	83.82	205.79	83.87	210.78	83.89	215.78	83.92		
220.77	83.9	225.76	83.89	230.75	83.87	235.75	83.81	240.74	83.76		
245.73	83.76	250.72	83.85	255.72	83.84	260.71	83.87	265.7	83.89		
270.69	83.88	275.69	83.87	280.68	83.87	285.67	83.88	290.66	83.84		
295.66	83.9	300.65	83.94	305.64	83.92	310.63	83.95	315.62	83.93		
320.62	83.9	325.61	83.89	330.6	83.93	335.59	83.88	340.59	83.82		
345.58	83.85	350.57	83.86	355.56	83.87	360.56	83.89	365.55	83.9		
370.54	83.92	375.53	83.91	380.52	83.92	385.52	83.92	390.51	83.89		
395.5	83.93	400.49	83.96	405.49	83.96	410.48	83.94	415.47	84.02		
420.46	83.99	425.46	83.97	430.45	83.99	435.44	83.95	440.43	83.95		
445.43	83.94	450.42	84	455.41	84.11	460.4	84.08	465.4	83.94		
470.39	83.9	475.38	83.97	480.37	83.98	485.36	83.97	490.36	84.05		
495.35	84.11	500.34	83.99	505.33	84	510.33	84.06	515.32	84.06		
520.31	84.12	525.3	84.12	530.3	84.14	535.29	83.93	540.28	84.09		
545.27	84.07	550.27	84	555.26	84.02	560.25	83.92	565.24	83.92		
570.23	84.06	575.23	83.96	580.22	83.88	585.21	83.9	590.2	83.91		

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595.2	84	600.19	83.99	605.18	83.88	610.17	83.87	615.17	83.85
620.16	83.86	625.15	83.92	630.14	83.95	635.14	83.95	640.13	83.96
645.12	83.93	650.11	83.87	655.1	83.96	660.1	83.99	665.09	83.94
670.08	83.9	675.07	83.84	680.07	83.89	685.06	83.92	690.05	83.92
695.04	83.93	700.04	83.88	705.03	83.86	710.02	83.85	715.01	83.79
720.01	83.79	725	83.79	729.99	83.83	734.98	83.78	739.97	83.73
744.97	83.73	749.96	83.84	754.95	83.94	759.94	83.87	764.94	83.81
769.93	83.83	774.92	83.83	779.91	83.83	784.91	83.92	789.9	83.97
794.89	83.89	799.88	83.86	804.88	83.84	809.87	83.8	814.86	83.85
819.85	83.92	824.85	83.84	829.84	83.78	834.83	83.75	839.82	83.75
844.81	83.86	849.81	83.92	854.8	83.86	859.79	83.79	864.78	83.7
869.78	83.75	874.77	83.77	879.76	83.78	884.75	83.8	889.75	83.85
894.74	83.76	899.73	83.78	904.72	84	909.72	84.89	914.71	85.93
919.7	85.7	924.69	83.6	929.68	78.26	934.68	77.78	939.67	80.16
944.66	81.01	949.65	86.1	954.65	87.11	959.64	87.2	964.63	87.2
969.62	87.35	974.62	87.55	979.61	87.65	984.6	87.59	989.59	86.84
994.59	84.33	999.58	84.27	1004.57	84.28	1009.56	84.14	1014.55	84.16
1019.55	84.32	1024.54	84.22	1029.53	84.2	1034.52	84.23	1039.52	84.2
1044.51	84.28	1049.5	84.28	1054.49	84.37	1059.49	84.35	1064.48	84.49
1069.47	84.51	1074.46	84.51	1079.46	84.84	1084.45	84.98	1089.44	84.97
1094.43	84.9	1099.42	84.79	1104.42	84.66	1109.41	84.62	1114.4	84.84
1119.39	84.69	1124.39	84.42	1129.38	84.29	1134.37	84.29	1139.36	84.44
1144.36	84.69	1149.35	84.7	1154.34	84.63	1159.33	84.97	1164.33	85.19
1169.32	85.36	1174.31	85.44	1179.3	85.35	1184.29	85.32	1189.29	84.85
1194.28	84.55	1199.27	84.94	1204.26	85.57	1209.26	85.1	1214.25	84.5
1219.24	84.48	1224.23	84.4	1229.23	84.2	1234.22	84.08	1239.21	84.01
1244.2	84.27	1249.2	84.57	1254.19	84.5	1259.18	84.42	1264.17	84.53
1269.16	84.53	1274.16	84.34	1279.15	84.28	1284.14	84.29	1289.13	84.34
1294.13	84.42	1299.12	84.43	1304.11	84.4	1309.1	84.37	1314.1	84.37
1319.09	84.45	1324.08	84.45	1329.07	84.48	1334.06	84.58	1339.06	84.52
1344.05	84.61	1349.04	84.59	1354.03	84.48	1359.03	84.4	1364.02	84.45
1369.01	84.48	1374	84.59	1379	84.63	1383.99	84.57	1388.98	84.69
1393.97	84.67	1398.96	84.82	1403.96	84.91	1408.95	84.93	1413.94	84.88
1418.93	84.71	1423.93	84.62	1428.92	84.55	1433.91	84.55	1438.9	84.68
1443.9	84.69	1448.89	84.78	1453.88	84.84	1458.87	84.79	1463.87	84.99
1468.86	85.08	1473.85	84.95	1478.84	84.94	1483.83	84.88	1488.83	84.84
1493.82	84.72	1498.81	84.71	1503.8	84.69	1508.8	84.76	1513.79	84.68
1518.78	84.65	1523.77	84.81	1528.77	84.95	1533.76	85.01	1538.75	85.04
1543.74	84.9	1548.73	84.9	1553.73	84.97	1558.72	84.87	1563.71	84.83
1568.7	84.76	1573.7	84.95	1578.69	85.04	1583.68	85.06	1588.67	84.98
1593.67	84.82	1598.66	84.78	1603.65	84.78	1608.64	84.8	1613.64	84.83
1618.63	84.97	1623.62	85.04	1628.61	85.15	1633.6	85.12	1638.6	85
1643.59	84.97	1648.58	84.93	1653.57	84.77	1658.57	84.65	1663.56	84.67
1668.55	84.7	1673.54	84.68	1678.54	84.67	1683.53	84.72	1688.52	84.74
1693.51	84.81	1698.51	84.89	1703.5	84.96	1708.49	85.04	1713.48	85.07
1718.47	85.07	1723.47	84.97	1728.46	84.91	1733.45	84.96	1738.44	84.99
1743.44	84.96	1748.43	84.97	1753.42	85.01	1758.41	85.01	1763.41	84.94
1768.4	84.9	1773.39	85.06	1778.38	84.98	1783.37	84.9	1788.37	85.02
1793.36	85.03	1798.27	85.08	1803.17	85.16	1808.08	85.15	1812.98	85.05
1817.89	85.02	1822.8	84.98	1827.7	85.06	1832.61	85.24	1837.52	85.41
1842.42	85.38	1847.33	85.51	1852.24	85.7	1857.14	85.72	1862.05	85.7
1866.95	85.67	1871.86	85.73	1876.77	85.72	1881.67	85.73	1886.58	85.56
1891.49	85.57	1896.39	85.53	1901.3	85.5	1906.21	85.4	1911.11	85.49
1916.02	85.54	1920.92	85.4	1925.83	85.39	1930.74	85.52	1935.64	85.54
1940.55	85.51	1945.46	85.52	1950.36	85.63	1955.27	85.86	1960.18	85.84
1965.08	85.81	1969.99	85.9	1974.89	86.01	1979.8	85.97	1984.71	85.79
1989.61	85.79	1994.52	85.78	1999.43	85.79	2004.33	85.7	2009.24	85.57
2014.15	85.69	2019.05	85.67	2023.96	85.71	2028.86	85.36	2033.77	85.63
2038.68	85.78	2043.58	85.79	2048.49	85.93	2053.4	86.35		

Manning's n Values num= 3
 Sta n Val Sta n Val
 0 .06 919.7 .045 949.65 .06

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Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
919.7	949.65	1062	1062	1062	.1	.3
Ineffective Flow	num=	2				
Sta L	Sta R	Elev	Permanent			
0	919.7	85.7	F			
949.65	2053.4	86.1	F			

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	83.40	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	wt. n-Val.		0.045
W.S. Elev (ft)	83.39	Reach Len. (ft)	1062.00	1062.00
1062.00				
Crit w.s. (ft)	79.73	Flow Area (sq ft)		77.88
E.G. Slope (ft/ft)	0.000264	Area (sq ft)		77.88
Q Total (cfs)	87.00	Flow (cfs)		87.00
Top width (ft)	22.10	Top width (ft)		22.10
Vel Total (ft/s)	1.12	Avg. Vel. (ft/s)		1.12
Max Chl Dpth (ft)	5.61	Hydr. Depth (ft)		3.52
Conv. Total (cfs)	5349.5	Conv. (cfs)		5349.5
Length wtd. (ft)	1062.00	wetted Per. (ft)		25.96
Min Ch El (ft)	77.78	Shear (lb/sq ft)		0.05
Alpha	1.00	Stream Power (lb/ft s)	2053.40	0.00
0.00				
Frctn Loss (ft)	0.32	Cum Volume (acre-ft)		4.25
C & E Loss (ft)	0.00	Cum SA (acres)		0.56

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	84.31	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	wt. n-Val.		0.045
W.S. Elev (ft)	84.29	Reach Len. (ft)	1062.00	1062.00
1062.00				
Crit w.s. (ft)	80.04	Flow Area (sq ft)		98.99
E.G. Slope (ft/ft)	0.000253	Area (sq ft)	358.51	98.99
5.88				
Q Total (cfs)	117.00	Flow (cfs)		117.00
Top width (ft)	1004.23	Top width (ft)	906.35	24.83

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73.06				
Vel Total (ft/s)	1.18	Avg. Vel. (ft/s)		1.18
Max Chl Dpth (ft)	6.51	Hydr. Depth (ft)		3.99
Conv. Total (cfs)	7360.6	Conv. (cfs)		7360.6
Length Wtd. (ft)	1062.00	Wetted Per. (ft)		29.29
Min Ch El (ft)	77.78	Shear (lb/sq ft)		0.05
Alpha	1.00	Stream Power (lb/ft s)	2053.40	0.00
0.00				
Frctn Loss (ft)	0.30	Cum Volume (acre-ft)	4.37	5.44
0.07				
C & E Loss (ft)	0.00	Cum SA (acres)	11.05	0.61
0.89				

Warning: Divided flow computed for this cross-section.
 Warning: The cross-section end points had to be extended vertically for the computed water surface.
 Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	85.61	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.03	wt. n-Val.		0.045
W.S. Elev (ft)	85.58	Reach Len. (ft)	1062.00	1062.00
1062.00				
Crit w.s. (ft)	80.77	Flow Area (sq ft)		133.82
E.G. Slope (ft/ft)	0.000325	Area (sq ft)	1532.53	133.82
722.43				
Q Total (cfs)	197.00	Flow (cfs)		197.00
Top width (ft)	1869.30	Top width (ft)	913.03	29.16
927.11				
Vel Total (ft/s)	1.47	Avg. Vel. (ft/s)		1.47
Max Chl Dpth (ft)	7.80	Hydr. Depth (ft)		4.59
Conv. Total (cfs)	10923.7	Conv. (cfs)		10923.7
Length Wtd. (ft)	1062.00	Wetted Per. (ft)		34.43
Min Ch El (ft)	77.78	Shear (lb/sq ft)		0.08
Alpha	1.00	Stream Power (lb/ft s)	2053.40	0.00
0.00				
Frctn Loss (ft)	0.34	Cum Volume (acre-ft)	19.07	7.52
10.53				
C & E Loss (ft)	0.00	Cum SA (acres)	11.82	0.70
13.80				

Warning: The energy equation could not be balanced within the specified number of
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iterations. The program selected the water surface that had the least amount of error between computed and assumed values.

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	84.48	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-val.		0.045
W.S. Elev (ft)	84.46	Reach Len. (ft)	1062.00	1062.00
1062.00 Crit w.s. (ft)	80.07	Flow Area (sq ft)		103.30
E.G. Slope (ft/ft)	0.000238	Area (sq ft)	514.11	103.30
27.14 Q Total (cfs)	120.00	Flow (cfs)		120.00
Top width (ft)	1115.31	Top width (ft)	907.31	25.40
182.59 Vel Total (ft/s)	1.16	Avg. Vel. (ft/s)		1.16
Max Chl Dpth (ft)	6.68	Hydr. Depth (ft)		4.07
Conv. Total (cfs)	7781.9	Conv. (cfs)		7781.9
Length wtd. (ft)	1062.00	wetted Per. (ft)		29.98
Min Ch El (ft)	77.78	Shear (lb/sq ft)		0.05
Alpha	1.00	Stream Power (lb/ft s)	2053.40	0.00
0.00 Frctn Loss (ft)	0.29	Cum Volume (acre-ft)	6.27	5.68
0.33 C & E Loss (ft)	0.00	Cum SA (acres)	11.06	0.62
2.23				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	85.24	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-val.		0.045
W.S. Elev (ft)	85.21	Reach Len. (ft)	1062.00	1062.00
1062.00 Crit w.s. (ft)	80.43	Flow Area (sq ft)		123.26
E.G. slope (ft/ft)	0.000253	Area (sq ft)	1194.94	123.26

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406.74				
Q Total (cfs)	156.00	Flow (cfs)		156.00
Top width (ft)	1750.92	Top width (ft)	911.26	27.91
811.75				
Vel Total (ft/s)	1.27	Avg. Vel. (ft/s)		1.27
Max Chl Dpth (ft)	7.43	Hydr. Depth (ft)		4.42
Conv. Total (cfs)	9806.6	Conv. (cfs)		9806.6
Length wtd. (ft)	1062.00	wetted Per. (ft)		32.96
Min Ch El (ft)	77.78	Shear (lb/sq ft)		0.06
Alpha	1.00	Stream Power (lb/ft s)	2053.40	0.00
0.00				
Frctn Loss (ft)	0.31	Cum Volume (acre-ft)	14.57	6.70
4.98				
C & E Loss (ft)	0.00	Cum SA (acres)	11.11	0.67
10.08				

Warning: Divided flow computed for this cross-section.
 Warning: The cross-section end points had to be extended vertically for the computed water surface.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	86.41	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-Val.	0.060	0.045
0.060				
W.S. Elev (ft)	86.41	Reach Len. (ft)	1062.00	1062.00
1062.00				
Crit w.s. (ft)	81.10	Flow Area (sq ft)	2294.86	158.54
1579.13				
E.G. Slope (ft/ft)	0.000002	Area (sq ft)	2294.86	158.54
1579.13				
Q Total (cfs)	247.00	Flow (cfs)	152.12	20.71
74.17				
Top width (ft)	2014.14	Top width (ft)	919.70	29.95
1064.49				
Vel Total (ft/s)	0.06	Avg. Vel. (ft/s)	0.07	0.13
0.05				
Max Chl Dpth (ft)	8.63	Hydr. Depth (ft)	2.50	5.29
1.48				
Conv. Total (cfs)	169425.3	Conv. (cfs)	104342.5	14206.8
50875.9				
Length wtd. (ft)	1062.00	wetted Per. (ft)	922.50	35.46
1065.47				
Min Ch El (ft)	77.78	Shear (lb/sq ft)	0.00	0.00
0.00				
Alpha	1.28	Stream Power (lb/ft s)	2053.40	0.00
0.00				
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	31.05	8.85
33.06				
C & E Loss (ft)	0.00	Cum SA (acres)	13.77	0.73
22.86				

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Warning: Divided flow computed for this cross-section.
 Warning: The cross-section end points had to be extended vertically for the computed water surface.
 Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-102
 REACH: NM-102B

RS: 9226

INPUT

Description:

Station Elevation Data		num= 414									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	87.78	4.95	87.78	9.9	87.79	14.86	87.78	19.81	87.89		
24.76	87.99	29.71	87.69	34.67	87.66	39.62	87.72	44.57	87.82		
49.52	87.88	54.48	87.89	59.43	87.76	64.38	87.86	69.33	88.02		
74.29	87.81	79.24	87.74	84.19	87.75	89.14	87.78	94.1	87.79		
99.05	87.78	104	87.77	108.95	87.79	113.91	87.78	118.86	87.74		
123.81	87.67	128.76	87.6	133.71	87.61	138.67	87.61	143.62	87.65		
148.57	87.62	153.52	87.52	158.48	87.56	163.43	87.7	168.38	87.65		
173.33	87.55	178.29	87.51	183.24	87.47	188.19	87.45	193.14	87.37		
198.1	87.4	203.05	87.51	208	87.64	212.95	87.66	217.91	87.53		
222.86	87.29	227.81	87.37	232.76	87.43	237.72	87.44	242.67	87.46		
247.62	87.45	252.57	87.49	257.52	87.45	262.48	87.44	267.43	87.42		
272.38	87.37	277.33	87.32	282.29	87.32	287.24	87.29	292.19	87.26		
297.14	87.08	302.1	87.14	307.05	87.39	312	87.29	316.95	87.24		
321.91	87.21	326.86	87.37	331.81	87.38	336.76	87.35	341.72	87.33		
346.67	87.33	351.62	87.37	356.57	87.29	361.53	87.29	366.48	87.3		
371.43	87.21	376.38	87.2	381.33	87.47	386.29	87.55	391.24	87.57		
396.19	87.49	401.14	87.47	406.1	87.47	411.05	87.35	416	87.3		
420.95	87.19	425.91	87.16	430.9	87.17	435.89	87.26	440.88	87.33		
445.87	87.29	450.86	87.26	455.85	87.25	460.84	87.21	465.83	87.12		
470.82	87.08	475.81	87.14	480.8	87.21	485.79	87.23	490.77	87.22		
495.76	87.21	500.75	87.27	505.74	87.23	510.73	87.08	515.72	87.01		
520.71	86.96	525.7	86.91	530.69	86.98	535.68	87.03	540.67	86.92		
545.66	86.93	550.65	86.99	555.64	86.92	560.63	86.91	565.62	86.9		
570.61	86.84	575.6	86.78	580.59	86.8	585.58	86.81	590.57	86.83		
595.56	86.81	600.55	86.8	605.54	86.85	610.53	86.89	615.52	86.75		
620.51	86.7	625.5	86.69	630.49	86.71	635.48	86.69	640.47	86.63		
645.46	86.62	650.45	86.58	655.44	86.53	660.43	86.54	665.42	86.53		
670.41	86.51	675.4	86.49	680.39	86.46	685.38	86.47	690.37	86.44		
695.36	86.41	700.35	86.4	705.34	86.33	710.33	86.35	715.32	86.4		
720.31	86.24	725.3	86.32	730.29	86.32	735.28	86.33	740.27	86.33		
745.26	86.22	750.25	86.21	755.24	86.15	760.23	86.12	765.22	86.08		
770.21	86.09	775.2	86.14	780.19	86.07	785.18	85.94	790.17	85.91		
795.16	85.89	800.15	85.75	805.14	85.87	810.13	85.98	815.12	85.93		
820.11	85.88	825.1	85.69	830.09	85.63	835.08	85.63	840.07	85.56		
845.06	85.58	850.05	85.4	855.04	85.41	860.03	85.39	865.02	85.32		
870.01	85.29	875	85.29	879.99	85.3	884.98	85.16	889.97	84.89		
894.96	85.06	899.95	85.07	904.94	85.68	909.93	86.54	914.92	86.02		
919.91	85.96	924.9	81.01	929.89	78.73	934.88	78.71	939.87	78.74		
944.86	81.63	949.85	86.56	954.84	88.59	959.83	88.83	964.81	88.81		
969.8	88.96	974.79	89.22	979.78	89.21	984.77	89.2	989.76	88.27		
994.75	86.28	999.74	85.58	1004.73	85.51	1009.72	85.6	1014.71	85.63		

NM102 OUTPUT REPORT.TXT

1019.7	85.58	1024.69	85.54	1029.68	85.48	1034.67	85.51	1039.66	85.51
1044.65	85.71	1049.64	85.79	1054.63	85.96	1059.62	86.2	1064.61	86.35
1069.6	86.35	1074.59	86.33	1079.58	86.83	1084.57	87.04	1089.56	87.01
1094.55	86.97	1099.54	86.84	1104.53	86.62	1109.52	86.52	1114.51	86.61
1119.5	86.83	1124.49	86.98	1129.48	86.71	1134.47	86.48	1139.46	86.1
1144.45	85.72	1149.44	85.63	1154.43	85.63	1159.42	85.65	1164.41	85.68
1169.4	85.78	1174.39	85.88	1179.38	85.9	1184.37	86.01	1189.36	86.11
1194.35	86.12	1199.34	85.89	1204.33	85.41	1209.32	85.01	1214.31	84.81
1219.3	84.82	1224.29	84.95	1229.28	85.08	1234.27	85.08	1239.26	85.04
1244.25	85.05	1249.24	85.09	1254.23	85.14	1259.22	85.17	1264.21	85.03
1269.2	84.78	1274.19	84.94	1279.18	85.01	1284.17	85.02	1289.16	85.1
1294.15	85.23	1299.14	85.2	1304.13	85.12	1309.12	84.91	1314.11	85.01
1319.1	85.35	1324.09	85.6	1329.08	85.53	1334.07	85.41	1339.06	85.52
1344.05	85.55	1349.04	85.57	1354.03	85.64	1359.02	85.81	1364.01	85.89
1369	85.87	1373.99	85.78	1378.98	85.71	1383.97	85.63	1388.96	85.64
1393.95	85.65	1398.94	85.38	1403.93	85.25	1408.92	85.31	1413.91	85.34
1418.9	85.33	1423.89	85.32	1428.88	85.44	1433.87	85.43	1438.85	85.44
1443.84	85.38	1448.84	85.22	1453.82	85.38	1458.81	85.4	1463.8	85.39
1468.79	85.59	1473.78	85.53	1478.77	85.61	1483.76	85.61	1488.75	85.81
1493.74	85.89	1498.73	85.55	1503.72	85.75	1508.71	85.75	1513.7	85.86
1518.69	85.96	1523.68	85.93	1528.67	85.91	1533.66	85.99	1538.65	86.23
1543.64	86.15	1548.6	86.13	1553.55	86.03	1558.51	86.15	1563.46	86.11
1568.41	86.08	1573.37	86.02	1578.32	85.97	1583.28	85.96	1588.23	86.03
1593.18	86.06	1598.14	85.91	1603.09	85.93	1608.05	86.17	1613	86.25
1617.96	86.03	1622.91	85.97	1627.86	85.9	1632.82	85.85	1637.77	85.82
1642.73	85.78	1647.68	85.78	1652.63	85.81	1657.59	85.73	1662.54	85.68
1667.5	85.75	1672.45	85.78	1677.4	85.76	1682.36	85.73	1687.31	85.87
1692.27	86.07	1697.22	86.12	1702.18	86.08	1707.13	86.15	1712.08	86.16
1717.04	85.97	1721.99	85.98	1726.95	85.93	1731.9	85.87	1736.85	85.81
1741.81	85.92	1746.76	86.03	1751.72	86.06	1756.67	86.24	1761.63	85.92
1766.58	85.95	1771.53	85.97	1776.49	86.02	1781.44	86.12	1786.4	86.14
1791.35	86.19	1796.3	86.01	1801.26	85.73	1806.21	85.74	1811.17	85.86
1816.12	85.9	1821.07	85.89	1826.03	85.93	1830.98	86.09	1835.94	86.39
1840.89	86.45	1845.85	86.44	1850.8	86.46	1855.75	86.58	1860.71	86.67
1865.66	86.62	1870.62	86.61	1875.57	86.69	1880.52	86.59	1885.48	86.41
1890.43	86.4	1895.39	86.56	1900.34	86.64	1905.3	86.57	1910.25	86.58
1915.2	86.54	1920.16	86.54	1925.11	86.5	1930.07	86.47	1935.02	86.18
1939.97	86.35	1944.93	86.35	1949.88	86.31	1954.84	86.32	1959.79	86.32
1964.74	86.4	1969.7	86.47	1974.65	86.48	1979.61	86.64	1984.56	86.9
1989.52	86.86	1994.47	86.75	1999.42	86.66	2004.38	86.73	2009.33	86.88
2014.29	86.91	2019.24	86.85	2024.19	86.78	2029.15	86.73	2034.1	86.66
2039.06	86.61	2044.01	86.63	2048.97	86.72	2053.92	86.86		

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 919.91 .045 949.85 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 919.91 949.85 1254 1254 1254 .1 .3
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 919.91 85.96 F
 974 2053.92 89 F

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft) 83.08 Element Left OB Channel
 Right OB
 Vel Head (ft) 0.02 wt. n-val. 0.045
 W.S. Elev (ft) 83.06 Reach Len. (ft) 1254.00 1254.00
 1254.00

NM102 OUTPUT REPORT.TXT				
Crit w.s. (ft)	80.04	Flow Area (sq ft)		76.60
E.G. Slope (ft/ft)	0.000351	Area (sq ft)		76.60
Q Total (cfs)	97.00	Flow (cfs)		97.00
Top width (ft)	23.47	Top width (ft)		23.47
Vel Total (ft/s)	1.27	Avg. Vel. (ft/s)		1.27
Max Chl Dpth (ft)	4.35	Hydr. Depth (ft)		3.26
Conv. Total (cfs)	5176.6	Conv. (cfs)		5176.6
Length wtd. (ft)	1254.00	wetted Per. (ft)		26.17
Min Ch El (ft)	78.71	Shear (lb/sq ft)		0.06
Alpha 0.00	1.00	Stream Power (lb/ft s)	2053.92	0.00
Frctn Loss (ft)	0.42	Cum Volume (acre-ft)		2.37
C & E Loss (ft)	0.00	Cum SA (acres)		

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	84.01	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	wt. n-Val.		0.045
W.S. Elev (ft)	83.98	Reach Len. (ft)	1254.00	1254.00
1254.00 Crit w.s. (ft)	80.31	Flow Area (sq ft)		99.21
E.G. Slope (ft/ft)	0.000317	Area (sq ft)		99.21
Q Total (cfs)	133.00	Flow (cfs)		133.00
Top width (ft)	25.34	Top width (ft)		25.34
Vel Total (ft/s)	1.34	Avg. Vel. (ft/s)		1.34
Max Chl Dpth (ft)	5.27	Hydr. Depth (ft)		3.92
Conv. Total (cfs)	7472.1	Conv. (cfs)		7472.1
Length wtd. (ft)	1254.00	wetted Per. (ft)		28.80
Min Ch El (ft)	78.71	Shear (lb/sq ft)		0.07
Alpha 0.00	1.00	Stream Power (lb/ft s)	2053.92	0.00
Frctn Loss (ft)	0.40	Cum Volume (acre-ft)		3.03
C & E Loss (ft)	0.00	Cum SA (acres)		

NM102 OUTPUT REPORT.TXT

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	85.55	Element	Left OB	Channel
Right OB Vel Head (ft)	0.04	wt. n-val.		0.045
W.S. Elev (ft)	85.51	Reach Len. (ft)	1254.00	1254.00
1254.00 Crit w.s. (ft)	80.89	Flow Area (sq ft)		140.27
E.G. Slope (ft/ft)	0.000345	Area (sq ft)	14.68	140.27
64.79 Q Total (cfs)	225.00	Flow (cfs)		225.00
Top width (ft)	290.20	Top width (ft)	56.53	28.42
205.24 Vel Total (ft/s)	1.60	Avg. Vel. (ft/s)		1.60
Max Chl Dpth (ft)	6.80	Hydr. Depth (ft)		4.94
Conv. Total (cfs)	12118.7	Conv. (cfs)		12118.7
Length wtd. (ft)	1254.00	wetted Per. (ft)		33.14
Min Ch El (ft)	78.71	Shear (lb/sq ft)		0.09
Alpha	1.00	Stream Power (lb/ft s)	2053.92	0.00
0.00 Frctn Loss (ft)	0.47	Cum Volume (acre-ft)	0.21	4.18
0.93 C & E Loss (ft)	0.00	Cum SA (acres)		

Warning: Divided flow computed for this cross-section.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	84.19	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	wt. n-val.		0.045
W.S. Elev (ft)	84.16	Reach Len. (ft)	1254.00	1254.00
1254.00 Crit w.s. (ft)	80.37	Flow Area (sq ft)		103.72
E.G. Slope (ft/ft)	0.000319	Area (sq ft)		103.72
Q Total (cfs)	142.00	Flow (cfs)		142.00
Top width (ft)	25.69	Top width (ft)		25.69

		NM102 OUTPUT REPORT.TXT	
Vel Total (ft/s)	1.37	Avg. Vel. (ft/s)	1.37
Max Chl Dpth (ft)	5.45	Hydr. Depth (ft)	4.04
Conv. Total (cfs)	7955.0	Conv. (cfs)	7955.0
Length wtd. (ft)	1254.00	wetted Per. (ft)	29.30
Min Ch El (ft)	78.71	Shear (lb/sq ft)	0.07
Alpha 0.00	1.00	Stream Power (lb/ft s)	2053.92
Frctn Loss (ft)	0.40	Cum Volume (acre-ft)	3.16
C & E Loss (ft)	0.00	Cum SA (acres)	

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	84.92	Element	Left OB	Channel
Right OB Vel Head (ft)	0.04	wt. n-val.		0.045
W.S. Elev (ft)	84.89	Reach Len. (ft)	1254.00	1254.00
1254.00 Crit w.s. (ft)	80.65	Flow Area (sq ft)		122.97
E.G. slope (ft/ft)	0.000336	Area (sq ft)		122.97
0.81 Q Total (cfs)	185.00	Flow (cfs)		185.00
Top width (ft)	42.14	Top width (ft)		27.17
14.97 Vel Total (ft/s)	1.50	Avg. vel. (ft/s)		1.50
Max Chl Dpth (ft)	6.18	Hydr. Depth (ft)		4.53
Conv. Total (cfs)	10094.1	Conv. (cfs)		10094.1
Length wtd. (ft)	1254.00	wetted Per. (ft)		31.37
Min Ch El (ft)	78.71	Shear (lb/sq ft)		0.08
Alpha 0.00	1.00	Stream Power (lb/ft s)	2053.92	0.00
Frctn Loss (ft)	0.44	Cum Volume (acre-ft)		3.70
0.01 C & E Loss (ft)	0.00	Cum SA (acres)		

Warning: Divided flow computed for this cross-section.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

NM102 OUTPUT REPORT.TXT

E.G. Elev (ft)	86.40	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	wt. n-val.	0.060	0.045
W.S. Elev (ft)	86.36	Reach Len. (ft)	1254.00	1254.00
1254.00 Crit W.S. (ft)	81.24	Flow Area (sq ft)	115.65	165.23
E.G. slope (ft/ft)	0.000285	Area (sq ft)	115.65	165.23
519.45 Q Total (cfs)	293.00	Flow (cfs)	33.60	259.40
Top width (ft)	1050.06	Top width (ft)	209.70	29.74
810.61 Vel Total (ft/s)	1.04	Avg. Vel. (ft/s)	0.29	1.57
Max chl Dpth (ft)	7.65	Hydr. Depth (ft)	0.55	5.56
Conv. Total (cfs)	17342.9	Conv. (cfs)	1989.0	15353.9
Length wtd. (ft)	1254.00	wetted Per. (ft)	209.85	35.00
Min ch El (ft)	78.71	shear (lb/sq ft)	0.01	0.08
Alpha 0.00	2.01	Stream Power (lb/ft s)	2053.92	0.00
Frctn Loss (ft)	0.44	Cum Volume (acre-ft)	1.66	4.90
7.48 C & E Loss (ft)	0.00	Cum SA (acres)		

Warning: Divided flow computed for this cross-section.
 Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-102
 REACH: NM-102A RS: 19462

INPUT

Description:

Station Elevation Data				num=	103				
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	94.54	4.98	94.5	9.96	94.47	14.95	94.42	19.93	94.4
24.91	94.34	29.89	94.31	34.88	94.24	39.86	93.96	44.84	93.74
49.82	93.05	54.81	92.5	59.79	92.21	64.77	92.26	69.75	92.39
74.74	92.42	79.72	92.26	84.7	92.35	89.68	92.81	94.67	93.04
99.65	93.37	104.63	93.4	109.61	93.65	114.6	93.77	119.58	93.78
124.56	93.88	129.54	93.83	134.53	94.05	139.51	94.08	144.49	94
149.47	94.13	154.46	93.89	159.44	93.88	164.42	93.98	169.4	94.17
174.39	94.16	179.37	94.14	184.35	94.21	189.33	94.33	194.32	94.14
199.3	94.15	204.28	94.11	209.26	94.05	214.25	93.79	219.23	93.27
224.21	93.14	229.19	93.52	234.18	91.7	239.16	88.81	244.14	87.99
249.12	86.19	254.11	85.33	259.09	85.63	264.07	85.8	269.05	85.98
274.04	87.57	279.02	90.33	284	91.53	288.98	92.06	293.97	92.49
298.95	92.47	303.93	92.42	308.91	92.53	313.9	92.71	318.88	92.78
323.86	92.69	328.84	92.6	333.83	92.54	338.81	92.47	343.79	92.4

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348.77	92.33	353.76	92.4	358.74	92.56	363.72	92.64	368.7	92.66
373.69	92.67	378.67	92.67	383.65	92.51	388.63	92.26	393.62	92.18
398.6	91.92	403.58	91.66	408.56	91.33	413.55	90.91	418.53	90.83
423.51	90.49	428.49	90.17	433.48	89.87	438.46	89.89	443.44	89.99
448.42	90.03	453.41	89.71	458.39	89.69	463.37	89.58	468.35	90.21
473.34	90.86	478.32	90.88	483.3	91.34	488.28	91.56	493.27	91.96
498.25	92.26	503.23	92.27	508.21	92.54				

Manning's n	Values	num=	3
Sta	n Val	Sta	n Val
0	.06	229.19	.045
		293.97	.06

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	229.19	293.97		1043	1043	1043		.1	.3
Ineffective Flow			num=	2					
Sta L	Sta R	Elev	Permanent						
0	229.19	93.52	F						
293.97	508.21	92.49	F						

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	86.80	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	wt. n-val.		0.045
W.S. Elev (ft)	86.78	Reach Len. (ft)	1043.00	1043.00
1043.00				
Crit w.s. (ft)	86.09	Flow Area (sq ft)		22.87
E.G. slope (ft/ft)	0.001293	Area (sq ft)		22.87
Q Total (cfs)	26.00	Flow (cfs)		26.00
Top width (ft)	24.09	Top width (ft)		24.09
vel Total (ft/s)	1.14	Avg. vel. (ft/s)		1.14
Max Chl Dpth (ft)	1.45	Hydr. Depth (ft)		0.95
Conv. Total (cfs)	723.0	Conv. (cfs)		723.0
Length wtd. (ft)	1043.00	wetted Per. (ft)		24.41
Min Ch El (ft)	85.33	Shear (lb/sq ft)		0.08
Alpha	1.00	Stream Power (lb/ft s)	508.21	0.00
0.00				
Frctn Loss (ft)	0.28	Cum volume (acre-ft)		29.23
C & E Loss (ft)	0.01	Cum SA (acres)		6.59

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

NM102 OUTPUT REPORT.TXT

E.G. Elev (ft)	86.99	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-val.		0.045
W.S. Elev (ft)	86.97	Reach Len. (ft)	1043.00	1043.00
1043.00 Crit w.s. (ft)	86.16	Flow Area (sq ft)		27.38
E.G. slope (ft/ft)	0.001289	Area (sq ft)		27.38
Q Total (cfs)	34.00	Flow (cfs)		34.00
Top width (ft)	25.18	Top width (ft)		25.18
Vel Total (ft/s)	1.24	Avg. Vel. (ft/s)		1.24
Max Chl Dpth (ft)	1.64	Hydr. Depth (ft)		1.09
Conv. Total (cfs)	946.9	Conv. (cfs)		946.9
Length wtd. (ft)	1043.00	wetted Per. (ft)		25.55
Min Ch El (ft)	85.33	Shear (lb/sq ft)		0.09
Alpha 0.00	1.00	Stream Power (lb/ft s)	508.21	0.00
Frctn Loss (ft)	0.33	Cum volume (acre-ft)	16.13	35.52
3.10 C & E Loss (ft)	0.01	Cum SA (acres)	52.11	7.14
10.81				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	87.39	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	wt. n-val.		0.045
W.S. Elev (ft)	87.35	Reach Len. (ft)	1043.00	1043.00
1043.00 Crit w.s. (ft)	86.34	Flow Area (sq ft)		37.53
E.G. slope (ft/ft)	0.001331	Area (sq ft)		37.53
Q Total (cfs)	55.00	Flow (cfs)		55.00
Top width (ft)	27.45	Top width (ft)		27.45
Vel Total (ft/s)	1.47	Avg. Vel. (ft/s)		1.47
Max Chl Dpth (ft)	2.02	Hydr. Depth (ft)		1.37
Conv. Total (cfs)	1507.7	Conv. (cfs)		1507.7

NM102 OUTPUT REPORT.TXT				
Length wtd. (ft)	1043.00	Wetted Per. (ft)		27.96
Min Ch El (ft)	85.33	Shear (lb/sq ft)		0.11
Alpha	1.00	Stream Power (lb/ft s)	508.21	0.00
0.00				
Frctn Loss (ft)	0.42	Cum Volume (acre-ft)	78.16	42.29
33.11				
C & E Loss (ft)	0.01	Cum SA (acres)	54.85	7.60
32.95				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	86.83	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	wt. n-val.		0.045
W.S. Elev (ft)	86.81	Reach Len. (ft)	1043.00	1043.00
1043.00				
Crit w.s. (ft)	86.09	Flow Area (sq ft)		23.47
E.G. slope (ft/ft)	0.001290	Area (sq ft)		23.47
Q Total (cfs)	27.00	Flow (cfs)		27.00
Top width (ft)	24.24	Top width (ft)		24.24
vel Total (ft/s)	1.15	Avg. vel. (ft/s)		1.15
Max Chl Dpth (ft)	1.48	Hydr. Depth (ft)		0.97
Conv. Total (cfs)	751.7	Conv. (cfs)		751.7
Length wtd. (ft)	1043.00	wetted Per. (ft)		24.57
Min Ch El (ft)	85.33	Shear (lb/sq ft)		0.08
Alpha	1.00	Stream Power (lb/ft s)	508.21	0.00
0.00				
Frctn Loss (ft)	0.29	Cum volume (acre-ft)	25.51	36.35
5.47				
C & E Loss (ft)	0.01	Cum SA (acres)	52.97	7.15
14.25				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

NM102 OUTPUT REPORT.TXT

E.G. Elev (ft)	87.01	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-val.		0.045
W.S. Elev (ft)	86.99	Reach Len. (ft)	1043.00	1043.00
1043.00 Crit w.s. (ft)	86.17	Flow Area (sq ft)		27.92
E.G. slope (ft/ft)	0.001289	Area (sq ft)		27.92
Q Total (cfs)	35.00	Flow (cfs)		35.00
Top width (ft)	25.30	Top width (ft)		25.30
Vel Total (ft/s)	1.25	Avg. Vel. (ft/s)		1.25
Max Chl Dpth (ft)	1.66	Hydr. Depth (ft)		1.10
Conv. Total (cfs)	974.7	Conv. (cfs)		974.7
Length wtd. (ft)	1043.00	wetted Per. (ft)		25.69
Min Ch El (ft)	85.33	Shear (lb/sq ft)		0.09
Alpha 0.00	1.00	Stream Power (lb/ft s)	508.21	0.00
Frctn Loss (ft)	0.33	Cum volume (acre-ft)	51.10	39.23
16.04 C & E Loss (ft)	0.01	Cum SA (acres)	53.83	7.37
24.21				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	87.40	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	wt. n-val.		0.045
W.S. Elev (ft)	87.37	Reach Len. (ft)	1043.00	1043.00
1043.00 Crit w.s. (ft)	86.34	Flow Area (sq ft)		37.96
E.G. slope (ft/ft)	0.001334	Area (sq ft)		37.96
Q Total (cfs)	56.00	Flow (cfs)		56.00
Top width (ft)	27.55	Top width (ft)		27.55
Vel Total (ft/s)	1.48	Avg. Vel. (ft/s)		1.48
Max Chl Dpth (ft)	2.04	Hydr. Depth (ft)		1.38
Conv. Total (cfs)	1533.4	Conv. (cfs)		1533.4

NM102 OUTPUT REPORT.TXT

Length wtd. (ft)	1043.00	Wetted Per. (ft)		28.06
Min Ch El (ft)	85.33	Shear (lb/sq ft)		0.11
Alpha	1.00	Stream Power (lb/ft s)	508.21	0.00
0.00				
Frctn Loss (ft)	0.43	Cum Volume (acre-ft)	137.57	47.81
79.89				
C & E Loss (ft)	0.01	Cum SA (acres)	58.61	7.70
44.18				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-102

REACH: NM-102A

RS: 18419

INPUT

Description:

Station Elevation Data		num= 105									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	90.77	4.96	90.84	9.92	90.94	14.87	90.86	19.83	90.89		
24.79	90.91	29.75	91.05	34.71	91.14	39.66	90.47	44.62	90.47		
49.58	90.04	54.54	89.42	59.5	89.08	64.46	89.03	69.41	88.92		
74.37	89.04	79.33	89.01	84.29	88.8	89.25	88.73	94.2	88.88		
99.16	89.28	104.12	89.69	109.08	89.79	114.04	89.97	118.99	90.21		
123.95	90.35	128.91	90.39	133.87	90.45	138.83	90.55	143.79	90.64		
148.74	90.68	153.7	90.57	158.66	90.47	163.62	90.59	168.58	90.46		
173.53	90.22	178.49	90.21	183.45	90.18	188.41	90.2	193.37	90.26		
198.32	90.25	203.28	90.2	208.24	90.22	213.2	90.43	218.16	90.29		
223.11	89.95	228.07	89.86	233.03	89.76	237.99	89.45	242.95	88.22		
247.91	86.86	252.86	85.94	257.82	85.45	262.78	85.43	267.74	85.07		
272.7	84.77	277.65	84.7	282.61	84.72	287.57	84.9	292.53	85.23		
297.49	85.96	302.44	86.02	307.4	87.41	312.36	89.05	317.32	90.11		
322.28	90.12	327.24	90.58	332.19	90.88	337.15	91.04	342.11	91.07		
347.07	91.29	352.03	91.31	356.98	91.4	361.94	91.47	366.9	91.5		
371.86	91.53	376.82	91.45	381.77	91.34	386.73	91.28	391.69	91.27		
396.65	91.25	401.61	91.3	406.56	91.31	411.52	91.06	416.48	90.61		
421.44	90.24	426.4	90.1	431.35	89.98	436.31	89.84	441.27	89.67		
446.23	89.52	451.19	89.47	456.15	89.53	461.1	89.62	466.06	89.54		
471.02	89.44	475.98	89.54	480.94	89.85	485.89	90.32	490.85	90.54		
495.81	90.73	500.77	91.12	505.73	91.18	510.68	91.2	515.64	91.21		

Manning's n Values		num= 3			
Sta	n Val	Sta	n Val	Sta	n Val
0	.06	233.03	.045	317.32	.06

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expans.
	233.03	317.32		415	415	415		.1	.3
Ineffective Flow	num= 2								
Sta L	Sta R	Elev	Permanent						
0	150	90.6	F						
360	515.64	91.3	F						

CROSS SECTION OUTPUT Profile #EX 10Y

NM102 OUTPUT REPORT.TXT

E.G. Elev (ft)	86.51	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-Val.		0.045
W.S. Elev (ft)	86.51	Reach Len. (ft)	415.00	415.00
415.00 Crit w.s. (ft)	85.17	Flow Area (sq ft)		65.31
E.G. Slope (ft/ft)	0.000115	Area (sq ft)		65.31
Q Total (cfs)	26.00	Flow (cfs)		26.00
Top width (ft)	54.41	Top width (ft)		54.41
Vel Total (ft/s)	0.40	Avg. Vel. (ft/s)		0.40
Max chl Dpth (ft)	1.81	Hydr. Depth (ft)		1.20
Conv. Total (cfs)	2428.7	Conv. (cfs)		2428.7
Length wtd. (ft)	415.00	wetted Per. (ft)		54.65
Min ch El (ft)	84.70	Shear (lb/sq ft)		0.01
Alpha 0.00	1.00	Stream Power (lb/ft s)	515.64	0.00
Frctn Loss (ft)	0.17	Cum Volume (acre-ft)		28.18
C & E Loss (ft)	0.02	Cum SA (acres)		5.65

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	86.66	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-Val.		0.045
W.S. Elev (ft)	86.65	Reach Len. (ft)	415.00	415.00
415.00 Crit w.s. (ft)	85.24	Flow Area (sq ft)		73.01
E.G. Slope (ft/ft)	0.000139	Area (sq ft)		73.01
Q Total (cfs)	34.00	Flow (cfs)		34.00
Top width (ft)	55.66	Top width (ft)		55.66
Vel Total (ft/s)	0.47	Avg. Vel. (ft/s)		0.47
Max chl Dpth (ft)	1.95	Hydr. Depth (ft)		1.31
Conv. Total (cfs)	2879.6	Conv. (cfs)		2879.6

NM102 OUTPUT REPORT.TXT

Length Wtd. (ft)	415.00	Wetted Per. (ft)	55.93
Min Ch El (ft)	84.70	Shear (lb/sq ft)	0.01
Alpha	1.00	Stream Power (lb/ft s)	515.64
0.00			0.00
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	16.13
3.10			34.32
C & E Loss (ft)	0.02	Cum SA (acres)	52.11
10.81			6.17

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	86.95	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	86.95	Reach Len. (ft)	415.00	415.00
415.00				
Crit w.s. (ft)	85.39	Flow Area (sq ft)		89.90
E.G. Slope (ft/ft)	0.000194	Area (sq ft)		89.90
Q Total (cfs)	55.00	Flow (cfs)		55.00
Top width (ft)	58.16	Top width (ft)		58.16
Vel Total (ft/s)	0.61	Avg. Vel. (ft/s)		0.61
Max Chl Dpth (ft)	2.25	Hydr. Depth (ft)		1.55
Conv. Total (cfs)	3953.2	Conv. (cfs)		3953.2
Length Wtd. (ft)	415.00	Wetted Per. (ft)		58.50
Min Ch El (ft)	84.70	Shear (lb/sq ft)		0.02
Alpha	1.00	Stream Power (lb/ft s)	515.64	0.00
0.00				
Frctn Loss (ft)	0.28	Cum Volume (acre-ft)	78.16	40.76
33.11				
C & E Loss (ft)	0.02	Cum SA (acres)	54.85	6.58
32.95				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

NM102 OUTPUT REPORT.TXT

E.G. Elev (ft)	86.53	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-Val.		0.045
W.S. Elev (ft)	86.53	Reach Len. (ft)	415.00	415.00
415.00 Crit w.s. (ft)	85.18	Flow Area (sq ft)		66.36
E.G. Slope (ft/ft)	0.000118	Area (sq ft)		66.36
Q Total (cfs)	27.00	Flow (cfs)		27.00
Top width (ft)	54.58	Top width (ft)		54.58
Vel Total (ft/s)	0.41	Avg. Vel. (ft/s)		0.41
Max chl Dpth (ft)	1.83	Hydr. Depth (ft)		1.22
Conv. Total (cfs)	2489.0	Conv. (cfs)		2489.0
Length wtd. (ft)	415.00	wetted Per. (ft)		54.82
Min ch El (ft)	84.70	Shear (lb/sq ft)		0.01
Alpha 0.00	1.00	Stream Power (lb/ft s)	515.64	0.00
Frctn Loss (ft)	0.18	Cum Volume (acre-ft)	25.51	35.28
5.47 C & E Loss (ft)	0.02	Cum SA (acres)	52.97	6.20
14.25				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	86.67	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-Val.		0.045
W.S. Elev (ft)	86.67	Reach Len. (ft)	415.00	415.00
415.00 Crit w.s. (ft)	85.24	Flow Area (sq ft)		73.94
E.G. Slope (ft/ft)	0.000142	Area (sq ft)		73.94
Q Total (cfs)	35.00	Flow (cfs)		35.00
Top width (ft)	55.81	Top width (ft)		55.81
Vel Total (ft/s)	0.47	Avg. Vel. (ft/s)		0.47
Max chl Dpth (ft)	1.97	Hydr. Depth (ft)		1.32
Conv. Total (cfs)	2935.5	Conv. (cfs)		2935.5

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Length Wtd. (ft)	415.00	Wetted Per. (ft)	56.08
Min Ch El (ft)	84.70	Shear (lb/sq ft)	0.01
Alpha	1.00	Stream Power (lb/ft s)	515.64
0.00			0.00
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	51.10
16.04			38.01
C & E Loss (ft)	0.02	Cum SA (acres)	53.83
24.21			6.40

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	86.97	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	86.96	Reach Len. (ft)	415.00	415.00
415.00				
Crit w.s. (ft)	85.39	Flow Area (sq ft)		90.60
E.G. Slope (ft/ft)	0.000196	Area (sq ft)		90.60
Q Total (cfs)	56.00	Flow (cfs)		56.00
Top width (ft)	58.25	Top width (ft)		58.25
Vel Total (ft/s)	0.62	Avg. Vel. (ft/s)		0.62
Max Chl Dpth (ft)	2.26	Hydr. Depth (ft)		1.56
Conv. Total (cfs)	4000.3	Conv. (cfs)		4000.3
Length Wtd. (ft)	415.00	Wetted Per. (ft)		58.59
Min Ch El (ft)	84.70	Shear (lb/sq ft)		0.02
Alpha	1.00	Stream Power (lb/ft s)	515.64	0.00
0.00				
Frctn Loss (ft)	0.28	Cum Volume (acre-ft)	137.57	46.27
79.89				
C & E Loss (ft)	0.02	Cum SA (acres)	58.61	6.67
44.18				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

NM102 OUTPUT REPORT.TXT

RIVER: N-NM-102
 REACH: NM-102A

RS: 18004

INPUT

Description:

Station Elevation Data		num= 105		Sta Elev		Sta Elev		Sta Elev		Sta Elev	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	89.84	4.99	89.84	9.98	89.87	14.97	89.93	19.97	90.01		
24.96	90.1	29.95	90.14	34.94	90.19	39.93	90.25	44.92	90.16		
49.91	90.03	54.91	89.85	59.9	89.45	64.89	89.12	69.88	89.01		
74.87	89	79.86	89.04	84.86	89.1	89.85	89.03	94.84	88.9		
99.83	88.88	104.82	89.35	109.81	89.64	114.8	89.77	119.8	89.81		
124.79	89.93	129.78	90.19	134.77	90.41	139.76	90.48	144.75	90.7		
149.74	90.71	154.74	90.67	159.73	90.69	164.72	90.74	169.71	90.78		
174.7	90.8	179.69	90.76	199.66	90.72	204.65	90.7	209.64	90.46		
214.63	90.04	219.63	89.67	224.62	89.67	229.61	89.7	234.6	89.69		
239.59	89.52	244.58	89.48	249.57	88.5	254.57	88.44	259.56	87		
264.55	86.09	269.54	86.71	274.53	86.71	279.52	86.49	284.51	85.62		
289.51	85.83	294.5	85.7	299.49	85.66	304.48	86.78	309.47	88.42		
314.46	89.54	319.46	89.73	324.45	89.94	329.44	90.25	334.43	90.75		
339.42	90.88	344.41	90.88	349.4	90.67	354.4	90.44	359.39	90.39		
364.38	90.43	369.37	90.31	374.36	90.15	379.35	90.3	384.34	90.42		
389.34	90.45	394.33	90.41	399.32	90.38	404.31	90.38	409.3	90.35		
414.29	90.38	419.29	90.35	424.28	90.28	429.27	90.16	434.26	89.82		
439.25	89.54	444.24	89.43	449.23	89.23	454.23	88.71	459.22	88.53		
464.21	88.8	469.2	88.81	474.19	88.71	479.18	88.54	484.17	88.8		
489.17	89.3	494.16	89.61	499.15	90.38	504.14	90.75	509.13	90.62		
514.12	90.63	519.11	90.65	524.11	90.66	529.1	90.68	534.09	90.66		

Manning's n Values		num= 3	
Sta	n Val	Sta	n Val
0	.06	244.58	.045
		314.46	.06

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.	Expan.
	244.58	314.46	1087	1087	1087	.1	.3
Ineffective Flow	num= 2						
Sta L	Sta R	Elev	Permanent				
0	170	90.8	F				
400	534.09	90.4	F				

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	86.32	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.18	wt. n-val.		0.045
W.S. Elev (ft)	86.14	Reach Len. (ft)	1087.00	1087.00
1087.00				
Crit w.s. (ft)	86.14	Flow Area (sq ft)		7.59
E.G. Slope (ft/ft)	0.041623	Area (sq ft)		7.59
Q Total (cfs)	26.00	Flow (cfs)		26.00
Top width (ft)	20.83	Top width (ft)		20.83
vel Total (ft/s)	3.43	Avg. vel. (ft/s)		3.43
Max chl Dpth (ft)	0.52	Hydr. Depth (ft)		0.36

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Conv. Total (cfs)	127.4	Conv. (cfs)	127.4
Length wtd. (ft)	1087.00	Wetted Per. (ft)	20.94
Min Ch El (ft)	85.62	Shear (lb/sq ft)	0.94
Alpha 0.00	1.00	Stream Power (lb/ft s)	534.09
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	27.83
C & E Loss (ft)	0.05	Cum SA (acres)	5.29

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: Divided flow computed for this cross-section.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	86.43	Element	Left OB	Channel
Right OB Vel Head (ft)	0.20	wt. n-val.		0.045
W.S. Elev (ft)	86.22	Reach Len. (ft)	1087.00	1087.00
1087.00 Crit w.s. (ft)	86.22	Flow Area (sq ft)		9.37
E.G. Slope (ft/ft)	0.039723	Area (sq ft)		9.37
Q Total (cfs)	34.00	Flow (cfs)		34.00
Top width (ft)	22.77	Top width (ft)		22.77
Vel Total (ft/s)	3.63	Avg. vel. (ft/s)		3.63
Max Chl Dpth (ft)	0.60	Hydr. Depth (ft)		0.41
Conv. Total (cfs)	170.6	Conv. (cfs)		170.6
Length wtd. (ft)	1087.00	wetted Per. (ft)		22.91
Min Ch El (ft)	85.62	Shear (lb/sq ft)		1.01
Alpha 0.00	1.00	Stream Power (lb/ft s)	534.09	0.00
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	16.13	33.93

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3.10				
C & E Loss (ft)	0.06	Cum SA (acres)	52.11	5.80
10.81				

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: Divided flow computed for this cross-section.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	86.65	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.25	wt. n-Val.		0.045
W.S. Elev (ft)	86.39	Reach Len. (ft)	1087.00	1087.00
1087.00				
Crit w.s. (ft)	86.39	Flow Area (sq ft)		13.61
E.G. Slope (ft/ft)	0.037347	Area (sq ft)		13.61
Q Total (cfs)	55.00	Flow (cfs)		55.00
Top width (ft)	26.82	Top width (ft)		26.82
Vel Total (ft/s)	4.04	Avg. Vel. (ft/s)		4.04
Max Chl Dpth (ft)	0.77	Hydr. Depth (ft)		0.51
Conv. Total (cfs)	284.6	Conv. (cfs)		284.6
Length wtd. (ft)	1087.00	wetted Per. (ft)		27.03
Min Ch El (ft)	85.62	Shear (lb/sq ft)		1.17
Alpha	1.00	Stream Power (lb/ft s)	534.09	0.00
0.00				
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	78.16	40.27
33.11				
C & E Loss (ft)	0.08	Cum SA (acres)	54.85	6.17
32.95				

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

NM102 OUTPUT REPORT.TXT

Warning: Divided flow computed for this cross-section.
 Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.
 Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
 Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	86.34	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.19	wt. n-Val.		0.045
W.S. Elev (ft)	86.15	Reach Len. (ft)	1087.00	1087.00
1087.00				
Crit w.s. (ft)	86.15	Flow Area (sq ft)		7.72
E.G. Slope (ft/ft)	0.042826	Area (sq ft)		7.72
Q Total (cfs)	27.00	Flow (cfs)		27.00
Top width (ft)	20.98	Top width (ft)		20.98
Vel Total (ft/s)	3.50	Avg. Vel. (ft/s)		3.50
Max Chl Dpth (ft)	0.53	Hydr. Depth (ft)		0.37
Conv. Total (cfs)	130.5	Conv. (cfs)		130.5
Length wtd. (ft)	1087.00	wetted Per. (ft)		21.09
Min Ch El (ft)	85.62	Shear (lb/sq ft)		0.98
Alpha	1.00	Stream Power (lb/ft s)	534.09	0.00
0.00				
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	25.51	34.92
5.47				
C & E Loss (ft)	0.06	Cum SA (acres)	52.97	5.84
14.25				

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
 Warning: Divided flow computed for this cross-section.
 Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.
 Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
 Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

NM102 OUTPUT REPORT.TXT

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	86.44	Element	Left OB	Channel
Right OB Vel Head (ft)	0.21	wt. n-Val.		0.045
W.S. Elev (ft)	86.23	Reach Len. (ft)	1087.00	1087.00
1087.00 Crit w.s. (ft)	86.23	Flow Area (sq ft)		9.51
E.G. Slope (ft/ft)	0.040492	Area (sq ft)		9.51
Q Total (cfs)	35.00	Flow (cfs)		35.00
Top width (ft)	22.91	Top width (ft)		22.91
Vel Total (ft/s)	3.68	Avg. Vel. (ft/s)		3.68
Max Chl Dpth (ft)	0.61	Hydr. Depth (ft)		0.42
Conv. Total (cfs)	173.9	Conv. (cfs)		173.9
Length wtd. (ft)	1087.00	wetted Per. (ft)		23.05
Min Ch El (ft)	85.62	Shear (lb/sq ft)		1.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	534.09	0.00
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	51.10	37.61
16.04 C & E Loss (ft)	0.06	Cum SA (acres)	53.83	6.02
24.21				

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: Divided flow computed for this cross-section.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	86.66	Element	Left OB	Channel
Right OB Vel Head (ft)	0.25	wt. n-Val.		0.045

NM102 OUTPUT REPORT.TXT

W.S. Elev (ft)	86.40	Reach Len. (ft)	1087.00	1087.00
1087.00				
Crit w.s. (ft)	86.40	Flow Area (sq ft)		13.88
E.G. Slope (ft/ft)	0.036738	Area (sq ft)		13.88
Q Total (cfs)	56.00	Flow (cfs)		56.00
Top width (ft)	27.06	Top width (ft)		27.06
Vel Total (ft/s)	4.04	Avg. Vel. (ft/s)		4.04
Max Chl Dpth (ft)	0.78	Hydr. Depth (ft)		0.51
Conv. Total (cfs)	292.2	Conv. (cfs)		292.2
Length wtd. (ft)	1087.00	wetted Per. (ft)		27.26
Min Ch El (ft)	85.62	Shear (lb/sq ft)		1.17
Alpha	1.00	Stream Power (lb/ft s)	534.09	0.00
0.00				
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	137.57	45.77
79.89				
C & E Loss (ft)	0.08	Cum SA (acres)	58.61	6.27
44.18				

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: Divided flow computed for this cross-section.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-102
 REACH: NM-102A RS: 16917

INPUT

Description:

Station	Elevation	Data	num=	344	Sta	Elev	Sta	Elev	Sta	Elev
0	88.32	4.99	88.51	9.97	88.45	14.96	88.45	19.95	88.21	
24.93	88.32	29.92	88.06	34.91	88	39.89	87.78	44.88	87.55	
49.87	87.39	54.85	87.42	59.84	87.64	64.83	87.84	69.81	88.07	
74.8	88.1	79.79	88.19	84.77	88.03	89.76	87.97	94.75	88.11	
99.73	88.16	104.72	88.15	109.71	88.18	114.69	88.8	119.68	89.07	
124.67	90.19	129.65	90.87	134.64	90.92	139.63	90.91	144.61	90.93	
149.6	91.23	154.59	93.09	159.57	94.28	164.56	95.88	169.55	97.34	
174.53	97.47	179.52	97.19	184.51	97.06	189.49	97.12	194.48	97.36	

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199.47	97.64	204.45	97.74	209.44	97.68	214.43	96.86	219.41	95.57
224.4	95.18	229.39	95.3	234.37	95.29	239.36	94.44	244.35	93.34
249.33	92.63	254.32	91.47	259.31	91.17	264.29	90.9	269.28	90.74
274.27	90.48	279.25	90.5	284.24	90.61	289.23	90.75	294.21	90.78
299.2	90.81	304.19	90.78	309.17	90.78	314.16	90.77	319.15	90.78
324.13	90.88	329.12	90.75	334.11	90.76	339.09	90.8	344.08	90.62
349.07	90.06	354.05	90.01	359.04	88.75	364.03	87.64	369.01	87.71
374	87.64	378.99	87.65	383.97	87.7	388.96	87.77	393.95	87.63
398.93	87.65	403.92	87.78	408.91	87.41	413.89	87.31	418.88	87.29
423.87	87.41	428.85	87.47	433.84	87.39	438.83	87.37	443.81	87.25
448.8	87.07	453.79	87.37	458.77	87.43	463.76	87.43	468.75	87.38
473.73	87.5	478.72	87.59	483.71	87.62	488.69	87.56	493.68	87.37
498.67	87.31	503.65	87.31	508.64	87.49	513.62	87.55	518.61	87.35
523.6	87.29	528.58	87.36	533.56	87.37	538.55	87.44	543.53	87.55
548.52	87.58	553.5	87.58	558.48	87.54	563.47	87.4	568.45	87.33
573.43	87.33	578.42	87.31	583.4	87.32	588.39	87.43	593.37	87.44
598.35	87.34	603.34	87.42	608.32	87.48	613.31	87.42	618.29	87.43
623.27	87.43	628.26	87.44	633.24	87.43	638.23	87.4	643.21	87.32
648.19	87.35	653.18	87.44	658.16	87.45	663.14	87.39	668.13	87.38
673.11	87.34	678.1	87.39	683.08	87.43	688.06	87.46	693.05	87.47
698.03	87.49	703.02	87.5	708	87.48	712.98	87.35	717.97	87.33
722.95	87.47	727.94	87.55	732.92	87.55	737.9	87.55	742.89	87.68
747.87	87.49	752.86	87.45	757.84	87.36	762.82	87.27	767.81	87.32
772.79	87.33	777.77	87.38	782.76	87.48	787.74	87.3	792.73	87.31
797.71	87.19	802.69	87.27	807.68	87.33	812.66	87.38	817.65	87.35
822.63	87.18	827.61	87.36	832.6	87.48	837.58	87.5	842.57	87.47
847.55	87.39	852.53	87.45	857.52	87.47	862.5	87.44	867.48	87.35
872.47	87.3	877.45	87.26	882.44	87.21	887.42	87.38	892.4	87.46
897.39	87.36	902.37	87.33	907.36	87.35	912.34	87.24	917.32	87.23
922.31	87.28	927.29	87.39	932.28	87.45	937.26	87.32	942.24	87.28
947.23	87.4	952.21	87.44	957.19	87.35	962.18	87.27	967.16	87.33
972.15	87.33	977.13	87.3	982.11	87.4	987.1	87.46	992.08	87.49
997.07	87.73	1002.05	88.26	1007.03	88.41	1012.02	88.58	1017	88.94
1021.99	89.12	1026.97	89.27	1031.95	89.35	1036.94	89.53	1041.92	88.81
1046.91	87.14	1051.89	86.28	1056.87	83.57	1061.86	81.79	1066.84	79.89
1071.82	79.42	1076.81	77.7	1081.79	77.36	1086.78	77.87	1091.76	79.71
1096.74	80.15	1101.73	83.1	1106.71	86.21	1111.7	88.65	1116.68	88.7
1121.66	89.23	1126.65	89.16	1131.63	89.01	1136.62	89	1141.6	88.83
1146.58	88.06	1151.57	87.78	1156.55	87.78	1161.54	87.56	1166.52	87.31
1171.5	86.92	1176.49	86.78	1181.47	86.8	1186.45	86.71	1191.44	86.71
1196.42	86.72	1201.41	86.68	1206.39	86.6	1211.37	86.8	1216.36	86.74
1221.34	86.69	1226.33	86.94	1231.31	87.08	1236.29	87.05	1241.28	87.08
1246.26	87.14	1251.25	87.15	1256.23	87.19	1261.21	87.14	1266.2	87.11
1271.18	87.08	1276.16	87.01	1281.15	86.93	1286.13	86.91	1291.12	86.93
1296.1	86.95	1301.08	86.68	1306.07	86.61	1311.05	86.58	1316.04	86.71
1321.02	86.95	1326	87.05	1330.99	87.21	1335.97	87.26	1340.96	87.16
1345.94	87.18	1350.92	87.25	1355.91	87.31	1360.89	87.34	1365.88	87.36
1370.86	87.39	1375.84	87.41	1380.83	87.3	1385.81	87.29	1390.8	87.38
1395.78	87.44	1400.76	87.38	1405.75	87.12	1410.73	87.07	1415.71	87.05
1420.7	87.03	1425.68	87.02	1430.67	86.84	1435.65	86.74	1440.63	86.78
1445.62	86.89	1450.6	86.7	1455.59	86.52	1460.57	86.49	1465.55	86.47
1470.54	86.52	1475.52	86.7	1480.5	86.76	1485.49	86.8	1490.47	86.73
1495.46	86.2	1500.44	86.18	1505.42	86.11	1510.41	85.99	1515.39	85.89
1520.38	85.9	1525.36	86.42	1530.34	86.84	1535.33	86.36	1540.31	85.89
1545.3	85.89	1550.28	86	1555.26	86.02	1560.25	86.3	1565.23	86.38
1570.22	86.23	1575.2	85.96	1580.18	85.9	1585.17	85.92	1590.15	86.19
1595.13	86.47	1600.12	86.19	1605.1	86.13	1610.09	86.14	1615.07	86.11
1620.05	86.12	1625.04	86.17	1630.02	86.19	1635.01	86.11	1639.99	85.87
1644.97	85.88	1649.96	85.93	1654.94	86.08	1659.93	86.11	1664.91	86.15
1669.89	86.19	1674.88	85.69	1679.86	85.54	1684.85	86	1689.02	86.23
1693.19	86.31	1697.36	86.57	1701.53	86.42	1705.7	86.51		

NM102 OUTPUT REPORT.TXT

Sta n Val Sta n Val Sta n Val
 0 .06 1041.92 .045 1111.7 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 1041.92 1111.7 801 801 801 .1 .3
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 1041.92 88.81 F
 1111.7 1705.7 88.65 F
 Blocked Obstructions num= 1
 Sta L Sta R Elev
 0 200 95

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	83.97	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-val.		0.045
W.S. Elev (ft)	83.97	Reach Len. (ft)	801.00	801.00
801.00				
Crit w.s. (ft)	78.41	Flow Area (sq ft)		192.68
E.G. slope (ft/ft)	0.000008	Area (sq ft)		192.68
Q Total (cfs)	45.00	Flow (cfs)		45.00
Top width (ft)	46.99	Top width (ft)		46.99
vel Total (ft/s)	0.23	Avg. vel. (ft/s)		0.23
Max chl Dpth (ft)	6.61	Hydr. Depth (ft)		4.10
Conv. Total (cfs)	15743.3	Conv. (cfs)		15743.3
Length wtd. (ft)	801.00	wetted Per. (ft)		49.50
Min ch El (ft)	77.36	Shear (lb/sq ft)		0.00
Alpha	1.00	Stream Power (lb/ft s)	1705.70	0.00
0.00				
Frctn Loss (ft)	0.00	Cum volume (acre-ft)		25.33
C & E Loss (ft)	0.00	Cum SA (acres)		4.44

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	84.87	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-val.		0.045
W.S. Elev (ft)	84.87	Reach Len. (ft)	801.00	801.00

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801.00				
Crit w.s. (ft)	78.56	Flow Area (sq ft)		236.12
E.G. slope (ft/ft)	0.000008	Area (sq ft)		236.12
Q Total (cfs)	59.00	Flow (cfs)		59.00
Top width (ft)	50.07	Top width (ft)		50.07
Vel Total (ft/s)	0.25	Avg. vel. (ft/s)		0.25
Max Chl Dpth (ft)	7.51	Hydr. Depth (ft)		4.72
Conv. Total (cfs)	21093.2	Conv. (cfs)		21093.2
Length wtd. (ft)	801.00	wetted Per. (ft)		53.07
Min Ch El (ft)	77.36	Shear (lb/sq ft)		0.00
Alpha	1.00	Stream Power (lb/ft s)	1705.70	0.00
0.00				
Frctn Loss (ft)	0.00	Cum volume (acre-ft)	16.13	30.87
3.10				
C & E Loss (ft)	0.00	Cum SA (acres)	52.11	4.89
10.81				

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	85.71	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-val.		0.045
w.s. Elev (ft)	85.71	Reach Len. (ft)	801.00	801.00
801.00				
Crit w.s. (ft)	78.89	Flow Area (sq ft)		279.76
E.G. slope (ft/ft)	0.000013	Area (sq ft)		279.76
0.65				
Q Total (cfs)	95.00	Flow (cfs)		95.00
Top width (ft)	60.06	Top width (ft)		52.98
7.08				
Vel Total (ft/s)	0.34	Avg. vel. (ft/s)		0.34
Max Chl Dpth (ft)	8.35	Hydr. Depth (ft)		5.28
Conv. Total (cfs)	26857.2	Conv. (cfs)		26857.2
Length wtd. (ft)	801.00	wetted Per. (ft)		56.44
Min Ch El (ft)	77.36	Shear (lb/sq ft)		0.00
Alpha	1.00	Stream Power (lb/ft s)	1705.70	0.00
0.00				
Frctn Loss (ft)	0.00	Cum volume (acre-ft)	78.16	36.61
33.10				
C & E Loss (ft)	0.00	Cum SA (acres)	54.85	5.18

32.86

Warning: Divided flow computed for this cross-section.
 Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.
 Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	85.00	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-Val.		0.045
w.s. Elev (ft)	85.00	Reach Len. (ft)	801.00	801.00
801.00				
Crit w.s. (ft)	78.43	Flow Area (sq ft)		243.07
E.G. Slope (ft/ft)	0.000005	Area (sq ft)		243.07
Q Total (cfs)	47.00	Flow (cfs)		47.00
Top width (ft)	50.54	Top width (ft)		50.54
Vel Total (ft/s)	0.19	Avg. Vel. (ft/s)		0.19
Max Chl Dpth (ft)	7.64	Hydr. Depth (ft)		4.81
Conv. Total (cfs)	21986.7	Conv. (cfs)		21986.7
Length wtd. (ft)	801.00	wetted Per. (ft)		53.61
Min Ch El (ft)	77.36	shear (lb/sq ft)		0.00
Alpha	1.00	Stream Power (lb/ft s)	1705.70	0.00
0.00				
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	25.51	31.79
5.47				
C & E Loss (ft)	0.00	Cum SA (acres)	52.97	4.95
14.25				

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	85.37	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-Val.		0.045
w.s. Elev (ft)	85.37	Reach Len. (ft)	801.00	801.00
801.00				
Crit w.s. (ft)	78.58	Flow Area (sq ft)		261.78
E.G. Slope (ft/ft)	0.000006	Area (sq ft)		261.78

NM102 OUTPUT REPORT.TXT				
Q Total (cfs)	61.00	Flow (cfs)		61.00
Top width (ft)	51.80	Top width (ft)		51.80
Vel Total (ft/s)	0.23	Avg. Vel. (ft/s)		0.23
Max Chl Dpth (ft)	8.01	Hydr. Depth (ft)		5.05
Conv. Total (cfs)	24437.5	Conv. (cfs)		24437.5
Length wtd. (ft)	801.00	wetted Per. (ft)		55.07
Min Ch El (ft)	77.36	Shear (lb/sq ft)		0.00
Alpha	1.00	Stream Power (lb/ft s)	1705.70	0.00
0.00		Cum Volume (acre-ft)	51.10	34.23
Frctn Loss (ft)	0.00	Cum SA (acres)	53.83	5.09
16.04				
C & E Loss (ft)	0.00			
24.21				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	86.43	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-Val.		0.045
w.s. Elev (ft)	86.43	Reach Len. (ft)	801.00	801.00
801.00				
Crit w.s. (ft)	78.90	Flow Area (sq ft)		318.53
E.G. Slope (ft/ft)	0.000009	Area (sq ft)		318.53
67.41				
Q Total (cfs)	97.00	Flow (cfs)		97.00
Top width (ft)	247.60	Top width (ft)		56.11
191.49				
Vel Total (ft/s)	0.30	Avg. Vel. (ft/s)		0.30
Max Chl Dpth (ft)	9.07	Hydr. Depth (ft)		5.68
Conv. Total (cfs)	32037.6	Conv. (cfs)		32037.6
Length wtd. (ft)	801.00	wetted Per. (ft)		59.92
Min Ch El (ft)	77.36	Shear (lb/sq ft)		0.00
Alpha	1.00	Stream Power (lb/ft s)	1705.70	0.00
0.00		Cum Volume (acre-ft)	137.57	41.62
Frctn Loss (ft)	0.00	Cum SA (acres)	58.61	5.23
79.05				
C & E Loss (ft)	0.00			
41.79				

NM102 OUTPUT REPORT.TXT

Warning: Divided flow computed for this cross-section.
 Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-102
 REACH: NM-102A

RS: 16116

INPUT

Description:

Station	Elevation	Data	num=	340	Sta	Elev	Sta	Elev	Sta	Elev
0	86.88	4.98	87.03	9.95	87.11	14.93	87.19	19.91	87.18	
24.88	87.08	29.86	87.03	34.84	87.05	39.81	87.15	44.79	87.23	
49.77	87.17	54.74	87.11	59.72	86.97	64.7	86.66	69.68	86.38	
74.65	86.3	79.63	86.34	84.61	86.46	89.58	86.45	94.56	86.36	
99.54	86.21	104.51	85.84	109.49	85.92	114.47	86.49	119.44	86.43	
124.42	86.01	129.4	85.47	134.37	84.87	139.35	84.68	144.33	84.71	
149.3	84.87	154.28	85.07	159.26	84.92	164.23	84.92	169.21	84.81	
174.19	84.67	179.16	84.73	184.14	84.75	189.12	84.56	194.09	84.69	
199.07	84.69	204.05	84.66	209.02	84.75	214	84.68	218.98	84.64	
223.96	84.77	228.93	84.78	233.91	84.67	238.89	84.63	243.86	84.51	
248.84	84.5	253.82	84.68	258.79	84.68	263.77	84.65	268.75	84.64	
273.72	84.63	278.7	84.62	283.68	84.73	288.65	84.77	293.63	84.78	
298.61	84.61	303.58	84.52	308.56	84.61	313.54	84.65	318.51	84.71	
323.49	84.61	328.47	84.68	333.44	84.76	338.42	84.8	343.4	84.74	
348.37	84.71	353.35	84.77	358.33	84.71	363.31	84.6	368.28	84.64	
373.26	84.71	378.24	84.73	383.21	84.76	388.19	84.79	393.17	84.81	
398.14	84.8	403.12	84.68	408.1	84.63	413.07	84.65	418.05	84.6	
423.03	84.64	428.01	84.71	432.99	84.78	437.97	84.77	442.95	84.71	
447.93	84.65	452.91	84.61	457.89	84.65	462.87	84.69	467.86	84.67	
472.84	84.61	477.82	84.6	482.8	84.54	487.78	84.52	492.76	84.59	
497.74	84.58	502.72	84.61	507.7	84.6	512.68	84.48	517.67	84.49	
522.65	84.63	527.63	84.84	532.61	84.73	537.59	84.7	542.57	84.63	
547.55	84.66	552.53	84.58	557.51	84.58	562.49	84.49	567.48	84.58	
572.46	84.61	577.44	84.63	582.42	84.64	587.4	84.61	592.38	84.74	
597.36	84.72	602.34	84.72	607.32	84.72	612.3	84.75	617.29	84.67	
622.27	84.66	627.25	84.56	632.23	84.51	637.21	84.49	642.19	84.48	
647.17	84.62	652.15	84.61	657.13	84.58	662.11	84.58	667.1	84.6	
672.08	84.61	677.06	84.59	682.04	84.58	687.02	84.58	692	84.51	
696.98	84.56	701.96	84.56	706.94	84.52	711.92	84.68	716.91	84.75	
721.89	84.68	726.87	84.67	731.85	84.68	736.83	84.64	741.81	84.69	
746.79	84.81	751.77	84.75	756.75	84.62	761.73	84.53	766.72	84.58	
771.7	84.68	776.68	84.68	781.66	84.65	786.64	84.7	791.62	84.68	
796.6	84.71	801.58	84.77	806.56	84.66	811.54	84.61	816.53	84.61	
821.51	84.58	826.49	84.57	831.47	84.55	836.45	84.57	841.43	84.72	
846.41	84.61	851.39	84.74	856.37	84.59	861.35	84.6	866.34	84.62	
871.32	84.7	876.3	84.65	881.28	84.67	886.26	84.69	891.24	84.76	
896.22	84.73	901.2	84.76	906.18	84.63	911.16	84.64	916.15	84.77	
921.13	84.76	926.11	84.7	931.09	84.81	936.07	84.75	941.05	84.74	
946.03	84.74	951.01	84.74	955.99	84.51	960.97	84.68	965.96	84.74	
970.94	84.82	975.92	85.13	980.9	85.53	985.88	85.64	990.86	85.88	
995.84	86.17	1000.82	86.52	1005.8	86.65	1010.78	87.17	1015.77	87.87	
1020.75	87.29	1025.73	85.13	1030.71	83.98	1035.69	82.59	1040.67	80.2	
1045.65	78.4	1050.63	77.85	1055.61	77.82	1060.59	77.64	1065.58	77.69	
1070.56	77.87	1075.54	78.29	1080.52	79.71	1085.5	82.03	1090.48	83.6	

NM102 OUTPUT REPORT.TXT

1095.46	84.52	1100.44	85.9	1105.42	85.65	1110.4	85.57	1115.39	85.69
1120.37	85.94	1125.35	85.78	1130.33	85.47	1135.31	85.16	1140.29	84.97
1145.27	84.51	1150.25	84.35	1155.23	84.22	1160.21	84.26	1165.2	84.45
1170.18	84.47	1175.16	84.58	1180.14	84.58	1185.12	84.55	1190.1	84.66
1195.08	84.6	1200.06	84.6	1205.04	84.5	1210.02	84.74	1215.01	85.39
1219.99	85.24	1224.97	85.26	1229.95	85.21	1234.93	85.24	1239.91	85.31
1244.89	85.34	1249.87	85.29	1254.85	85.5	1259.83	85.62	1264.82	85.68
1269.8	85.69	1274.78	85.37	1279.76	85.5	1284.74	85.53	1289.72	85.43
1294.7	85.4	1299.68	85.32	1304.66	85.2	1309.64	85.17	1314.63	85.22
1319.61	85.29	1324.59	85.17	1329.57	85.12	1334.55	84.77	1339.53	84.73
1344.51	85	1349.49	85.1	1354.47	85.08	1359.45	84.98	1364.44	84.88
1369.42	84.86	1374.4	84.89	1379.38	84.92	1384.36	84.94	1389.34	84.95
1394.32	84.95	1399.3	84.88	1404.28	84.81	1409.26	84.86	1414.25	84.91
1419.23	84.91	1424.21	84.91	1429.19	84.91	1434.17	84.89	1439.15	84.94
1444.13	84.96	1449.11	84.94	1454.09	84.94	1459.07	84.97	1464.06	85.07
1469.04	85.17	1474.02	85.16	1479	84.94	1483.98	84.95	1488.96	84.99
1493.94	85.01	1498.92	85.01	1503.9	84.99	1508.88	84.9	1513.87	84.93
1518.85	84.92	1523.83	84.95	1528.81	85.11	1533.79	85.35	1538.77	85.29
1543.75	85.28	1548.73	85.24	1553.71	85.34	1558.69	85.31	1563.68	85.31
1568.66	85.27	1573.64	85.16	1578.62	85.39	1583.6	85.53	1588.58	85.53
1593.56	85.62	1598.54	85.69	1603.52	85.64	1608.5	85.63	1613.49	85.66
1618.47	85.72	1623.45	85.63	1628.43	85.6	1633.41	85.6	1638.39	85.5
1643.37	85.57	1648.35	85.6	1653.33	85.55	1658.31	85.45	1663.3	85.45
1668.28	85.53	1673.26	85.55	1678.24	85.65	1683.22	85.71	1688.2	85.71

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 1025.73 .045 1100.44 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 1025.73 1100.44 790 790 790 .1 .3
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 1025.73 85.13 F
 1100.44 1688.2 85.9 F

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	83.97	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-Val.		0.045
W.S. Elev (ft)	83.97	Reach Len. (ft)	790.00	790.00
790.00				
Crit w.s. (ft)	78.27	Flow Area (sq ft)		267.93
E.G. Slope (ft/ft)	0.000004	Area (sq ft)		267.93
Q Total (cfs)	45.00	Flow (cfs)		45.00
Top width (ft)	61.70	Top width (ft)		61.70
Vel Total (ft/s)	0.17	Avg. vel. (ft/s)		0.17
Max Ch1 Dpth (ft)	6.33	Hydr. Depth (ft)		4.34
Conv. Total (cfs)	23030.8	Conv. (cfs)		23030.8
Length wtd. (ft)	790.00	wetted Per. (ft)		63.79
Min ch El (ft)	77.64	shear (lb/sq ft)		0.00

		NM102 OUTPUT REPORT.TXT		
Alpha	1.00	Stream Power (lb/ft s)	1688.20	0.00
0.00				
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		21.10
C & E Loss (ft)	0.00	Cum SA (acres)		3.44

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	84.86	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-Val.		0.045
W.S. Elev (ft)	84.86	Reach Len. (ft)	790.00	790.00
790.00				
Crit w.s. (ft)	78.37	Flow Area (sq ft)		326.96
E.G. Slope (ft/ft)	0.000004	Area (sq ft)	164.43	326.96
25.42				
Q Total (cfs)	59.00	Flow (cfs)		59.00
Top width (ft)	976.64	Top width (ft)	819.18	69.80
87.66				
Vel Total (ft/s)	0.18	Avg. Vel. (ft/s)		0.18
Max Chl Dpth (ft)	7.22	Hydr. Depth (ft)		4.68
Conv. Total (cfs)	29582.2	Conv. (cfs)		29582.2
Length wtd. (ft)	790.00	wetted Per. (ft)		72.09
Min Ch El (ft)	77.64	Shear (lb/sq ft)		0.00
Alpha	1.00	Stream Power (lb/ft s)	1688.20	0.00
0.00				
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	14.62	25.69
2.86				
C & E Loss (ft)	0.00	Cum SA (acres)	44.58	3.79
10.01				

Warning: Divided flow computed for this cross-section.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	85.71	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-Val.	0.060	0.045
W.S. Elev (ft)	85.71	Reach Len. (ft)	790.00	790.00
790.00				
Crit w.s. (ft)	78.55	Flow Area (sq ft)	882.01	388.30

NM102 OUTPUT REPORT.TXT				
E.G. Slope (ft/ft)	0.000003	Area (sq ft)	882.01	388.30
319.63 Q Total (cfs)	95.00	Flow (cfs)	35.10	59.90
Top width (ft)	1502.37	Top width (ft)	861.48	74.02
566.87 Vel Total (ft/s)	0.07	Avg. Vel. (ft/s)	0.04	0.15
Max Chl Dpth (ft)	8.07	Hydr. Depth (ft)	1.02	5.25
Conv. Total (cfs)	60078.9	Conv. (cfs)	22196.4	37882.5
Length wtd. (ft)	790.00	wetted Per. (ft)	861.78	76.46
Min Ch El (ft)	77.64	Shear (lb/sq ft)	0.00	0.00
Alpha	2.79	Stream Power (lb/ft s)	1688.20	0.00
0.00 Frctn Loss (ft)	0.00	Cum volume (acre-ft)	70.05	30.47
30.16 C & E Loss (ft)	0.00	Cum SA (acres)	46.93	4.01
27.58				

Warning: Divided flow computed for this cross-section.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	85.00	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-Val.		0.045
w.s. Elev (ft)	85.00	Reach Len. (ft)	790.00	790.00
790.00 Crit w.s. (ft)	78.29	Flow Area (sq ft)		336.80
E.G. Slope (ft/ft)	0.000002	Area (sq ft)	280.31	336.80
47.63 Q Total (cfs)	47.00	Flow (cfs)		47.00
Top width (ft)	1134.21	Top width (ft)	836.59	70.91
226.71 Vel Total (ft/s)	0.14	Avg. Vel. (ft/s)		0.14
Max Chl Dpth (ft)	7.36	Hydr. Depth (ft)		4.75
Conv. Total (cfs)	30755.9	Conv. (cfs)		30755.9
Length wtd. (ft)	790.00	wetted Per. (ft)		73.23
Min Ch El (ft)	77.64	Shear (lb/sq ft)		0.00
Alpha	1.00	Stream Power (lb/ft s)	1688.20	0.00
0.00 Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	22.93	26.46
5.03 C & E Loss (ft)	0.00	Cum SA (acres)	45.28	3.84
12.17				

NM102 OUTPUT REPORT.TXT

Warning: Divided flow computed for this cross-section.
 Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	85.37	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-val.	0.060	0.045
W.S. Elev (ft)	85.37	Reach Len. (ft)	790.00	790.00
790.00				
Crit w.s. (ft)	78.37	Flow Area (sq ft)	589.27	363.15
E.G. slope (ft/ft)	0.000002	Area (sq ft)	589.27	363.15
158.42				
Q Total (cfs)	61.00	Flow (cfs)	15.27	45.73
Top width (ft)	1322.14	Top width (ft)	849.17	72.79
400.18				
Vel Total (ft/s)	0.06	Avg. Vel. (ft/s)	0.03	0.13
Max Chl Dpth (ft)	7.73	Hydr. Depth (ft)	0.69	4.99
Conv. Total (cfs)	45707.5	Conv. (cfs)	11440.4	34267.1
Length wtd. (ft)	790.00	wetted Per. (ft)	849.37	75.18
Min Ch El (ft)	77.64	Shear (lb/sq ft)	0.00	0.00
Alpha	2.94	Stream Power (lb/ft s)	1688.20	0.00
0.00				
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	45.68	28.48
14.58				
C & E Loss (ft)	0.00	Cum SA (acres)	46.03	3.94
20.53				

Warning: Divided flow computed for this cross-section.
 Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	86.43	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-val.	0.060	0.045
0.060				
W.S. Elev (ft)	86.43	Reach Len. (ft)	790.00	790.00
790.00				
Crit w.s. (ft)	78.56	Flow Area (sq ft)	1515.00	441.77
739.12				
E.G. slope (ft/ft)	0.000001	Area (sq ft)	1515.00	441.77
739.12				
Q Total (cfs)	97.00	Flow (cfs)	42.68	37.30
17.02				
Top width (ft)	1582.85	Top width (ft)	920.38	74.71
587.76				

NM102 OUTPUT REPORT.TXT

Vel Total (ft/s)	0.04	Avg. Vel. (ft/s)	0.03	0.08
0.02				
Max Chl Dpth (ft)	8.79	Hydr. Depth (ft)	1.65	5.91
1.26				
Conv. Total (cfs)	121403.9	Conv. (cfs)	53419.9	46680.5
21303.5				
Length wtd. (ft)	790.00	wetted Per. (ft)	920.94	77.17
588.68				
Min Ch El (ft)	77.64	Shear (lb/sq ft)	0.00	0.00
0.00				
Alpha	2.46	Stream Power (lb/ft s)	1688.20	0.00
0.00				
Frctn Loss (ft)	0.00	cum volume (acre-ft)	123.64	34.63
71.63				
C & E Loss (ft)	0.00	Cum SA (acres)	50.15	4.03
34.63				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-102

REACH: NM-102A

RS: 15326

INPUT

Description:

Station Elevation Data

num= 337

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	86.07	5	86.06	9.99	86.15	14.99	86.18	19.98	86.37
24.98	86.31	29.97	86.21	34.97	86.17	39.96	86.06	44.96	86.31
49.96	86.39	54.95	86.37	59.95	85.9	64.94	85.81	69.94	85.9
74.93	85.92	79.93	86.03	84.92	85.9	89.92	85.43	94.92	85.03
99.91	84.92	104.91	84.97	109.9	84.8	114.9	84.7	119.89	84.69
124.89	84.79	129.88	84.88	134.88	84.83	139.87	84.78	144.87	84.79
149.87	84.81	154.86	84.79	159.86	84.78	164.85	84.7	169.85	84.63
174.84	84.61	179.84	84.56	184.83	84.59	189.83	84.56	194.83	84.56
199.82	84.55	204.82	84.52	209.81	84.58	214.81	84.62	219.8	84.57
224.8	84.5	229.79	84.43	234.79	84.48	239.79	84.72	244.78	84.68
249.78	84.66	254.77	84.61	259.77	84.53	264.76	84.38	269.76	84.35
274.75	84.36	279.75	84.43	284.75	84.5	289.74	84.58	294.74	84.57
299.73	84.52	304.73	84.58	309.72	84.6	314.72	84.62	319.71	84.56
324.71	84.49	329.71	84.47	334.7	84.48	339.7	84.56	344.69	84.43
349.69	84.44	354.68	84.33	359.68	84.3	364.67	84.43	369.66	84.45
374.64	84.49	379.63	84.49	384.61	84.49	389.59	84.44	394.58	84.58
399.56	84.61	404.54	84.41	409.53	84.36	414.51	84.57	419.5	84.61
424.48	84.51	429.46	84.56	434.45	84.61	439.43	84.58	444.42	84.48
449.4	84.53	454.38	84.53	459.37	84.54	464.35	84.55	469.33	84.48
474.32	84.47	479.3	84.51	484.29	84.55	489.27	84.46	494.25	84.38
499.24	84.47	504.22	84.52	509.21	84.51	514.19	84.53	519.17	84.57
524.16	84.52	529.14	84.5	534.12	84.55	539.11	84.55	544.09	84.58
549.08	84.6	554.06	84.62	559.04	84.68	564.03	84.55	569.01	84.46
573.99	84.6	578.98	84.56	583.96	84.55	588.95	84.5	593.93	84.39
598.91	84.52	603.9	84.55	608.88	84.63	613.87	84.57	618.85	84.46
623.83	84.54	628.82	84.56	633.8	84.53	638.78	84.46	643.77	84.5
648.75	84.51	653.74	84.54	658.72	84.55	663.7	84.51	668.69	84.51
673.67	84.49	678.66	84.5	683.64	84.46	688.62	84.48	693.61	84.69

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698.59	84.35	703.57	84.45	708.56	84.45	713.54	84.45	718.53	84.54
723.51	84.46	728.49	84.63	733.48	84.64	738.46	84.59	743.45	84.56
748.43	84.51	753.41	84.48	758.4	84.51	763.38	84.46	768.36	84.49
773.35	84.52	778.33	84.56	783.32	84.55	788.3	84.49	793.28	84.44
798.27	84.4	803.25	84.44	808.24	84.52	813.22	84.54	818.2	84.53
823.19	84.52	828.17	84.46	833.15	84.5	838.14	84.52	843.12	84.53
848.11	84.58	853.09	84.56	858.07	84.56	863.06	84.58	868.04	84.54
873.03	84.46	878.01	84.37	882.99	84.4	887.98	84.45	892.96	84.48
897.94	84.45	902.93	84.35	907.91	84.4	912.9	84.46	917.88	84.36
922.86	84.25	927.85	84.28	932.83	84.36	937.82	84.4	942.8	84.36
947.78	84.36	952.77	84.45	957.75	84.49	962.73	84.54	967.72	84.58
972.7	84.82	977.69	85.08	982.67	85.3	987.65	85.61	992.64	85.63
997.62	85.91	1002.61	86.2	1007.59	85.68	1012.57	85.53	1017.56	83.21
1022.54	80.83	1027.52	78.64	1032.51	78.64	1037.49	77.48	1042.48	77.46
1047.46	77.49	1052.44	77.49	1057.43	77.92	1062.41	79.08	1067.39	81.23
1072.38	83.63	1077.36	84	1082.35	85.57	1087.33	85.78	1092.31	85.76
1097.3	85.76	1102.28	85.89	1107.27	86.18	1112.25	86.19	1117.23	86.14
1122.22	86.09	1127.2	86.02	1132.18	85.77	1137.17	85.72	1142.15	85.78
1147.14	85.9	1152.12	85.9	1157.1	85.71	1162.09	85.6	1167.07	85.62
1172.05	85.59	1177.04	85.92	1182.02	86.19	1187.01	85.82	1191.99	85.43
1196.97	85.26	1201.96	85.23	1206.94	85.22	1211.93	85.21	1216.91	85.35
1221.89	85.33	1226.88	85.22	1231.86	84.98	1236.84	84.9	1241.83	84.88
1246.81	84.99	1251.8	85.23	1256.78	85.21	1261.76	85.1	1266.75	85.06
1271.73	85.12	1276.71	85.2	1281.7	85.34	1286.68	85.46	1291.67	85.45
1296.65	85.44	1301.63	85.51	1306.62	85.53	1311.6	85.47	1316.58	85.06
1321.57	84.43	1326.55	84.65	1331.54	84.66	1336.52	84.74	1341.5	84.7
1346.49	84.57	1351.47	84.48	1356.46	84.49	1361.44	84.68	1366.42	84.6
1371.41	84.46	1376.39	84.57	1381.37	84.62	1386.36	84.74	1391.34	84.53
1396.33	84.56	1401.31	84.45	1406.29	84.5	1411.28	84.64	1416.26	84.64
1421.24	84.72	1426.23	84.65	1431.21	84.56	1436.2	84.62	1441.18	84.71
1446.16	84.67	1451.15	84.67	1456.13	84.61	1461.11	84.58	1466.1	84.65
1471.08	84.72	1476.07	84.57	1481.05	84.48	1486.03	84.44	1491.02	84.45
1496	84.55	1500.99	84.59	1505.97	84.6	1510.95	84.62	1515.94	84.6
1520.92	84.56	1525.9	84.58	1530.89	84.56	1535.87	84.6	1540.86	84.67
1545.84	84.75	1550.82	84.85	1555.81	84.78	1560.79	84.69	1565.77	84.75
1570.76	84.73	1575.74	84.73	1580.73	84.68	1585.71	84.55	1590.69	84.52
1595.68	84.5	1600.66	84.58	1605.65	84.59	1610.63	84.53	1615.61	84.51
1620.6	84.4	1625.18	84.44	1629.77	84.39	1634.35	84.46	1638.94	84.4
1643.52	84.4	1648.11	84.65	1652.69	84.74	1657.28	84.99	1661.86	85.34
1666.44	85.47	1671.03	85.4						

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 1012.57 .045 1082.35 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 1012.57 1082.35 1537 1537 1537 .1 .3
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 1012.57 85.53 F
 1082.35 1671.03 85.57 F

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	83.96	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-Val.		0.045
w.s. Elev (ft)	83.96	Reach Len. (ft)	1537.00	1537.00
1537.00				
Crit w.s. (ft)	78.06	Flow Area (sq ft)		270.06

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E.G. Slope (ft/ft)	0.000004	Area (sq ft)	270.06
Q Total (cfs)	45.00	Flow (cfs)	45.00
Top width (ft)	60.93	Top width (ft)	60.93
Vel Total (ft/s)	0.17	Avg. Vel. (ft/s)	0.17
Max Chl Dpth (ft)	6.50	Hydr. Depth (ft)	4.43
Conv. Total (cfs)	23437.4	Conv. (cfs)	23437.4
Length wtd. (ft)	1537.00	wetted Per. (ft)	63.38
Min Ch El (ft)	77.46	Shear (lb/sq ft)	0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	1671.03
Frctn Loss (ft)	0.01	Cum volume (acre-ft)	16.22
C & E Loss (ft)	0.00	Cum SA (acres)	2.33

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	84.86	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-val.		0.045
W.S. Elev (ft)	84.86	Reach Len. (ft)	1537.00	1537.00
1537.00 Crit w.s. (ft)	78.17	Flow Area (sq ft)		327.07
E.G. slope (ft/ft)	0.000004	Area (sq ft)	286.67	327.07
88.23 Q Total (cfs)	59.00	Flow (cfs)		59.00
Top width (ft)	1264.69	Top width (ft)	861.92	66.07
336.69 Vel Total (ft/s)	0.18	Avg. Vel. (ft/s)		0.18
Max Chl Dpth (ft)	7.40	Hydr. Depth (ft)		4.95
Conv. Total (cfs)	30516.0	Conv. (cfs)		30516.0
Length wtd. (ft)	1537.00	wetted Per. (ft)		68.86
Min Ch El (ft)	77.46	Shear (lb/sq ft)		0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	1671.03	0.00
Frctn Loss (ft)	0.01	Cum volume (acre-ft)	10.53	19.76
1.83 C & E Loss (ft)	0.00	Cum SA (acres)	29.34	2.56
6.16				

NM102 OUTPUT REPORT.TXT

Warning: Divided flow computed for this cross-section.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

		Element	Left OB	Channel
E.G. Elev (ft)	85.71			
Right OB				
Vel Head (ft)	0.00	wt. n-Val.	0.060	0.045
0.060				
W.S. Elev (ft)	85.71	Reach Len. (ft)	1537.00	1537.00
1537.00				
Crit w.s. (ft)	78.39	Flow Area (sq ft)	1042.84	385.08
443.36				
E.G. slope (ft/ft)	0.000002	Area (sq ft)	1042.84	385.08
443.36				
Q Total (cfs)	95.00	Flow (cfs)	34.84	47.48
12.69				
Top width (ft)	1484.65	Top width (ft)	912.33	69.78
502.54				
Vel Total (ft/s)	0.05	Avg. Vel. (ft/s)	0.03	0.12
0.03				
Max Chl Dpth (ft)	8.25	Hydr. Depth (ft)	1.14	5.52
0.88				
Conv. Total (cfs)	77227.1	Conv. (cfs)	28319.0	38593.6
10314.5				
Length wtd. (ft)	1537.00	wetted Per. (ft)	912.48	72.82
503.03				
Min Ch El (ft)	77.46	shear (lb/sq ft)	0.00	0.00
0.00				
Alpha	3.15	Stream Power (lb/ft s)	1671.03	0.00
0.00				
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	52.59	23.45
23.24				
C & E Loss (ft)	0.00	Cum SA (acres)	30.85	2.71
17.88				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

		Element	Left OB	Channel
E.G. Elev (ft)	85.00			
Right OB				
Vel Head (ft)	0.00	wt. n-Val.		0.045
W.S. Elev (ft)	85.00	Reach Len. (ft)	1537.00	1537.00
1537.00				
Crit w.s. (ft)	78.08	Flow Area (sq ft)		336.44
E.G. slope (ft/ft)	0.000002	Area (sq ft)	409.61	336.44
137.17				
Q Total (cfs)	47.00	Flow (cfs)		47.00
Top width (ft)	1302.58	Top width (ft)	879.85	66.83

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355.91				
Vel Total (ft/s)	0.14	Avg. Vel. (ft/s)		0.14
Max Chl Dpth (ft)	7.54	Hydr. Depth (ft)		5.03
Conv. Total (cfs)	31741.2	Conv. (cfs)		31741.2
Length Wtd. (ft)	1537.00	wetted Per. (ft)		69.67
Min Ch El (ft)	77.46	Shear (lb/sq ft)		0.00
Alpha	1.00	Stream Power (lb/ft s)	1671.03	0.00
0.00				
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	16.68	20.36
3.35				
C & E Loss (ft)	0.00	Cum SA (acres)	29.72	2.59
6.88				

Warning: Divided flow computed for this cross-section.
 Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	85.37	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-Val.		0.045
W.S. Elev (ft)	85.37	Reach Len. (ft)	1537.00	1537.00
1537.00				
Crit w.s. (ft)	78.18	Flow Area (sq ft)		361.23
E.G. Slope (ft/ft)	0.000003	Area (sq ft)	733.82	361.23
280.52				
Q Total (cfs)	61.00	Flow (cfs)		61.00
Top width (ft)	1400.49	Top width (ft)	892.99	68.77
438.73				
Vel Total (ft/s)	0.17	Avg. Vel. (ft/s)		0.17
Max Chl Dpth (ft)	7.91	Hydr. Depth (ft)		5.25
Conv. Total (cfs)	35037.4	Conv. (cfs)		35037.4
Length wtd. (ft)	1537.00	wetted Per. (ft)		71.75
Min Ch El (ft)	77.46	Shear (lb/sq ft)		0.00
Alpha	1.00	Stream Power (lb/ft s)	1671.03	0.00
0.00				
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	33.68	21.91
10.60				
C & E Loss (ft)	0.00	Cum SA (acres)	30.23	2.66
12.92				

Warning: Divided flow computed for this cross-section.
 Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

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CROSS SECTION OUTPUT Profile #ULT 100Y

		Element	Left OB	Channel
E.G. Elev (ft)	86.43			
Right OB				
Vel Head (ft)	0.00	wt. n-val.	0.060	0.045
0.060				
W.S. Elev (ft)	86.43	Reach Len. (ft)	1537.00	1537.00
1537.00				
Crit w.s. (ft)	78.40	Flow Area (sq ft)	1730.59	435.15
847.50				
E.G. slope (ft/ft)	0.000001	Area (sq ft)	1730.59	435.15
847.50				
Q Total (cfs)	97.00	Flow (cfs)	43.91	33.93
19.16				
Top width (ft)	1671.03	Top width (ft)	1012.57	69.78
588.68				
Vel Total (ft/s)	0.03	Avg. vel. (ft/s)	0.03	0.08
0.02				
Max Chl Dpth (ft)	8.97	Hydr. Depth (ft)	1.71	6.24
1.44				
Conv. Total (cfs)	135278.5	Conv. (cfs)	61241.7	47314.9
26722.0				
Length wtd. (ft)	1537.00	wetted Per. (ft)	1013.17	72.82
589.94				
Min Ch El (ft)	77.46	Shear (lb/sq ft)	0.00	0.00
0.00				
Alpha	2.43	Stream Power (lb/ft s)	1671.03	0.00
0.00				
Frctn Loss (ft)	0.00	Cum volume (acre-ft)	94.21	26.68
57.25				
C & E Loss (ft)	0.00	Cum SA (acres)	32.62	2.72
23.96				

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-102
 REACH: NM-102A

RS: 13789

INPUT

Description:

Station Elevation Data		num= 341							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	84.75	4.98	84.71	9.97	84.69	14.95	84.47	19.93	84.45
24.92	84.67	29.9	84.82	34.88	84.74	39.87	84.83	44.85	84.71
49.83	84.69	54.81	84.73	59.8	84.61	64.78	84.66	69.76	84.82
74.75	84.78	79.73	84.63	84.71	84.65	89.7	84.56	94.68	84.68
99.66	84.79	104.65	84.8	109.63	84.72	114.61	84.79	119.6	84.7
124.58	84.68	129.56	84.69	134.55	84.68	139.53	84.68	144.51	84.73
149.49	84.74	154.48	84.73	159.46	84.66	164.44	84.73	169.43	84.66
174.41	84.62	179.39	84.68	184.38	84.71	189.36	84.6	194.34	84.63
199.33	84.76	204.31	84.77	209.29	84.74	214.28	84.63	219.26	84.75
224.24	84.71	229.22	84.83	234.21	84.63	239.19	84.62	244.17	84.65
249.16	84.62	254.14	84.62	259.12	84.66	264.11	84.66	269.09	84.62

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274.07	84.62	279.06	84.6	284.04	84.74	289.02	84.79	294.01	84.69
298.99	84.64	303.97	84.6	308.96	84.67	313.94	84.68	318.92	84.63
323.9	84.76	328.89	84.81	333.87	84.72	338.85	84.7	343.84	84.71
348.82	84.66	353.8	84.59	358.79	84.69	363.77	84.71	368.75	84.71
373.74	84.64	378.72	84.61	383.7	84.65	388.69	84.6	393.67	84.49
398.65	84.43	403.64	84.56	408.62	84.6	413.6	84.61	418.58	84.64
423.57	84.75	428.55	84.72	433.53	84.67	438.52	84.55	443.5	84.42
448.48	84.55	453.47	84.59	458.45	84.48	463.43	84.54	468.42	84.65
473.4	84.65	478.38	84.62	483.37	84.58	488.35	84.64	493.33	84.58
498.31	84.56	503.3	84.46	508.28	84.51	513.26	84.67	518.25	84.75
523.23	84.81	528.21	84.68	533.2	84.53	538.18	84.57	543.16	84.65
548.15	84.55	553.13	84.57	558.11	84.64	563.1	84.59	568.08	84.64
573.06	84.59	578.05	84.61	583.03	84.59	588.01	84.61	592.99	84.63
597.98	84.53	602.96	84.49	607.94	84.38	612.93	84.4	617.91	84.57
622.89	84.59	627.88	84.65	632.86	84.76	637.84	84.73	642.83	84.8
647.81	84.69	652.79	84.62	657.78	84.64	662.76	84.65	667.74	84.72
672.73	84.5	677.71	84.57	682.69	84.68	687.67	84.7	692.66	84.68
697.64	84.69	702.62	84.81	707.57	84.75	712.52	84.62	717.47	84.53
722.42	84.42	727.37	84.49	732.31	84.62	737.26	84.52	742.21	84.47
747.16	84.48	752.11	84.54	757.06	84.57	762	84.6	766.95	84.57
771.9	84.46	776.85	84.56	781.8	84.56	786.74	84.49	791.69	84.55
796.64	84.86	801.59	84.81	806.54	85.12	811.49	85.13	816.43	85.25
821.38	85.38	826.33	85.56	831.28	85.56	836.23	85.53	841.18	83.87
846.12	81.98	851.07	81.85	856.02	79.92	860.97	78.35	865.92	77.73
870.87	77.48	875.81	77.43	880.76	77.36	885.71	77.48	890.66	78.17
895.61	78.31	900.56	79.67	905.5	81.68	910.45	83.77	915.4	84.3
920.35	85.85	925.3	86.32	930.25	86.22	935.19	86.2	940.14	86.13
945.09	86.02	950.04	85.91	954.99	85.89	959.93	85.87	964.88	85.8
969.83	85.82	974.78	85.8	979.73	85.76	984.68	85.54	989.62	84.94
994.57	84.79	999.52	84.97	1004.47	85.04	1009.42	85.25	1014.37	85.29
1019.31	85.2	1024.26	85.21	1029.21	85.14	1034.16	85.15	1039.11	85.28
1044.06	85.26	1049	85.2	1053.95	85.2	1058.9	85.18	1063.85	85.14
1068.8	85.12	1073.75	85.09	1078.69	85.18	1083.64	85.33	1088.59	85.4
1093.54	85.58	1098.49	85.6	1103.44	85.41	1108.41	85.48	1113.39	85.84
1118.37	86.04	1123.35	86.23	1128.33	86.36	1133.31	86.31	1138.28	86.36
1143.26	86.25	1148.24	86.16	1153.22	86.04	1158.2	86.06	1163.18	86.09
1168.16	86.46	1173.13	86.22	1178.11	86.22	1183.09	86.2	1188.07	86.01
1193.05	85.95	1198.03	85.9	1203.01	85.87	1207.98	85.86	1212.96	85.77
1217.94	85.83	1222.92	85.84	1227.9	85.56	1232.88	85.5	1237.85	85.56
1242.83	85.67	1247.81	85.53	1252.79	85.48	1257.77	85.31	1262.75	85.19
1267.73	85.33	1272.7	85.6	1277.68	85.59	1282.66	85.21	1287.64	84.94
1292.62	84.96	1297.6	85.04	1302.57	85.08	1307.55	85.27	1312.53	85.27
1317.51	85.3	1322.49	85.12	1327.47	85.11	1332.45	85.11	1337.42	85.15
1342.4	85.22	1347.38	85.39	1352.36	85.33	1357.34	85.16	1362.32	85.23
1367.3	85.36	1372.27	85.48	1377.25	85.42	1382.23	85.24	1387.21	85.21
1392.19	85.15	1397.17	85.16	1402.15	85.18	1407.12	85.26	1412.1	85.3
1417.08	85.34	1422.06	85.43	1427.04	85.43	1432.02	85.43	1436.99	85.51
1441.97	85.41	1446.95	85.33	1451.93	85.24	1456.91	85.32	1461.89	85.4
1466.87	85.47	1471.84	85.54	1476.82	85.44	1481.8	85.46	1486.78	85.43
1491.76	85.4	1496.74	85.37	1501.72	85.23	1506.69	84.93	1511.67	84.78
1516.65	84.73	1521.63	85.12	1526.61	85.5	1531.59	85.5	1536.56	85.56
1541.54	85.53	1546.52	85.59	1551.5	85.61	1556.48	85.63	1561.46	85.67
1566.44	85.53	1571.41	85.48	1576.39	85.35	1581.37	85.15	1586.35	85.23
1591.33	85.31	1596.31	85.35	1601.29	85.57	1606.26	85.71	1611.24	85.75
1616.22	85.78	1621.2	85.77	1626.18	85.89	1631.16	85.91	1636.13	85.98
1641.11	86.05	1646.09	86.09	1651.07	86.06	1656.05	86.07	1661.03	86.16
1666.01	86.2	1670.98	86.14	1675.96	86.19	1680.94	86.17	1685.92	86.15
1690.9	86.13								

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 836.23 .045 920.35 .06

NM102 OUTPUT REPORT.TXT

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.	Expan.
836.23	920.35	1284	1284	1284	.1	.3	
Ineffective Flow		num=	2				
Sta L	Sta R	Elev	Permanent				
0	836.23	85.53	F				
920.35	1690.9	85.85	F				

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	83.96	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-val.		0.045
W.S. Elev (ft)	83.95	Reach Len. (ft)	1284.00	1284.00
1284.00				
Crit w.s. (ft)	78.19	Flow Area (sq ft)		317.53
E.G. slope (ft/ft)	0.000007	Area (sq ft)		317.53
Q Total (cfs)	74.00	Flow (cfs)		74.00
Top width (ft)	71.25	Top width (ft)		71.25
vel Total (ft/s)	0.23	Avg. vel. (ft/s)		0.23
Max Chl Dpth (ft)	6.59	Hydr. Depth (ft)		4.46
Conv. Total (cfs)	27856.6	Conv. (cfs)		27856.6
Length wtd. (ft)	1284.00	wetted Per. (ft)		73.32
Min Ch El (ft)	77.36	Shear (lb/sq ft)		0.00
Alpha	1.00	Stream Power (lb/ft s)	1690.90	0.00
0.00				
Frctn Loss (ft)	0.03	Cum volume (acre-ft)		5.85
C & E Loss (ft)	0.00	Cum SA (acres)		

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	84.85	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-val.		0.045
W.S. Elev (ft)	84.85	Reach Len. (ft)	1284.00	1284.00
1284.00				
Crit w.s. (ft)	78.35	Flow Area (sq ft)		385.27
E.G. slope (ft/ft)	0.000008	Area (sq ft)	166.78	385.27
0.75				
Q Total (cfs)	99.00	Flow (cfs)		99.00
Top width (ft)	892.27	Top width (ft)	800.98	78.89
12.39				

	NM102 OUTPUT REPORT.TXT		
Vel Total (ft/s)	0.26	Avg. Vel. (ft/s)	0.26
Max Chl Dpth (ft)	7.49	Hydr. Depth (ft)	4.88
Conv. Total (cfs)	35916.1	Conv. (cfs)	35916.1
Length wtd. (ft)	1284.00	wetted Per. (ft)	81.22
Min Ch El (ft)	77.36	Shear (lb/sq ft)	0.00
Alpha	1.00	Stream Power (lb/ft s)	1690.90
0.00			0.00
Frctn Loss (ft)	0.03	Cum volume (acre-ft)	2.53
0.26			7.19
C & E Loss (ft)	0.00	Cum SA (acres)	

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	85.70	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-val.	0.060	0.045
W.S. Elev (ft)	85.70	Reach Len. (ft)	1284.00	1284.00
1284.00				
Crit w.s. (ft)	78.61	Flow Area (sq ft)	864.57	454.82
E.G. slope (ft/ft)	0.000006	Area (sq ft)	864.57	454.82
200.51				
Q Total (cfs)	165.00	Flow (cfs)	53.56	111.44
Top width (ft)	1431.00	Top width (ft)	836.23	83.65
511.12				
Vel Total (ft/s)	0.13	Avg. Vel. (ft/s)	0.06	0.25
Max Chl Dpth (ft)	8.34	Hydr. Depth (ft)	1.03	5.44
Conv. Total (cfs)	67384.6	Conv. (cfs)	21873.5	45511.2
Length wtd. (ft)	1284.00	wetted Per. (ft)	837.32	86.22
Min Ch El (ft)	77.36	Shear (lb/sq ft)	0.00	0.00
Alpha	2.67	Stream Power (lb/ft s)	1690.90	0.00
0.00				
Frctn Loss (ft)	0.02	Cum volume (acre-ft)	18.94	8.63
11.88				
C & E Loss (ft)	0.00	Cum SA (acres)		

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

NM102 OUTPUT REPORT.TXT

water surface.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	84.99	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-val.		0.045
W.S. Elev (ft)	84.99	Reach Len. (ft)	1284.00	1284.00
1284.00				
Crit w.s. (ft)	78.33	Flow Area (sq ft)		396.64
E.G. slope (ft/ft)	0.000006	Area (sq ft)	281.84	396.64
3.83				
Q Total (cfs)	95.00	Flow (cfs)		95.00
Top width (ft)	918.53	Top width (ft)	804.50	79.78
34.24				
Vel Total (ft/s)	0.24	Avg. vel. (ft/s)		0.24
Max Chl Dpth (ft)	7.63	Hydr. Depth (ft)		4.97
Conv. Total (cfs)	37414.0	Conv. (cfs)		37414.0
Length wtd. (ft)	1284.00	wetted Per. (ft)		82.15
Min Ch El (ft)	77.36	Shear (lb/sq ft)		0.00
Alpha	1.00	Stream Power (lb/ft s)	1690.90	0.00
0.00				
Frctn Loss (ft)	0.03	Cum volume (acre-ft)	4.48	7.42
0.87				
C & E Loss (ft)	0.00	Cum SA (acres)		

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	85.36	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-val.		0.045
W.S. Elev (ft)	85.36	Reach Len. (ft)	1284.00	1284.00
1284.00				
Crit w.s. (ft)	78.45	Flow Area (sq ft)		425.99
E.G. slope (ft/ft)	0.000009	Area (sq ft)	576.50	425.99
53.89				
Q Total (cfs)	123.00	Flow (cfs)		123.00
Top width (ft)	1196.23	Top width (ft)	820.44	82.02
293.77				

	NM102 OUTPUT REPORT.TXT		
Vel Total (ft/s)	0.29	Avg. Vel. (ft/s)	0.29
Max Chl Dpth (ft)	8.00	Hydr. Depth (ft)	5.19
Conv. Total (cfs)	41354.5	Conv. (cfs)	41354.5
Length wtd. (ft)	1284.00	wetted Per. (ft)	84.51
Min Ch El (ft)	77.36	Shear (lb/sq ft)	0.00
Alpha	1.00	Stream Power (lb/ft s)	1690.90
0.00			0.00
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	10.57
4.70			8.03
C & E Loss (ft)	0.00	Cum SA (acres)	

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	86.42	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-val.	0.060	0.045
0.060				
W.S. Elev (ft)	86.42	Reach Len. (ft)	1284.00	1284.00
1284.00				
Crit w.s. (ft)	78.72	Flow Area (sq ft)	1467.43	515.43
669.93				
E.G. slope (ft/ft)	0.000003	Area (sq ft)	1467.43	515.43
669.93				
Q Total (cfs)	196.00	Flow (cfs)	83.59	88.42
23.99				
Top width (ft)	1689.66	Top width (ft)	836.23	84.12
769.31				
Vel Total (ft/s)	0.07	Avg. Vel. (ft/s)	0.06	0.17
0.04				
Max Chl Dpth (ft)	9.06	Hydr. Depth (ft)	1.75	6.13
0.87				
Conv. Total (cfs)	123798.8	Conv. (cfs)	52795.5	55849.4
15154.0				
Length wtd. (ft)	1284.00	wetted Per. (ft)	838.04	86.71
769.89				
Min Ch El (ft)	77.36	Shear (lb/sq ft)	0.00	0.00
0.00				
Alpha	2.71	Stream Power (lb/ft s)	1690.90	0.00
0.00				
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	37.79	9.91
30.48				
C & E Loss (ft)	0.00	Cum SA (acres)		

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

NM102 OUTPUT REPORT.TXT

water surface.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-102

REACH: NM-102C

RS: 7972

INPUT

Description:

Station Elevation Data

num= 411

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	91.7	4.95	91.68	9.9	91.76	14.86	91.78	19.81	91.71
24.76	91.81	29.71	91.93	34.67	91.96	39.62	91.79	44.57	91.68
49.52	91.71	54.47	91.74	59.43	91.75	64.38	91.69	69.33	91.58
74.28	91.45	79.24	91.37	84.19	91.22	89.14	90.67	94.09	90.66
99.04	91.24	104	91.42	108.95	91.61	113.9	91.45	118.85	91.43
123.81	91.23	128.76	90.88	133.71	90.89	138.66	90.72	143.61	90.72
148.57	90.75	153.52	90.87	158.47	90.71	163.42	90.64	168.38	90.66
173.33	90.69	178.28	90.65	183.23	90.52	188.19	90.52	193.14	90.54
198.09	90.48	203.04	90.42	207.99	90.42	212.95	90.46	217.9	90.39
222.85	90.41	227.8	90.46	232.76	90.47	237.71	90.27	242.66	90.38
247.61	90.26	252.56	90.26	257.52	90.23	262.47	90.28	267.42	90.37
272.37	90.39	277.33	90.33	282.28	90.29	287.23	90.14	292.18	90.07
297.13	89.91	302.09	89.91	307.04	89.99	311.99	89.98	316.94	89.93
321.9	89.99	326.85	90.07	331.8	89.92	336.75	89.84	341.7	89.87
346.66	89.89	351.61	89.85	356.56	89.82	361.51	90.09	366.47	90.3
371.42	89.97	376.37	89.69	381.32	89.65	386.27	89.64	391.23	89.67
396.18	89.66	401.13	89.66	406.08	89.59	411.04	89.48	415.99	89.37
420.94	89.21	425.89	89.28	430.85	89.38	435.8	89.32	440.75	89.27
445.7	89.26	450.7	89.24	455.69	89.21	460.68	89.14	465.68	89.14
470.67	89.13	475.66	89.14	480.66	89.27	485.65	89.31	490.64	89.56
495.64	89.46	500.63	89.56	505.63	89.3	510.62	89.26	515.61	89.08
520.61	89.26	525.6	89.21	530.59	89.18	535.59	89.04	540.58	89.01
545.57	88.81	550.57	88.81	555.56	88.83	560.56	88.77	565.55	88.8
570.54	88.79	575.54	88.78	580.53	88.74	585.52	88.62	590.52	88.39
595.51	88.41	600.5	88.55	605.5	88.76	610.49	88.68	615.48	88.67
620.48	88.68	625.47	88.69	630.47	88.69	635.46	88.68	640.45	88.64
645.45	88.63	650.44	88.61	655.43	88.63	660.43	88.48	665.42	88.47
670.41	88.55	675.41	88.73	680.4	88.73	685.4	88.72	690.39	88.69
695.38	88.66	700.38	88.7	705.37	88.66	710.36	88.64	715.36	88.74
720.35	88.61	725.34	88.5	730.34	88.48	735.33	88.57	740.33	88.61
745.32	88.56	750.31	88.55	755.31	88.47	760.3	88.53	765.29	88.77
770.29	88.51	775.28	88.44	780.27	88.45	785.27	88.23	790.26	88.11
795.25	88.11	800.25	88.13	805.24	88.13	810.24	88.28	815.23	88.34
820.22	88.23	825.22	88.27	830.21	88.35	835.2	88.34	840.2	88.27
845.19	88.54	850.18	88.51	855.18	88.45	860.17	88.48	865.17	88.53
870.16	88.61	875.15	89.14	880.15	89.47	885.14	89.28	890.13	89.27
895.13	89.03	900.12	88.75	905.11	86.5	910.11	81.58	915.1	78.06
920.1	77.26	925.09	77.47	930.08	80.11	935.08	85.25	940.07	90.61
945.06	93.24	950.06	93.79	955.05	94.36	960.04	94.52	965.04	94.6
970.03	95.31	975.02	96.17	980.02	95.48	985.01	94.57	990.01	93.37
995	91.04	999.99	89.6	1004.99	89.07	1009.98	88.99	1014.97	88.93
1019.97	89.1	1024.96	89.12	1029.95	89.25	1034.95	89.33	1039.94	89.12
1044.94	88.97	1049.93	88.71	1054.92	88.52	1059.92	88.12	1064.91	88.08
1069.9	87.99	1074.9	87.98	1079.89	87.95	1084.88	87.96	1089.88	88.06
1094.87	88.1	1099.87	88.21	1104.86	88.16	1109.85	88.19	1114.85	88.26
1119.84	88.57	1124.83	88.63	1129.83	88.4	1134.82	88.29	1139.81	88.22
1144.81	88.09	1149.8	88.37	1154.8	88.32	1159.79	88.35	1164.78	88.41
1169.78	88.36	1174.77	88.35	1179.76	88.36	1184.76	88.36	1189.75	88.19
1194.75	88.22	1199.74	88.27	1204.73	88.56	1209.73	88.4	1214.72	88.43

NM102 OUTPUT REPORT.TXT

1219.71	88.42	1224.71	88.38	1229.7	88.38	1234.69	88.24	1239.69	88.32
1244.68	88.32	1249.68	88.48	1254.67	88.39	1259.66	88.74	1264.66	88.75
1269.65	88.84	1274.64	88.53	1279.64	88.37	1284.63	88.36	1289.62	88.31
1294.62	88.35	1299.61	88.52	1304.61	88.48	1309.6	88.45	1314.59	88.37
1319.59	88.3	1324.58	88.38	1329.57	88.39	1334.57	88.39	1339.56	88.61
1344.56	88.51	1349.55	88.48	1354.54	88.32	1359.54	88.34	1364.53	88.3
1369.52	88.29	1374.52	88.47	1379.51	88.5	1384.5	88.67	1389.5	88.59
1394.49	88.54	1399.49	88.36	1404.48	88.44	1409.47	88.51	1414.47	88.54
1419.46	88.56	1424.45	88.66	1429.45	88.71	1434.44	88.7	1439.43	88.53
1444.43	88.29	1449.42	88.38	1454.41	88.45	1459.41	88.47	1464.4	88.43
1469.39	88.55	1474.39	88.62	1479.38	88.54	1484.37	88.59	1489.37	88.59
1494.36	88.47	1499.35	88.42	1504.35	88.47	1509.34	88.59	1514.33	88.62
1519.33	88.59	1524.32	88.51	1529.31	88.41	1534.31	88.31	1539.3	88.24
1544.29	88.31	1549.29	88.44	1554.28	88.47	1559.27	88.45	1564.27	88.48
1569.26	88.47	1574.25	88.42	1579.25	88.36	1584.24	88.29	1589.23	88.37
1594.23	88.51	1599.22	88.6	1604.21	88.68	1609.21	88.76	1614.2	88.89
1619.19	88.72	1624.19	88.41	1629.18	88.4	1634.17	88.42	1639.17	88.57
1644.16	88.8	1649.15	88.7	1654.14	88.46	1659.14	88.42	1664.13	88.5
1669.12	88.51	1674.12	88.53	1679.11	88.53	1684.1	88.43	1689.1	88.36
1694.09	88.37	1699.08	88.36	1704.08	88.26	1709.07	88.18	1714.06	88.15
1719.06	88.14	1724.05	88.47	1729.04	88.71	1734.04	88.73	1739.03	88.8
1744.02	88.76	1749.02	88.33	1754.01	88.22	1759	88.28	1764	88.59
1768.99	88.83	1773.98	88.84	1778.98	88.81	1783.97	88.78	1788.96	88.91
1793.96	88.84	1798.95	88.81	1803.94	88.83	1808.94	88.72	1813.93	88.79
1818.92	88.76	1823.92	88.72	1828.91	88.75	1833.9	88.92	1838.9	88.97
1843.89	88.99	1848.88	88.83	1853.88	88.71	1858.87	88.86	1863.86	88.87
1868.86	88.73	1873.85	88.77	1878.84	88.72	1883.84	88.72	1888.83	88.49
1893.82	88.58	1898.82	88.84	1903.81	88.85	1908.8	88.69	1913.8	88.65
1918.79	88.83	1923.78	88.88	1928.78	88.88	1933.77	88.76	1938.76	88.76
1943.76	88.79	1948.75	88.87	1953.74	89.01	1958.73	89.07	1963.73	89
1968.72	88.82	1973.71	88.76	1978.71	88.75	1983.7	89.02	1988.69	89.08
1993.69	88.93	1998.68	88.91	2003.67	88.95	2008.67	88.83	2013.66	88.78
2018.65	88.88	2023.65	88.92	2028.64	88.98	2033.63	89.02	2038.63	89.11
2043.62	89.12								

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 900.12 .045 940.07 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 900.12 940.07 950 950 950 .1 .3
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 900.12 88.75 F
 940.07 2043.62 90.61 F

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	82.66	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.03	wt. n-val.		0.045
w.s. Elev (ft)	82.63	Reach Len. (ft)	950.00	950.00
950.00				
Crit w.s. (ft)	79.02	Flow Area (sq ft)		88.04
E.G. slope (ft/ft)	0.000321	Area (sq ft)		88.04
Q Total (cfs)	115.00	Flow (cfs)		115.00
Top width (ft)	23.50	Top width (ft)		23.50

NM102 OUTPUT REPORT.TXT				
Vel Total (ft/s)	1.31	Avg. Vel. (ft/s)		1.31
Max Chl Dpth (ft)	5.37	Hydr. Depth (ft)		3.75
Conv. Total (cfs)	6419.5	Conv. (cfs)		6419.5
Length wtd. (ft)	950.00	wetted Per. (ft)		26.83
Min Ch El (ft)	77.26	Shear (lb/sq ft)		0.07
Alpha 0.00	1.00	Stream Power (lb/ft s)	2043.62	0.00
Frctn Loss (ft)	0.43	Cum Volume (acre-ft)		31.50
C & E Loss (ft)	0.00	Cum SA (acres)		8.14

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

Profile #EX 25Y				
E.G. Elev (ft)	83.61	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	wt. n-val.		0.045
W.S. Elev (ft)	83.58	Reach Len. (ft)	950.00	950.00
950.00 Crit w.s. (ft)	79.34	Flow Area (sq ft)		111.20
E.G. slope (ft/ft)	0.000316	Area (sq ft)		111.20
Q Total (cfs)	158.00	Flow (cfs)		158.00
Top width (ft)	25.38	Top width (ft)		25.38
Vel Total (ft/s)	1.42	Avg. Vel. (ft/s)		1.42
Max Chl Dpth (ft)	6.32	Hydr. Depth (ft)		4.38
Conv. Total (cfs)	8892.2	Conv. (cfs)		8892.2
Length wtd. (ft)	950.00	wetted Per. (ft)		29.51
Min Ch El (ft)	77.26	Shear (lb/sq ft)		0.07
Alpha 0.00	1.00	Stream Power (lb/ft s)	2043.62	0.00
Frctn Loss (ft)	0.41	Cum Volume (acre-ft)	9.74	43.90
8.99 C & E Loss (ft)	0.00	Cum SA (acres)	6.95	9.13
20.49				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

NM102 OUTPUT REPORT.TXT

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	85.08	Element	Left OB	Channel
Right OB Vel Head (ft)	0.05	wt. n-val.		0.045
W.S. Elev (ft)	85.03	Reach Len. (ft)	950.00	950.00
950.00 Crit w.s. (ft)	80.03	Flow Area (sq ft)		150.13
E.G. slope (ft/ft)	0.000397	Area (sq ft)		150.13
Q Total (cfs)	268.00	Flow (cfs)		268.00
Top width (ft)	28.27	Top width (ft)		28.27
Vel Total (ft/s)	1.79	Avg. vel. (ft/s)		1.79
Max Chl Dpth (ft)	7.77	Hydr. Depth (ft)		5.31
Conv. Total (cfs)	13448.5	Conv. (cfs)		13448.5
Length wtd. (ft)	950.00	wetted Per. (ft)		33.60
Min Ch El (ft)	77.26	Shear (lb/sq ft)		0.11
Alpha 0.00	1.00	Stream Power (lb/ft s)	2043.62	0.00
Frctn Loss (ft)	0.52	Cum volume (acre-ft)	13.60	50.22
18.58 C & E Loss (ft)	0.00	Cum SA (acres)	10.48	9.49
21.54				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	83.79	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	wt. n-val.		0.045
W.S. Elev (ft)	83.75	Reach Len. (ft)	950.00	950.00
950.00 Crit w.s. (ft)	79.42	Flow Area (sq ft)		115.61
E.G. slope (ft/ft)	0.000320	Area (sq ft)		115.61
Q Total (cfs)	168.00	Flow (cfs)		168.00
Top width (ft)	25.72	Top width (ft)		25.72

NM102 OUTPUT REPORT.TXT				
Vel Total (ft/s)	1.45	Avg. Vel. (ft/s)		1.45
Max Chl Dpth (ft)	6.49	Hydr. Depth (ft)		4.49
Conv. Total (cfs)	9384.4	Conv. (cfs)		9384.4
Length wtd. (ft)	950.00	wetted Per. (ft)		29.99
Min Ch El (ft)	77.26	Shear (lb/sq ft)		0.08
Alpha	1.00	Stream Power (lb/ft s)	2043.62	0.00
0.00				
Frctn Loss (ft)	0.42	Cum volume (acre-ft)	10.67	45.24
11.64				
C & E Loss (ft)	0.00	Cum SA (acres)	7.12	9.22
21.07				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	84.48	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.04	wt. n-val.		0.045
W.S. Elev (ft)	84.44	Reach Len. (ft)	950.00	950.00
950.00				
Crit w.s. (ft)	79.74	Flow Area (sq ft)		133.80
E.G. slope (ft/ft)	0.000360	Area (sq ft)		133.80
Q Total (cfs)	218.00	Flow (cfs)		218.00
Top width (ft)	27.09	Top width (ft)		27.09
Vel Total (ft/s)	1.63	Avg. Vel. (ft/s)		1.63
Max Chl Dpth (ft)	7.18	Hydr. Depth (ft)		4.94
Conv. Total (cfs)	11482.0	Conv. (cfs)		11482.0
Length wtd. (ft)	950.00	wetted Per. (ft)		31.94
Min Ch El (ft)	77.26	Shear (lb/sq ft)		0.09
Alpha	1.00	Stream Power (lb/ft s)	2043.62	0.00
0.00				
Frctn Loss (ft)	0.47	Cum volume (acre-ft)	12.55	48.28
16.40				
C & E Loss (ft)	0.00	Cum SA (acres)	8.73	9.38
21.40				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

NM102 OUTPUT REPORT.TXT

This may indicate the need for additional cross sections.
 Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	85.95	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.06	wt. n-val.		0.045
W.S. Elev (ft)	85.89	Reach Len. (ft)	950.00	950.00
950.00				
Crit w.s. (ft)	80.41	Flow Area (sq ft)		175.13
E.G. slope (ft/ft)	0.000434	Area (sq ft)		175.13
Q Total (cfs)	346.00	Flow (cfs)		346.00
Top width (ft)	29.95	Top width (ft)		29.95
vel Total (ft/s)	1.98	Avg. vel. (ft/s)		1.98
Max Chl Dpth (ft)	8.63	Hydr. Depth (ft)		5.85
Conv. Total (cfs)	16601.9	Conv. (cfs)		16601.9
Length wtd. (ft)	950.00	wetted Per. (ft)		36.00
Min Ch El (ft)	77.26	Shear (lb/sq ft)		0.13
Alpha	1.00	Stream Power (lb/ft s)	2043.62	0.00
0.00				
Frctn Loss (ft)	0.57	Cum volume (acre-ft)	18.29	55.00
25.97				
C & E Loss (ft)	0.00	Cum SA (acres)	16.50	9.74
21.84				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-102
 REACH: NM-102C

RS: 7022

INPUT

Description:

Station	Elevation	Data	num=	408	Sta	Elev	Sta	Elev	Sta	Elev
0	85.55	4.99	85.05	9.99	84.73	14.98	84.67	19.97	84.52	
24.97	85.09	29.96	86.54	34.95	86.86	39.95	88.26	44.94	89.11	
49.93	89.28	54.93	89.28	59.92	89.32	64.91	89.3	69.91	89.31	
74.9	89.32	79.89	89.38	84.89	89.36	89.88	89.34	94.87	89.59	
99.87	89.69	104.86	90.09	109.86	90.16	114.85	90.12	119.84	90.12	
124.84	90.26	129.83	89.9	134.82	89.21	139.82	88.98	144.81	88.89	
149.8	88.76	154.8	88.69	159.79	88.67	164.78	88.57	169.78	88.48	

NM102 OUTPUT REPORT.TXT

174.77	88.47	179.76	88.51	184.76	88.52	189.75	88.53	194.74	88.53
199.74	88.47	204.73	88.42	209.72	88.44	214.72	88.44	219.71	88.44
224.7	88.46	229.7	88.48	234.69	88.47	239.68	88.45	244.68	88.44
249.67	88.42	254.66	88.44	259.66	88.42	264.65	88.39	269.64	88.39
274.64	88.45	279.63	88.56	284.63	88.54	289.62	88.45	294.61	88.42
299.61	88.42	304.6	88.5	309.59	88.55	314.59	88.54	319.58	88.51
324.57	88.47	329.57	88.46	334.56	88.5	339.55	88.55	344.55	88.52
349.54	88.52	354.53	88.5	359.53	88.45	364.52	88.46	369.51	88.53
374.51	88.57	379.5	88.56	384.49	88.56	389.49	88.56	394.48	88.58
399.47	88.69	404.47	88.75	409.46	88.7	414.45	88.6	419.45	88.56
424.44	88.61	429.43	88.63	434.43	88.61	439.42	88.59	444.41	88.64
449.41	88.62	454.4	88.59	459.4	88.55	464.39	88.63	469.38	88.58
474.38	88.58	479.37	88.52	484.36	88.4	489.36	88.32	494.35	88.35
499.34	88.51	504.34	88.52	509.33	88.44	514.32	88.46	519.31	88.55
524.3	88.53	529.28	88.48	534.27	88.41	539.26	88.42	544.25	88.48
549.23	88.44	554.22	88.47	559.21	88.46	564.19	88.3	569.18	88.24
574.17	88.33	579.16	88.34	584.14	88.5	589.13	88.45	594.12	88.45
599.1	88.45	604.09	88.5	609.08	88.47	614.07	88.45	619.05	88.44
624.04	88.41	629.03	88.51	634.01	88.46	639	88.58	643.99	88.58
648.98	88.58	653.96	88.46	658.95	88.54	663.94	88.55	668.92	88.46
673.91	88.48	678.9	88.45	683.89	88.45	688.87	88.59	693.86	88.51
698.85	88.4	703.83	88.39	708.82	88.42	713.81	88.46	718.8	88.45
723.78	88.39	728.77	88.37	733.76	88.46	738.74	88.51	743.73	88.46
748.72	88.43	753.71	88.5	758.69	88.47	763.68	88.55	768.67	88.55
773.65	88.56	778.64	88.53	783.63	88.59	788.62	88.59	793.6	88.5
798.59	88.64	803.58	88.9	808.56	89.28	813.55	89.32	818.54	89.26
823.53	89.48	828.51	89.78	833.5	89.89	838.49	90.11	843.47	89.82
848.46	89.58	853.45	89.57	858.44	89.34	863.42	89.07	868.41	88.82
873.4	88.71	878.39	88.91	883.37	89.24	888.36	89.71	893.35	90.08
898.33	90.17	903.32	88.67	908.31	84.52	913.29	79.43	918.28	77.09
923.27	77.47	928.26	80.36	933.24	86	938.23	89.25	943.22	91.58
948.21	94.68	953.19	95.36	958.18	95.37	963.17	95.86	968.15	96.38
973.14	96.27	978.13	95	983.11	93.26	988.1	92.17	993.09	90.48
998.08	90.02	1003.06	89.7	1008.05	89.44	1013.04	89.06	1018.03	89.2
1023.01	89.37	1028	89.43	1032.99	89.49	1037.97	89.33	1042.96	89.2
1047.95	89.1	1052.94	88.76	1057.92	88.58	1062.91	88.7	1067.9	88.98
1072.88	89.01	1077.87	88.91	1082.86	88.68	1087.85	88.73	1092.83	88.72
1097.82	88.77	1102.81	89.02	1107.79	89.03	1112.78	88.99	1117.77	88.92
1122.76	88.82	1127.74	88.84	1132.73	88.85	1137.72	88.91	1142.7	88.96
1147.69	88.92	1152.68	88.91	1157.67	88.88	1162.65	88.85	1167.64	88.8
1172.63	88.75	1177.61	88.76	1182.6	88.84	1187.59	88.83	1192.58	89.04
1197.56	89.06	1202.55	89.31	1207.54	89.37	1212.53	89.37	1217.51	89.36
1222.5	89.15	1227.49	88.79	1232.47	88.83	1237.46	88.95	1242.45	89.25
1247.44	89.36	1252.42	89.2	1257.41	88.95	1262.4	88.96	1267.38	88.92
1272.37	88.86	1277.36	88.92	1282.35	88.98	1287.33	89.09	1292.32	89.11
1297.31	89.05	1302.29	89.08	1307.28	89.16	1312.27	89.11	1317.26	89
1322.24	88.99	1327.23	89	1332.22	89.35	1337.21	89.32	1342.19	89.17
1347.18	89.14	1352.17	88.86	1357.17	88.84	1362.16	88.76	1367.16	88.75
1372.16	88.91	1377.16	89	1382.16	88.83	1387.16	88.78	1392.16	88.52
1397.16	88.68	1402.16	88.82	1407.15	88.85	1412.15	88.92	1417.15	88.72
1422.15	88.83	1427.15	88.66	1432.15	88.59	1437.15	88.71	1442.15	88.79
1447.15	88.72	1452.14	88.67	1457.14	88.74	1462.14	88.93	1467.14	88.91
1472.14	88.93	1477.14	88.85	1482.14	88.7	1487.14	88.9	1492.14	89.02
1497.13	89.09	1502.13	89.03	1507.13	88.99	1512.13	88.97	1517.13	88.98
1522.13	88.83	1527.13	88.9	1532.13	88.93	1537.13	88.92	1542.12	88.9
1547.12	88.81	1552.12	88.91	1557.12	89.01	1562.12	89.3	1567.12	89.25
1572.12	89.02	1577.12	88.98	1582.12	88.83	1587.11	88.99	1592.11	89.08
1597.11	88.98	1602.11	88.9	1607.11	88.86	1612.11	88.83	1617.11	88.68
1622.11	88.6	1627.1	88.65	1632.1	88.69	1637.1	88.75	1642.1	88.82
1647.1	88.87	1652.1	88.91	1657.1	88.86	1662.1	88.78	1667.1	88.79
1672.1	88.83	1677.09	88.81	1682.09	88.86	1687.09	89.01	1692.09	89.03
1697.09	88.98	1702.09	89.01	1707.09	88.91	1712.09	88.69	1717.08	88.68
1722.08	88.69	1727.08	88.79	1732.08	89.27	1737.08	89.84	1742.08	89.88

NM102 OUTPUT REPORT.TXT

1747.08	89.71	1752.08	89.46	1757.08	89.5	1762.07	89.61	1767.07	89.78
1772.07	89.72	1777.07	89.56	1782.07	89.44	1787.07	89.48	1792.07	89.68
1797.07	89.8	1802.07	89.62	1807.06	89.63	1812.06	89.51	1817.06	89.32
1822.06	89.36	1827.06	89.37	1832.06	89.34	1837.06	89.42	1842.06	89.47
1847.06	89.41	1852.05	89.27	1857.05	89.29	1862.05	89.34	1867.05	89.3
1872.05	89.21	1877.05	89.34	1882.05	89.29	1887.05	89.14	1892.05	89.05
1897.04	88.72	1902.04	88.63	1907.04	88.61	1912.04	88.61	1917.04	88.49
1922.04	88.43	1927.04	88.56	1932.04	88.57	1937.04	88.56	1942.03	88.7
1947.03	88.51	1952.03	88.46	1957.03	88.28	1962.03	88.3	1967.03	88.4
1972.03	88.49	1977.03	88.49	1982.03	88.29	1987.02	88.28	1992.02	88.29
1997.02	88.31	2002.02	88.33	2007.02	88.27	2012.02	88.24	2017.02	88.22
2022.02	88.17	2027.02	88.22	2032.01	88.32				

Manning's n Values num= 3
 Sta n Val Sta n Val
 0 .06 903.32 .045 943.22 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 903.32 943.22 929 929 929 .1 .3

Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 898 90 F
 943.22 2032.01 91.58 F
 Blocked Obstructions num= 2
 Sta L Sta R Elev Sta L Sta R Elev
 0 100 89.5 1803.04 2032.01 89.48

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	82.23	Element	Left OB	Channel
Right OB Vel Head (ft)	0.05	wt. n-val.		0.045
W.S. Elev (ft)	82.18	Reach Len. (ft)	929.00	929.00
929.00 Crit w.s. (ft)	79.23	Flow Area (sq ft)		65.48
E.G. Slope (ft/ft)	0.000683	Area (sq ft)		65.48
Q Total (cfs)	115.00	Flow (cfs)		115.00
Top width (ft)	19.27	Top width (ft)		19.27
Vel Total (ft/s)	1.76	Avg. Vel. (ft/s)		1.76
Max Chl Dpth (ft)	5.09	Hydr. Depth (ft)		3.40
Conv. Total (cfs)	4399.9	Conv. (cfs)		4399.9
Length wtd. (ft)	929.00	wetted Per. (ft)		22.56
Min Ch El (ft)	77.09	Shear (lb/sq ft)		0.12
Alpha 0.00	1.00	Stream Power (lb/ft s)	2032.01	0.00
Frctn Loss (ft)	0.62	Cum Volume (acre-ft)		29.83
C & E Loss (ft)	0.00	Cum SA (acres)		7.67

NM102 OUTPUT REPORT.TXT

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	83.20	Element	Left OB	Channel
Right OB Vel Head (ft)	0.05	wt. n-Val.		0.045
W.S. Elev (ft)	83.15	Reach Len. (ft)	929.00	929.00
929.00 Crit w.s. (ft)	79.59	Flow Area (sq ft)		84.95
E.G. Slope (ft/ft)	0.000628	Area (sq ft)		84.95
Q Total (cfs)	158.00	Flow (cfs)		158.00
Top width (ft)	21.07	Top width (ft)		21.07
Vel Total (ft/s)	1.86	Avg. Vel. (ft/s)		1.86
Max Ch1 Dpth (ft)	6.06	Hydr. Depth (ft)		4.03
Conv. Total (cfs)	6306.5	Conv. (cfs)		6306.5
Length wtd. (ft)	929.00	wetted Per. (ft)		25.20
Min Ch El (ft)	77.09	Shear (lb/sq ft)		0.13
Alpha 0.00	1.00	Stream Power (lb/ft s)	2032.01	0.00
Frctn Loss (ft)	0.54	Cum Volume (acre-ft)	9.74	41.76
8.99 C & E Loss (ft)	0.00	Cum SA (acres)	6.95	8.62
20.49				

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	84.56	Element	Left OB	Channel
Right OB Vel Head (ft)	0.08	wt. n-Val.		0.045
W.S. Elev (ft)	84.48	Reach Len. (ft)	929.00	929.00
929.00 Crit w.s. (ft)	80.32	Flow Area (sq ft)		114.59
E.G. Slope (ft/ft)	0.000797	Area (sq ft)		114.59
Q Total (cfs)	268.00	Flow (cfs)		268.00
Top width (ft)	23.54	Top width (ft)		23.54
Vel Total (ft/s)	2.34	Avg. Vel. (ft/s)		2.34
Max Ch1 Dpth (ft)	7.39	Hydr. Depth (ft)		4.87

NM102 OUTPUT REPORT.TXT				
Conv. Total (cfs)	9494.4	Conv. (cfs)		9494.4
Length wtd. (ft)	929.00	Wetted Per. (ft)		28.83
Min Ch El (ft)	77.09	Shear (lb/sq ft)		0.20
Alpha	1.00	Stream Power (lb/ft s)	2032.01	0.00
0.00		Cum Volume (acre-ft)	13.60	47.33
Frctn Loss (ft)	0.71	Cum SA (acres)	10.48	8.93
18.58				
C & E Loss (ft)	0.00			
21.54				

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	83.37	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.06	wt. n-val.		0.045
W.S. Elev (ft)	83.31	Reach Len. (ft)	929.00	929.00
929.00		Flow Area (sq ft)		88.47
Crit w.s. (ft)	79.66	Area (sq ft)		88.47
E.G. Slope (ft/ft)	0.000635	Flow (cfs)		168.00
Q Total (cfs)	168.00	Top width (ft)		21.37
Top width (ft)	21.37	Avg. Vel. (ft/s)		1.90
Vel Total (ft/s)	1.90	Hydr. Depth (ft)		4.14
Max Chl Dpth (ft)	6.22	Conv. (cfs)		6668.6
Conv. Total (cfs)	6668.6	Wetted Per. (ft)		25.65
Length wtd. (ft)	929.00	Shear (lb/sq ft)		0.14
Min Ch El (ft)	77.09	Stream Power (lb/ft s)	2032.01	0.00
Alpha	1.00	Cum Volume (acre-ft)	10.67	43.01
0.00		Cum SA (acres)	7.12	8.70
Frctn Loss (ft)	0.55			
11.64				
C & E Loss (ft)	0.00			
21.07				

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	84.01	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.07	wt. n-val.		0.045

NM102 OUTPUT REPORT.TXT

W.S. Elev (ft)	83.94	Reach Len. (ft)	929.00	929.00
929.00 Crit w.s. (ft)	80.01	Flow Area (sq ft)		102.28
E.G. Slope (ft/ft)	0.000718	Area (sq ft)		102.28
Q Total (cfs)	218.00	Flow (cfs)		218.00
Top width (ft)	22.55	Top width (ft)		22.55
Vel Total (ft/s)	2.13	Avg. Vel. (ft/s)		2.13
Max Chl Dpth (ft)	6.85	Hydr. Depth (ft)		4.54
Conv. Total (cfs)	8133.3	Conv. (cfs)		8133.3
Length wtd. (ft)	929.00	wetted Per. (ft)		27.37
Min Ch El (ft)	77.09	Shear (lb/sq ft)		0.17
Alpha	1.00	Stream Power (lb/ft s)	2032.01	0.00
0.00 Frctn Loss (ft)	0.63	Cum Volume (acre-ft)	12.55	45.71
16.40 C & E Loss (ft)	0.00	Cum SA (acres)	8.73	8.84
21.40				

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	85.38	Element	Left OB	Channel
Right OB Vel Head (ft)	0.10	wt. n-val.		0.045
W.S. Elev (ft)	85.28	Reach Len. (ft)	929.00	929.00
929.00 Crit w.s. (ft)	80.73	Flow Area (sq ft)		134.14
E.G. Slope (ft/ft)	0.000871	Area (sq ft)		134.14
Q Total (cfs)	346.00	Flow (cfs)		346.00
Top width (ft)	25.20	Top width (ft)		25.20
Vel Total (ft/s)	2.58	Avg. Vel. (ft/s)		2.58
Max Chl Dpth (ft)	8.19	Hydr. Depth (ft)		5.32
Conv. Total (cfs)	11724.7	Conv. (cfs)		11724.7
Length wtd. (ft)	929.00	wetted Per. (ft)		31.15
Min Ch El (ft)	77.09	Shear (lb/sq ft)		0.23
Alpha	1.00	Stream Power (lb/ft s)	2032.01	0.00
0.00 Frctn Loss (ft)	0.79	Cum Volume (acre-ft)	18.29	51.63

NM102 OUTPUT REPORT.TXT

25.97
 C & E Loss (ft) 0.00 Cum SA (acres) 16.50 9.14
 21.84

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-102
 REACH: NM-102C RS: 6093

INPUT

Description:

Station	Elevation	Data	num=	411	Sta	Elev	Sta	Elev	Sta	Elev
0	89.73	4.98	89.62	9.95	89.67	14.93	89.68	19.91	89.6	89.6
24.88	89.47	29.86	89.49	34.84	89.5	39.81	89.49	44.79	89.48	89.48
49.77	89.48	54.74	89.46	59.72	89.44	64.7	89.44	69.67	89.5	89.5
74.65	89.47	79.63	89.39	84.61	89.34	89.58	89.24	94.56	89.16	89.16
99.54	89.04	104.51	89.2	109.49	89.61	114.47	90.01	119.44	90.07	90.07
124.42	89.84	129.4	89.71	134.37	89.28	139.35	89.25	144.33	89.1	89.1
149.3	89.11	154.28	89.08	159.26	89.04	164.23	89.06	169.21	89.02	89.02
174.19	89.04	179.16	89.07	184.14	89.28	189.12	89.21	194.09	89.18	89.18
199.07	89.13	204.05	89.16	209.02	89.19	214	89.11	218.98	88.98	88.98
223.95	89.1	228.93	88.96	233.91	88.94	238.88	88.97	243.86	89.03	89.03
248.84	88.87	253.81	88.8	258.79	88.74	263.77	88.78	268.74	88.67	88.67
273.72	88.61	278.7	88.53	283.68	88.64	288.65	88.82	293.63	88.82	88.82
298.61	88.82	303.58	88.8	308.56	88.77	313.54	88.77	318.51	88.77	88.77
323.49	88.73	328.47	88.61	333.44	88.51	338.42	88.44	343.4	88.44	88.44
348.37	88.51	353.35	88.55	358.33	88.55	363.3	88.62	368.28	88.58	88.58
373.26	88.5	378.23	88.52	383.21	88.47	388.19	88.39	393.16	88.38	88.38
398.14	88.29	403.12	88.13	408.09	88.2	413.07	88.3	418.05	88.29	88.29
423.02	88.27	428	88.34	432.98	88.45	437.96	88.3	442.94	88.19	88.19
447.92	88.17	452.9	88.24	457.87	88.31	462.85	88.21	467.83	88.17	88.17
472.81	88.15	477.79	88.39	482.77	88.27	487.75	88.27	492.73	88.31	88.31
497.7	88.3	502.68	88.18	507.66	88.22	512.64	88.22	517.62	88.19	88.19
522.6	88.2	527.58	88.02	532.56	88.05	537.54	88.32	542.51	88.24	88.24
547.49	88.03	552.47	88.06	557.45	88.08	562.43	88.02	567.41	88.1	88.1
572.39	88.01	577.37	88.03	582.34	87.89	587.32	87.93	592.3	87.97	87.97
597.28	87.94	602.26	87.91	607.24	87.8	612.22	87.79	617.2	87.76	87.76
622.17	87.78	627.15	87.8	632.13	87.85	637.11	87.87	642.09	87.85	87.85
647.07	87.89	652.05	87.95	657.03	87.95	662.01	87.91	666.98	87.89	87.89
671.96	87.82	676.94	87.71	681.92	87.67	686.9	87.82	691.88	87.92	87.92
696.86	87.87	701.84	87.83	706.81	87.83	711.79	87.75	716.77	87.72	87.72
721.75	87.73	726.73	87.69	731.71	87.72	736.69	87.72	741.67	87.67	87.67
746.65	87.74	751.62	87.8	756.6	87.77	761.58	87.67	766.56	87.61	87.61
771.54	87.56	776.52	87.58	781.5	87.72	786.48	87.85	791.45	87.77	87.77
796.43	87.49	801.41	87.5	806.39	87.6	811.37	87.61	816.35	87.59	87.59
821.33	87.6	826.31	87.63	831.28	87.64	836.26	87.58	841.24	87.56	87.56
846.22	87.48	851.2	87.51	856.18	87.53	861.16	87.59	866.14	87.61	87.61
871.12	87.51	876.09	87.54	881.07	87.75	886.05	88.56	891.03	89.57	89.57
896.01	89.65	900.99	89.72	902.5	88.465	902.8	88.216	903	88.05	88.05
903.4	87.717	905.97	85.58	910.95	79.07	915.92	78.65	920.9	76.45	76.45
925.88	77.27	930.86	82.07	935.84	87.96	940.82	87.97	945.8	91.69	91.69
950.78	93.11	955.76	93.3	960.73	93.31	965.71	93.45	970.69	93.53	93.53
975.67	93.51	980.65	93.47	985.63	90.49	990.61	87.65	995.59	87.07	87.07
1000.56	87.04	1005.54	87.18	1010.52	87.79	1015.5	88.05	1020.48	88.12	88.12
1025.46	88.16	1030.44	88.31	1035.42	88.42	1040.39	88.34	1045.37	88.32	88.32
1050.35	87.77	1055.33	87.28	1060.31	86.8	1065.29	86.62	1070.27	86.51	86.51

NM102 OUTPUT REPORT.TXT

1075.25	86.75	1080.22	87.76	1085.2	88.25	1090.18	88.06	1095.16	87.65
1100.14	87.58	1105.12	87.68	1110.1	87.7	1115.08	87.59	1120.05	87.61
1125.03	87.75	1130.01	87.77	1134.99	87.76	1139.97	87.69	1144.95	87.71
1149.93	87.77	1154.91	87.79	1159.89	87.87	1164.86	87.82	1169.84	87.64
1174.82	87.69	1179.8	87.8	1184.78	87.75	1189.76	87.74	1194.74	87.74
1199.72	87.73	1204.69	87.74	1209.67	87.77	1214.65	87.75	1219.63	87.77
1224.61	87.8	1229.59	87.8	1234.57	87.8	1239.55	87.82	1244.52	87.9
1249.5	87.92	1254.48	87.89	1259.46	87.9	1264.44	87.96	1269.42	87.96
1274.4	88.24	1279.38	88.32	1284.35	88.98	1289.33	89.39	1294.31	89.21
1299.29	88.88	1304.27	88.91	1309.25	88.96	1314.23	89.05	1319.21	89.04
1324.18	89.04	1329.16	88.95	1334.14	88.73	1339.12	88.74	1344.1	88.75
1349.08	88.83	1354.06	89.03	1359.04	88.87	1364.02	88.82	1368.99	89.01
1373.97	89.14	1378.95	88.94	1383.93	88.8	1388.91	88.79	1393.89	88.73
1398.87	88.81	1403.85	88.84	1408.82	88.85	1413.8	88.77	1418.78	88.75
1423.76	88.75	1428.74	88.68	1433.72	88.63	1438.7	88.62	1443.68	88.65
1448.65	88.67	1453.63	88.77	1458.61	88.81	1463.59	89.05	1468.57	89.47
1473.55	89.68	1478.53	89.81	1483.51	89.85	1488.48	89.78	1493.46	89.69
1498.44	89.65	1503.42	89.61	1508.4	89.53	1513.38	89.38	1518.36	89.38
1523.34	89.42	1528.31	89.51	1533.29	89.73	1538.27	89.79	1543.25	89.81
1548.23	89.82	1553.21	89.74	1558.19	89.64	1563.17	89.48	1568.14	89.14
1573.12	89.15	1578.1	89.29	1583.08	89.52	1588.06	89.44	1593.04	89.42
1597.98	89.38	1602.93	89.46	1607.88	89.32	1612.82	89.26	1617.77	89.23
1622.71	89.1	1627.66	89.4	1632.6	89.42	1637.55	89.51	1642.5	89.34
1647.44	89.76	1652.39	89.76	1657.33	89.76	1662.28	89.31	1667.22	89.25
1672.17	89.12	1677.12	89.1	1682.06	88.9	1687.01	89.02	1691.95	88.88
1696.9	88.82	1701.84	88.59	1706.79	88.58	1711.74	88.35	1716.68	88.28
1721.63	88.11	1726.57	88.17	1731.52	88.52	1736.46	88.07	1741.41	87.77
1746.36	87.23	1751.3	86.95	1756.25	86.81	1761.19	86.75	1766.14	86.81
1771.08	86.79	1776.03	86.71	1780.98	86.71	1785.92	86.79	1790.87	86.75
1795.81	86.66	1800.76	86.71	1805.7	86.7	1810.65	86.69	1815.6	86.73
1820.54	86.73	1825.49	86.69	1830.43	86.7	1835.38	86.71	1840.32	86.73
1845.27	86.75	1850.22	86.75	1855.16	86.7	1860.11	86.75	1865.05	86.74
1870	86.72	1874.94	86.7	1879.89	86.72	1884.84	86.72	1889.78	86.71
1894.73	86.7	1899.67	86.77	1904.62	86.72	1909.56	86.71	1914.51	86.73
1919.46	86.57	1924.4	86.74	1929.35	86.72	1934.29	86.71	1939.24	86.68
1944.18	86.76	1949.13	86.78	1954.08	86.78	1959.02	86.73	1963.97	86.76
1968.91	86.71	1973.86	86.71	1978.8	86.68	1983.75	86.78	1988.7	86.76
1993.64	86.73	1998.59	86.72	2003.53	86.65	2008.48	86.67	2013.42	86.66
2018.37	86.63								

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 903 .045 945.8 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 903 945.8 971 971 971 .1 .3

Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 896 89.6 F
 945.8 2018.37 91.69 F

Blocked Obstructions num= 1
 Sta L Sta R Elev
 1643.67 2018.37 89.27

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	81.60	Element	Left OB	Channel
Right OB Vel Head (ft)	0.04	wt. n-val.		0.045
W.S. Elev (ft)	81.56	Reach Len. (ft)	971.00	971.00
971.00				

NM102 OUTPUT REPORT.TXT				
Crit w.s. (ft)	78.85	Flow Area (sq ft)		68.74
E.G. Slope (ft/ft)	0.000659	Area (sq ft)		68.74
Q Total (cfs)	115.00	Flow (cfs)		115.00
Top width (ft)	21.29	Top width (ft)		21.29
Vel Total (ft/s)	1.67	Avg. Vel. (ft/s)		1.67
Max Chl Dpth (ft)	5.11	Hydr. Depth (ft)		3.23
Conv. Total (cfs)	4479.3	Conv. (cfs)		4479.3
Length wtd. (ft)	971.00	wetted Per. (ft)		24.80
Min Ch El (ft)	76.45	Shear (lb/sq ft)		0.11
Alpha	1.00	Stream Power (lb/ft s)	2018.37	0.00
0.00				
Frctn Loss (ft)	0.58	Cum Volume (acre-ft)		28.40
C & E Loss (ft)	0.00	Cum SA (acres)		7.24

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	82.66	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.05	wt. n-Val.		0.045
w.s. Elev (ft)	82.61	Reach Len. (ft)	971.00	971.00
971.00				
Crit w.s. (ft)	79.20	Flow Area (sq ft)		92.05
E.G. Slope (ft/ft)	0.000541	Area (sq ft)		92.05
Q Total (cfs)	158.00	Flow (cfs)		158.00
Top width (ft)	23.08	Top width (ft)		23.08
Vel Total (ft/s)	1.72	Avg. Vel. (ft/s)		1.72
Max Chl Dpth (ft)	6.16	Hydr. Depth (ft)		3.99
Conv. Total (cfs)	6790.9	Conv. (cfs)		6790.9
Length wtd. (ft)	971.00	wetted Per. (ft)		27.56
Min Ch El (ft)	76.45	Shear (lb/sq ft)		0.11
Alpha	1.00	Stream Power (lb/ft s)	2018.37	0.00
0.00				
Frctn Loss (ft)	0.45	Cum Volume (acre-ft)	9.74	39.88
8.99				
C & E Loss (ft)	0.00	Cum SA (acres)	6.95	8.15
20.49				

NM102 OUTPUT REPORT.TXT

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	83.84	Element	Left OB	Channel
Right OB Vel Head (ft)	0.08	wt. n-Val.		0.045
W.S. Elev (ft)	83.77	Reach Len. (ft)	971.00	971.00
971.00 Crit w.s. (ft)	79.82	Flow Area (sq ft)		119.78
E.G. Slope (ft/ft)	0.000742	Area (sq ft)		119.78
Q Total (cfs)	268.00	Flow (cfs)		268.00
Top width (ft)	24.94	Top width (ft)		24.94
Vel Total (ft/s)	2.24	Avg. Vel. (ft/s)		2.24
Max Chl Dpth (ft)	7.32	Hydr. Depth (ft)		4.80
Conv. Total (cfs)	9839.3	Conv. (cfs)		9839.3
Length wtd. (ft)	971.00	wetted Per. (ft)		30.53
Min Ch El (ft)	76.45	Shear (lb/sq ft)		0.18
Alpha	1.00	Stream Power (lb/ft s)	2018.37	0.00
0.00 Frctn Loss (ft)	0.66	Cum Volume (acre-ft)	13.60	44.83
18.58 C & E Loss (ft)	0.00	Cum SA (acres)	10.48	8.41
21.54				

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	82.82	Element	Left OB	Channel
Right OB Vel Head (ft)	0.05	wt. n-Val.		0.045
W.S. Elev (ft)	82.77	Reach Len. (ft)	971.00	971.00
971.00 Crit w.s. (ft)	79.27	Flow Area (sq ft)		95.77
E.G. Slope (ft/ft)	0.000547	Area (sq ft)		95.77
Q Total (cfs)	168.00	Flow (cfs)		168.00
Top width (ft)	23.33	Top width (ft)		23.33
Vel Total (ft/s)	1.75	Avg. Vel. (ft/s)		1.75
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Max Chl Dpth (ft)	6.32	Hydr. Depth (ft)		4.10
Conv. Total (cfs)	7183.1	Conv. (cfs)		7183.1
Length wtd. (ft)	971.00	wetted Per. (ft)		27.97
Min Ch El (ft)	76.45	Shear (lb/sq ft)		0.12
Alpha	1.00	Stream Power (lb/ft s)	2018.37	0.00
0.00				
Frctn Loss (ft)	0.46	Cum Volume (acre-ft)	10.67	41.05
11.64				
C & E Loss (ft)	0.00	Cum SA (acres)	7.12	8.22
21.07				

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	83.38	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.06	wt. n-Val.		0.045
W.S. Elev (ft)	83.32	Reach Len. (ft)	971.00	971.00
971.00				
Crit w.s. (ft)	79.55	Flow Area (sq ft)		108.71
E.G. Slope (ft/ft)	0.000644	Area (sq ft)		108.71
Q Total (cfs)	218.00	Flow (cfs)		218.00
Top width (ft)	24.21	Top width (ft)		24.21
Vel Total (ft/s)	2.01	Avg. Vel. (ft/s)		2.01
Max Chl Dpth (ft)	6.87	Hydr. Depth (ft)		4.49
Conv. Total (cfs)	8589.4	Conv. (cfs)		8589.4
Length wtd. (ft)	971.00	wetted Per. (ft)		29.37
Min Ch El (ft)	76.45	Shear (lb/sq ft)		0.15
Alpha	1.00	Stream Power (lb/ft s)	2018.37	0.00
0.00				
Frctn Loss (ft)	0.56	Cum Volume (acre-ft)	12.55	43.46
16.40				
C & E Loss (ft)	0.00	Cum SA (acres)	8.73	8.34
21.40				

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

NM102 OUTPUT REPORT.TXT

	84.59	Element	Left OB	Channel
E.G. Elev (ft)	84.59	Element		
Right OB				
Vel Head (ft)	0.10	Wt. n-Val.		0.045
W.S. Elev (ft)	84.49	Reach Len. (ft)	971.00	971.00
971.00				
Crit w.s. (ft)	80.18	Flow Area (sq ft)		138.33
E.G. slope (ft/ft)	0.000828	Area (sq ft)		138.33
Q Total (cfs)	346.00	Flow (cfs)		346.00
Top width (ft)	26.11	Top width (ft)		26.11
Vel Total (ft/s)	2.50	Avg. Vel. (ft/s)		2.50
Max Chl Dpth (ft)	8.04	Hydr. Depth (ft)		5.30
Conv. Total (cfs)	12022.5	Conv. (cfs)		12022.5
Length wtd. (ft)	971.00	Wetted Per. (ft)		32.40
Min Ch El (ft)	76.45	Shear (lb/sq ft)		0.22
Alpha	1.00	Stream Power (lb/ft s)	2018.37	0.00
0.00				
Frctn Loss (ft)	0.76	Cum Volume (acre-ft)	18.29	48.72
25.97				
C & E Loss (ft)	0.00	Cum SA (acres)	16.50	8.59
21.84				

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-102
 REACH: NM-102C

RS: 5122

INPUT

Description:

Station	Elevation	Data	num=	403	Sta	Elev	Sta	Elev	Sta	Elev
0	86.92	5	86.94	9.99	86.87	14.99	86.9	19.98	86.86	
24.98	86.71	29.97	86.65	34.97	86.68	39.96	86.72	44.96	86.75	
49.95	86.61	54.95	86.65	59.94	86.77	64.94	86.85	69.94	86.92	
74.93	86.96	79.93	86.97	84.92	86.99	89.92	87.1	94.91	87.3	
99.91	87.32	104.9	87.41	109.9	87.61	114.89	87.75	119.89	87.77	
124.89	87.78	129.88	87.48	134.88	87.04	139.87	86.99	144.87	86.65	
149.86	86.48	154.86	86.65	159.85	86.71	164.85	86.72	169.84	86.76	
174.84	86.92	179.83	86.7	184.83	86.7	189.83	86.71	194.82	86.68	
199.82	86.7	204.81	86.68	209.81	86.61	214.8	86.58	219.8	86.57	
224.79	86.57	229.79	86.56	234.78	86.56	239.78	86.55	244.78	86.55	
249.77	86.54	254.77	86.47	259.76	86.48	264.76	86.43	269.75	86.41	
274.75	86.39	279.74	86.63	284.74	86.56	289.73	86.55	294.73	86.03	
299.72	85.9	304.72	85.81	309.72	85.79	314.71	85.85	319.71	85.89	
324.7	85.92	329.7	85.93	334.69	86	339.69	86.08	344.68	86.19	
349.68	86.27	354.67	86.29	359.67	86.36	364.67	86.32	369.66	86.14	
374.66	86.09	379.65	85.99	384.65	86.02	389.64	86.02	394.64	85.99	
399.63	85.98	404.63	85.86	409.62	85.84	414.62	85.87	419.61	85.79	

NM102 OUTPUT REPORT.TXT

424.61	85.77	429.61	85.77	434.6	85.72	439.6	85.71	444.59	85.77
449.57	85.85	454.56	86.08	459.55	86.22	464.54	86.16	469.53	86.05
474.52	85.88	479.51	85.79	484.5	85.78	489.48	85.83	494.47	85.87
499.46	85.85	504.45	85.84	509.44	85.85	514.43	85.86	519.42	85.85
524.41	85.86	529.4	85.88	534.38	85.89	539.37	85.88	544.36	85.85
549.35	85.79	554.34	85.67	559.33	85.58	564.32	85.56	569.31	85.51
574.29	85.37	579.28	85.36	584.27	85.47	589.26	85.45	594.25	85.4
599.24	85.41	604.23	85.43	609.22	85.44	614.21	85.45	619.19	85.44
624.18	85.46	629.17	85.51	634.16	85.54	639.15	85.6	644.14	85.51
649.13	85.54	654.12	85.55	659.1	85.55	664.09	85.54	669.08	85.61
674.07	85.62	679.06	85.65	684.05	85.65	689.04	85.79	694.03	85.76
699.02	85.75	704	85.79	708.99	85.76	713.98	85.7	718.97	85.69
723.96	85.57	728.95	85.66	733.94	85.63	738.93	85.63	743.91	85.83
748.9	85.76	753.89	85.73	758.88	85.73	763.87	85.73	768.86	85.71
773.85	85.71	778.84	85.77	783.83	85.78	788.81	85.78	793.8	85.97
798.79	85.82	803.78	85.8	808.77	85.93	813.76	85.89	818.75	85.91
823.74	85.93	828.72	85.79	833.71	85.79	838.7	85.94	843.69	85.99
848.68	85.89	853.67	85.89	858.66	85.89	863.65	85.89	868.64	85.94
873.62	86.03	878.61	86.08	883.6	86.39	888.59	86.52	893.58	86.83
898.57	87.53	903.56	85.05	908.55	83.69	913.53	80.12	918.52	77.01
923.51	76.49	928.5	76.61	933.49	78.89	938.48	84.18	943.47	90
948.46	92.32	953.45	92.53	958.43	92.58	963.42	92.64	968.41	92.61
973.4	92.54	978.39	92.12	983.38	89.75	988.37	86.21	993.36	84.56
998.34	83.7	1003.33	83.98	1008.32	86.14	1013.31	87.17	1018.3	87.46
1023.29	87.86	1028.28	87.84	1033.27	87.72	1038.26	87.59	1043.24	87.23
1048.23	86.61	1053.22	86	1058.21	85.79	1063.2	85.68	1068.19	85.5
1073.18	85.77	1078.17	86.32	1083.16	86.35	1088.14	86.29	1093.13	86.17
1098.12	85.86	1103.11	85.9	1108.1	86.03	1113.09	86.08	1118.08	86.22
1123.07	86.51	1128.06	86.97	1133.04	86.97	1138.03	87.02	1143.02	87.13
1148.01	87.29	1153	87.41	1157.99	87.43	1162.98	87.44	1167.97	87.43
1172.95	87.43	1177.94	87.43	1182.93	87.31	1187.92	87.23	1192.91	86.98
1197.9	86.93	1202.89	86.37	1207.88	86.15	1212.87	86.13	1217.85	86.18
1222.84	86.03	1227.83	86.13	1232.82	86.12	1237.81	86.35	1242.8	86.35
1247.79	86.64	1252.78	86.58	1257.76	86.27	1262.75	86.25	1267.74	86.31
1272.73	86.35	1277.72	86.29	1282.71	86.29	1287.7	86.5	1292.69	86.66
1297.68	86.44	1302.66	86.4	1307.65	86.54	1312.64	86.64	1317.63	86.7
1322.62	86.61	1327.61	86.6	1332.6	86.61	1337.59	86.71	1342.58	86.63
1347.56	86.6	1352.55	86.78	1357.54	86.65	1362.53	86.62	1367.52	86.62
1372.51	86.63	1377.5	86.64	1382.49	86.52	1387.47	86.44	1392.46	86.41
1397.45	86.52	1402.44	86.57	1407.43	86.59	1412.42	86.61	1417.41	86.59
1422.4	86.53	1427.39	86.68	1432.37	86.84	1437.36	86.84	1442.35	86.81
1447.34	86.8	1452.33	86.82	1457.32	86.83	1462.31	86.82	1467.3	86.83
1472.29	86.82	1477.27	86.73	1482.26	86.66	1487.25	86.71	1492.24	86.67
1497.23	86.58	1502.22	86.58	1507.21	86.57	1512.2	86.59	1517.18	86.65
1522.17	86.64	1527.16	86.66	1532.15	86.67	1537.14	86.55	1542.13	86.58
1547.12	86.64	1552.1	86.62	1557.09	86.58	1562.08	86.62	1567.06	86.65
1572.05	86.61	1577.04	86.6	1582.02	86.62	1587.01	86.68	1592	86.7
1596.98	86.51	1601.97	86.49	1606.96	86.53	1611.94	86.65	1616.93	86.66
1621.92	86.65	1626.9	86.64	1631.89	86.58	1636.88	86.54	1641.86	86.52
1646.85	86.52	1651.84	86.52	1656.83	86.59	1661.81	86.68	1666.8	86.68
1671.79	86.66	1676.77	86.5	1681.76	86.74	1686.75	86.9	1691.73	86.87
1696.72	86.66	1701.71	86.64	1706.69	86.72	1711.68	86.7	1716.67	86.65
1721.65	86.92	1726.64	86.87	1731.63	86.86	1736.61	86.98	1741.6	87.1
1746.59	87.02	1751.57	86.99	1756.56	86.97	1761.55	86.83	1766.53	86.69
1771.52	86.77	1776.51	86.78	1781.49	86.76	1786.48	86.94	1791.47	86.88
1796.46	86.84	1801.44	86.74	1806.43	86.74	1811.42	86.75	1816.4	86.75
1821.39	86.64	1826.38	86.61	1831.36	86.74	1836.35	86.78	1841.34	86.89
1846.32	86.83	1851.31	86.75	1856.3	86.8	1861.28	86.83	1866.27	86.83
1871.26	86.83	1876.24	86.83	1881.23	86.85	1886.22	86.87	1891.2	86.82
1896.19	86.91	1901.18	87.01	1906.16	86.93	1911.15	86.93	1916.14	86.96
1921.12	86.95	1926.11	86.85	1931.1	86.82	1936.09	86.87	1941.07	86.83
1946.06	86.77	1951.05	86.81	1956.03	86.78	1961.02	86.69	1966.01	86.68
1970.99	86.73	1975.98	86.88	1980.97	86.89	1985.95	86.79	1990.94	86.8

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1995.93 86.76 2000.91 86.77 2005.9 86.81

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 898.57 .045 943.47 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 898.57 943.47 991 991 991 .1 .3
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 898.57 87.53 F
 943.47 2005.9 90 F

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	81.03	Element	Left OB	Channel
Right OB Vel Head (ft)	0.04	wt. n-val.		0.045
w.s. Elev (ft)	80.99	Reach Len. (ft)	991.00	991.00
991.00 Crit w.s. (ft)	78.13	Flow Area (sq ft)		74.16
E.G. slope (ft/ft)	0.000538	Area (sq ft)		74.16
Q Total (cfs)	115.00	Flow (cfs)		115.00
Top width (ft)	23.15	Top width (ft)		23.15
vel Total (ft/s)	1.55	Avg. vel. (ft/s)		1.55
Max chl Dpth (ft)	4.50	Hydr. Depth (ft)		3.20
Conv. Total (cfs)	4957.0	Conv. (cfs)		4957.0
Length wtd. (ft)	991.00	wetted Per. (ft)		25.75
Min ch El (ft)	76.49	Shear (lb/sq ft)		0.10
Alpha	1.00	Stream Power (lb/ft s)	2005.90	0.00
0.00 Frctn Loss (ft)	0.76	Cum volume (acre-ft)		26.80
C & E Loss (ft)	0.00	Cum SA (acres)		6.74

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	82.20	Element	Left OB	Channel
Right OB Vel Head (ft)	0.04	wt. n-val.		0.045
w.s. Elev (ft)	82.16	Reach Len. (ft)	991.00	991.00

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991.00				
Crit w.s. (ft)	78.45	Flow Area (sq ft)		103.01
E.G. slope (ft/ft)	0.000405	Area (sq ft)		103.01
Q Total (cfs)	158.00	Flow (cfs)		158.00
Top width (ft)	25.90	Top width (ft)		25.90
Vel Total (ft/s)	1.53	Avg. Vel. (ft/s)		1.53
Max Chl Dpth (ft)	5.67	Hydr. Depth (ft)		3.98
Conv. Total (cfs)	7848.5	Conv. (cfs)		7848.5
Length wtd. (ft)	991.00	wetted Per. (ft)		29.39
Min Ch El (ft)	76.49	Shear (lb/sq ft)		0.09
Alpha	1.00	Stream Power (lb/ft s)	2005.90	0.00
0.00				
Frctn Loss (ft)	0.50	Cum volume (acre-ft)	9.74	37.70
8.99				
C & E Loss (ft)	0.00	Cum SA (acres)	6.95	7.61
20.49				

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	83.18	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.07	wt. n-val.		0.045
w.s. Elev (ft)	83.11	Reach Len. (ft)	991.00	991.00
991.00				
Crit w.s. (ft)	79.09	Flow Area (sq ft)		128.50
E.G. slope (ft/ft)	0.000633	Area (sq ft)		128.50
Q Total (cfs)	268.00	Flow (cfs)		268.00
Top width (ft)	28.11	Top width (ft)		28.11
Vel Total (ft/s)	2.09	Avg. Vel. (ft/s)		2.09
Max Chl Dpth (ft)	6.62	Hydr. Depth (ft)		4.57
Conv. Total (cfs)	10652.6	Conv. (cfs)		10652.6
Length wtd. (ft)	991.00	wetted Per. (ft)		32.30
Min Ch El (ft)	76.49	Shear (lb/sq ft)		0.16
Alpha	1.00	Stream Power (lb/ft s)	2005.90	0.00
0.00				
Frctn Loss (ft)	0.87	Cum volume (acre-ft)	13.60	42.06
18.58				
C & E Loss (ft)	0.00	Cum SA (acres)	10.48	7.82

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21.54

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	82.36	Element	Left OB	Channel
Right OB Vel Head (ft)	0.04	wt. n-val.		0.045
W.S. Elev (ft)	82.32	Reach Len. (ft)	991.00	991.00
991.00 Crit w.s. (ft)	78.52	Flow Area (sq ft)		107.03
E.G. slope (ft/ft)	0.000412	Area (sq ft)		107.03
Q Total (cfs)	168.00	Flow (cfs)		168.00
Top width (ft)	26.26	Top width (ft)		26.26
vel Total (ft/s)	1.57	Avg. vel. (ft/s)		1.57
Max Chl Dpth (ft)	5.83	Hydr. Depth (ft)		4.08
Conv. Total (cfs)	8276.9	Conv. (cfs)		8276.9
Length wtd. (ft)	991.00	wetted Per. (ft)		29.86
Min Ch El (ft)	76.49	Shear (lb/sq ft)		0.09
Alpha 0.00	1.00	Stream Power (lb/ft s)	2005.90	0.00
Frctn Loss (ft)	0.51	Cum volume (acre-ft)	10.67	38.79
11.64 C & E Loss (ft)	0.00	Cum SA (acres)	7.12	7.67
21.07				

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	82.82	Element	Left OB	Channel
Right OB Vel Head (ft)	0.05	wt. n-val.		0.045
W.S. Elev (ft)	82.76	Reach Len. (ft)	991.00	991.00
991.00 Crit w.s. (ft)	78.83	Flow Area (sq ft)		118.93
E.G. slope (ft/ft)	0.000518	Area (sq ft)		118.93
Q Total (cfs)	218.00	Flow (cfs)		218.00

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Top width (ft)	27.30	Top width (ft)		27.30
Vel Total (ft/s)	1.83	Avg. Vel. (ft/s)		1.83
Max Chl Dpth (ft)	6.27	Hydr. Depth (ft)		4.36
Conv. Total (cfs)	9575.5	Conv. (cfs)		9575.5
Length wtd. (ft)	991.00	wetted Per. (ft)		31.24
Min Ch El (ft)	76.49	Shear (lb/sq ft)		0.12
Alpha	1.00	Stream Power (lb/ft s)	2005.90	0.00
0.00				
Frctn Loss (ft)	0.67	Cum volume (acre-ft)	12.55	40.92
16.40				
C & E Loss (ft)	0.00	Cum SA (acres)	8.73	7.77
21.40				

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	83.83	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.09	wt. n-val.		0.045
W.S. Elev (ft)	83.74	Reach Len. (ft)	991.00	991.00
991.00				
Crit w.s. (ft)	79.47	Flow Area (sq ft)		146.81
E.G. slope (ft/ft)	0.000735	Area (sq ft)		146.81
0.02				
Q Total (cfs)	346.00	Flow (cfs)		346.00
Top width (ft)	30.74	Top width (ft)		29.71
1.03				
Vel Total (ft/s)	2.36	Avg. Vel. (ft/s)		2.36
Max Chl Dpth (ft)	7.25	Hydr. Depth (ft)		4.94
Conv. Total (cfs)	12760.7	Conv. (cfs)		12760.7
Length wtd. (ft)	991.00	wetted Per. (ft)		34.38
Min Ch El (ft)	76.49	Shear (lb/sq ft)		0.20
Alpha	1.00	Stream Power (lb/ft s)	2005.90	0.00
0.00				
Frctn Loss (ft)	1.04	Cum volume (acre-ft)	18.29	45.54
25.97				
C & E Loss (ft)	0.01	Cum SA (acres)	16.50	7.97
21.83				

Warning: Divided flow computed for this cross-section.
 Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance)
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is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-102
 REACH: NM-102C

RS: 4131

INPUT

Description:

Station Elevation Data		num= 402									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	86.07	4.94	86.05	9.89	85.89	14.83	85.95	19.77	85.97		
24.72	85.96	29.66	86.02	34.6	85.92	39.54	85.93	44.49	85.93		
49.43	85.91	54.37	85.93	59.32	85.97	64.26	85.95	69.2	85.94		
74.15	86.11	79.09	86.12	84.03	86.11	88.98	86.12	93.92	86.03		
98.86	85.97	103.81	85.96	108.75	85.96	113.69	86.04	118.63	86.05		
123.58	86.04	128.52	86.05	133.46	85.99	138.41	85.94	143.35	85.91		
148.29	85.87	153.24	85.9	158.18	85.93	163.12	85.89	168.07	85.83		
173.01	85.88	177.95	86.06	182.9	86.33	187.84	86.48	192.78	86.26		
197.72	86.25	202.67	86.22	207.61	86.24	212.55	86.11	217.5	86.14		
222.44	86.41	227.38	86.92	232.33	86.92	237.27	86.87	242.21	86.5		
247.16	85.88	252.1	86.06	257.04	86.06	261.99	86.06	266.93	86.06		
271.87	86.05	276.81	85.83	281.76	85.83	286.7	85.76	291.64	85.68		
296.59	85.77	301.53	85.76	306.47	85.72	311.42	85.69	316.36	85.66		
321.3	85.64	326.25	85.73	331.19	85.77	336.13	85.75	341.08	85.75		
346.02	85.77	350.96	85.67	355.9	85.74	360.85	85.75	365.79	85.73		
370.73	85.69	375.68	85.66	380.62	85.66	385.56	85.67	390.51	85.69		
395.45	85.61	400.39	85.56	405.34	85.6	410.28	85.61	415.22	85.65		
420.17	85.67	425.11	85.67	430.05	85.69	435.04	85.71	440.03	85.69		
445.02	85.7	450.01	85.69	455	85.67	459.98	85.68	464.97	85.71		
469.96	85.65	474.95	85.68	479.94	85.75	484.93	85.78	489.92	85.73		
494.91	85.72	499.89	85.66	504.88	85.58	509.87	85.63	514.86	85.62		
519.85	85.56	524.84	85.54	529.83	85.54	534.82	85.56	539.81	85.65		
544.79	85.68	549.78	85.7	554.77	85.74	559.76	85.77	564.75	85.71		
569.74	85.77	574.73	85.71	579.72	85.71	584.7	85.73	589.69	85.72		
594.68	85.72	599.67	85.74	604.66	85.94	609.65	85.79	614.64	85.73		
619.63	85.73	624.62	85.74	629.6	85.81	634.59	85.81	639.58	85.82		
644.57	85.82	649.56	85.62	654.55	85.74	659.54	85.72	664.53	85.7		
669.51	85.76	674.5	85.69	679.49	85.75	684.48	85.76	689.47	85.76		
694.46	85.71	699.45	85.72	704.44	85.73	709.43	85.7	714.41	85.78		
719.4	85.79	724.39	85.76	729.38	85.73	734.37	85.74	739.36	85.76		
744.35	85.66	749.34	85.79	754.33	85.77	759.31	85.73	764.3	85.78		
769.29	85.84	774.28	85.93	779.27	85.96	784.26	85.91	789.25	85.91		
794.24	85.88	799.22	85.86	804.21	85.84	809.2	85.92	814.19	85.92		
819.18	85.84	824.17	85.81	829.16	85.9	834.15	85.95	839.14	85.88		
844.12	85.83	849.11	85.86	854.1	85.94	859.09	86.06	864.08	86.12		
869.07	86.17	874.06	86.25	879.05	86.38	884.03	86.48	889.02	86.46		
894.01	86.85	899	87.68	903.99	86.8	908.98	85.03	913.97	83.11		
918.96	78.69	923.94	76.02	928.93	76.28	933.92	77.72	938.91	82.43		
943.9	88.17	948.89	91.34	953.88	91.81	958.87	92.71	963.86	93		
968.84	93.21	973.83	93.32	978.82	93.59	983.81	92.63	988.8	88.58		
993.79	85.13	998.78	84.41	1003.77	82.53	1008.75	83.93	1013.74	86.84		
1018.73	86.85	1023.72	86.79	1028.71	86.5	1033.7	86.91	1038.69	86.92		
1043.68	87.02	1048.67	87.35	1053.65	88.17	1058.64	88.18	1063.63	88.37		
1068.62	88.35	1073.61	88.69	1078.6	88.81	1083.59	88.79	1088.58	88.21		
1093.57	87.34	1098.55	87.17	1103.54	87.11	1108.53	86.52	1113.52	86.67		

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1118.51	86.65	1123.5	86.62	1128.49	86.56	1133.48	86.5	1138.46	86.51
1143.45	86.52	1148.44	86.77	1153.43	86.57	1158.42	86.49	1163.41	86.49
1168.4	86.5	1173.39	86.59	1178.38	86.66	1183.36	86.51	1188.35	86.48
1193.34	86.51	1198.33	86.41	1203.32	86.36	1208.31	86.35	1213.3	86.38
1218.29	86.45	1223.28	86.51	1228.26	86.54	1233.25	86.53	1238.24	86.37
1243.23	86.57	1248.22	86.63	1253.21	86.55	1258.2	86.64	1263.19	86.66
1268.18	86.7	1273.16	86.74	1278.15	86.72	1283.14	86.61	1288.13	86.53
1293.12	86.52	1298.11	86.52	1303.1	86.58	1308.09	87.35	1313.07	87.83
1318.06	87.99	1323.05	87.85	1328.04	87.53	1333.03	87.39	1338.02	87.05
1343.01	86.72	1348	86.67	1352.99	86.61	1357.97	86.54	1362.96	86.63
1367.95	86.72	1372.94	86.67	1377.93	86.67	1382.92	86.7	1387.91	86.68
1392.9	86.62	1397.88	86.59	1402.87	86.61	1407.86	86.6	1412.85	86.64
1417.84	86.77	1422.83	86.8	1427.82	86.82	1432.81	86.77	1437.8	86.76
1442.78	86.78	1447.77	86.73	1452.76	86.69	1457.75	86.83	1462.74	86.71
1467.73	86.72	1472.72	86.75	1477.71	86.78	1482.7	86.8	1487.68	86.8
1492.67	86.81	1497.66	86.71	1502.65	86.71	1507.64	86.71	1512.63	86.76
1517.62	86.8	1522.61	86.89	1527.59	86.95	1532.58	86.96	1537.53	86.95
1542.48	86.93	1547.43	86.98	1552.38	86.97	1557.34	86.92	1562.29	87
1567.24	87.26	1572.19	87.28	1577.14	87.23	1582.09	87.31	1587.04	87.28
1591.99	87.27	1596.94	87.51	1601.89	87.47	1606.84	87.5	1611.79	87.5
1616.74	87.5	1621.69	87.45	1626.64	87.59	1631.59	87.66	1636.54	87.65
1641.49	87.61	1646.44	87.66	1651.39	87.65	1656.34	87.63	1661.29	87.66
1666.24	87.64	1671.19	87.69	1676.14	87.73	1681.09	87.78	1686.04	87.76
1690.99	87.79	1695.94	87.83	1700.89	87.8	1705.84	87.77	1710.79	87.79
1715.74	87.8	1720.69	87.78	1725.65	87.81	1730.6	87.89	1735.55	87.96
1740.5	87.99	1745.45	87.98	1750.4	87.98	1755.35	87.97	1760.3	87.86
1765.25	87.86	1770.2	87.83	1775.15	87.8	1780.1	87.89	1785.05	87.87
1790	87.79	1794.95	87.79	1799.9	87.89	1804.85	87.9	1809.8	87.9
1814.75	87.86	1819.7	87.81	1824.65	88.02	1829.6	88.03	1834.55	88.04
1839.5	87.93	1844.45	87.88	1849.4	87.9	1854.35	87.86	1859.3	87.92
1864.25	88.05	1869.2	88.08	1874.15	87.97	1879.1	87.9	1884.05	87.9
1889	87.81	1893.95	87.8	1898.9	87.76	1903.85	87.77	1908.81	87.79
1913.76	87.8	1918.71	87.8	1923.66	87.92	1928.61	87.85	1933.56	87.82
1938.51	87.9	1943.46	87.92	1948.41	87.87	1953.36	87.86	1958.31	87.81
1963.26	87.81	1968.21	87.85	1973.16	87.85	1978.11	87.85	1983.06	87.84
1988.01	87.83	1992.96	87.76						

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 903.99 .045 943.9 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 903.99 943.9 614 614 614 .1 .3
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 903.99 86.8 F
 943.9 1992.96 88.17 F

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	80.26	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.07	wt. n-val.		0.045
W.S. Elev (ft)	80.19	Reach Len. (ft)	614.00	614.00
614.00				
Crit w.s. (ft)	78.00	Flow Area (sq ft)		54.75
E.G. slope (ft/ft)	0.001179	Area (sq ft)		54.75
Q Total (cfs)	115.00	Flow (cfs)		115.00

NM102 OUTPUT REPORT.TXT				
Top width (ft)	19.28	Top width (ft)		19.28
Vel Total (ft/s)	2.10	Avg. Vel. (ft/s)		2.10
Max Chl Dpth (ft)	4.17	Hydr. Depth (ft)		2.84
Conv. Total (cfs)	3349.2	Conv. (cfs)		3349.2
Length wtd. (ft)	614.00	Wetted Per. (ft)		21.71
Min Ch El (ft)	76.02	Shear (lb/sq ft)		0.19
Alpha 0.00	1.00	Stream Power (lb/ft s)	1992.96	0.00
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)		25.34
C & E Loss (ft)	0.02	Cum SA (acres)		6.26

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	81.70	Element	Left OB	Channel
Right OB Vel Head (ft)	0.05	wt. n-val.		0.045
W.S. Elev (ft)	81.64	Reach Len. (ft)	614.00	614.00
614.00 Crit w.s. (ft)	78.32	Flow Area (sq ft)		85.02
E.G. Slope (ft/ft)	0.000653	Area (sq ft)		85.02
Q Total (cfs)	158.00	Flow (cfs)		158.00
Top width (ft)	22.45	Top width (ft)		22.45
Vel Total (ft/s)	1.86	Avg. Vel. (ft/s)		1.86
Max Chl Dpth (ft)	5.62	Hydr. Depth (ft)		3.79
Conv. Total (cfs)	6182.7	Conv. (cfs)		6182.7
Length wtd. (ft)	614.00	wetted Per. (ft)		26.01
Min Ch El (ft)	76.02	Shear (lb/sq ft)		0.13
Alpha 0.00	1.00	Stream Power (lb/ft s)	1992.96	0.00
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	9.74	35.56
8.99 C & E Loss (ft)	0.02	Cum SA (acres)	6.95	7.06
20.49				

NM102 OUTPUT REPORT.TXT

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	82.30	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.12	wt. n-Val.		0.045
W.S. Elev (ft)	82.19	Reach Len. (ft)	614.00	614.00
614.00				
Crit w.s. (ft)	79.00	Flow Area (sq ft)		97.55
E.G. Slope (ft/ft)	0.001287	Area (sq ft)		97.55
Q Total (cfs)	268.00	Flow (cfs)		268.00
Top width (ft)	23.64	Top width (ft)		23.64
Vel Total (ft/s)	2.75	Avg. Vel. (ft/s)		2.75
Max Chl Dpth (ft)	6.17	Hydr. Depth (ft)		4.13
Conv. Total (cfs)	7469.4	Conv. (cfs)		7469.4
Length wtd. (ft)	614.00	wetted Per. (ft)		27.62
Min Ch El (ft)	76.02	Shear (lb/sq ft)		0.28
Alpha	1.00	Stream Power (lb/ft s)	1992.96	0.00
0.00				
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	13.60	39.49
18.58				
C & E Loss (ft)	0.03	Cum SA (acres)	10.48	7.23
21.54				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	81.84	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.06	wt. n-Val.		0.045
W.S. Elev (ft)	81.79	Reach Len. (ft)	614.00	614.00
614.00				
Crit w.s. (ft)	78.39	Flow Area (sq ft)		88.28
E.G. Slope (ft/ft)	0.000665	Area (sq ft)		88.28
Q Total (cfs)	168.00	Flow (cfs)		168.00

NM102 OUTPUT REPORT.TXT				
Top width (ft)	22.77	Top width (ft)		22.77
Vel Total (ft/s)	1.90	Avg. Vel. (ft/s)		1.90
Max Chl Dpth (ft)	5.77	Hydr. Depth (ft)		3.88
Conv. Total (cfs)	6512.4	Conv. (cfs)		6512.4
Length wtd. (ft)	614.00	Wetted Per. (ft)		26.44
Min Ch El (ft)	76.02	Shear (lb/sq ft)		0.14
Alpha	1.00	Stream Power (lb/ft s)	1992.96	0.00
0.00				
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	10.67	36.57
11.64				
C & E Loss (ft)	0.02	Cum SA (acres)	7.12	7.11
21.07				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	82.14	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.08	wt. n-val.		0.045
W.S. Elev (ft)	82.06	Reach Len. (ft)	614.00	614.00
614.00				
Crit w.s. (ft)	78.72	Flow Area (sq ft)		94.47
E.G. Slope (ft/ft)	0.000930	Area (sq ft)		94.47
Q Total (cfs)	218.00	Flow (cfs)		218.00
Top width (ft)	23.35	Top width (ft)		23.35
Vel Total (ft/s)	2.31	Avg. Vel. (ft/s)		2.31
Max Chl Dpth (ft)	6.04	Hydr. Depth (ft)		4.05
Conv. Total (cfs)	7148.3	Conv. (cfs)		7148.3
Length wtd. (ft)	614.00	wetted Per. (ft)		27.24
Min Ch El (ft)	76.02	Shear (lb/sq ft)		0.20
Alpha	1.00	Stream Power (lb/ft s)	1992.96	0.00
0.00				
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	12.55	38.49
16.40				
C & E Loss (ft)	0.02	Cum SA (acres)	8.73	7.19
21.40				

NM102 OUTPUT REPORT.TXT

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	82.78	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.16	Wt. n-Val.		0.045
W.S. Elev (ft)	82.62	Reach Len. (ft)	614.00	614.00
614.00				
Crit w.s. (ft)	79.41	Flow Area (sq ft)		108.02
E.G. Slope (ft/ft)	0.001621	Area (sq ft)		108.02
0.03				
Q Total (cfs)	346.00	Flow (cfs)		346.00
Top width (ft)	25.12	Top width (ft)		24.56
0.57				
Vel Total (ft/s)	3.20	Avg. Vel. (ft/s)		3.20
Max Chl Dpth (ft)	6.60	Hydr. Depth (ft)		4.40
Conv. Total (cfs)	8593.7	Conv. (cfs)		8593.7
Length wtd. (ft)	614.00	wetted Per. (ft)		28.89
Min Ch El (ft)	76.02	Shear (lb/sq ft)		0.38
Alpha	1.00	Stream Power (lb/ft s)	1992.96	0.00
0.00				
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	18.29	42.65
25.97				
C & E Loss (ft)	0.05	Cum SA (acres)	16.50	7.35
21.81				

Warning: Divided flow computed for this cross-section.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-102
 REACH: NM-102C

RS: 3517

INPUT

Description:

Station	Elevation	Data	num=	399						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	
0	86.14	4.99	85.96	9.98	86.06	14.97	86.22	19.96	86.07	
24.95	86.09	29.94	86.13	34.93	86.25	39.92	86.23	44.91	86.1	
49.9	86.09	54.89	86.07	59.88	86.07	64.87	86.01	69.86	86.04	
74.84	86.2	79.83	86.05	84.82	86.14	89.81	86.11	94.8	86.03	

NM102 OUTPUT REPORT.TXT

99.79	85.99	104.78	86.17	109.77	85.99	114.76	85.97	119.75	85.89
124.74	85.98	129.73	85.97	134.72	85.98	139.71	86.11	144.7	86.1
149.69	86.09	154.68	86.09	159.67	85.93	164.66	86.12	169.65	86.32
174.64	86.32	179.63	86.26	184.62	86.1	189.61	86.03	194.6	86.35
199.59	86.34	204.58	86.18	209.57	86.27	214.55	86.55	219.54	86.58
224.53	86.23	229.52	86.96	234.51	87.33	239.5	87.36	244.49	87.38
249.48	87.12	254.47	87	259.46	87	264.45	86.89	269.44	86.71
274.43	86.53	279.42	86.61	284.41	86.63	289.4	86.44	294.39	86.45
299.38	86.43	304.37	86.41	309.36	86.46	314.35	86.48	319.34	86.51
324.33	86.52	329.32	86.47	334.31	86.45	339.3	86.52	344.29	86.55
349.27	86.42	354.26	86.35	359.25	86.43	364.24	86.53	369.23	86.56
374.22	86.62	379.21	86.74	384.2	86.91	389.19	86.98	394.18	87.03
399.17	87.1	404.16	87.1	409.16	87.07	414.15	87.05	419.15	86.99
424.14	87.01	429.13	87.01	434.13	86.9	439.12	86.79	444.11	86.65
449.11	86.48	454.1	86.4	459.09	86.34	464.09	86.46	469.08	86.69
474.07	86.65	479.07	86.73	484.06	86.81	489.05	86.9	494.05	86.93
499.04	86.92	504.03	87.05	509.03	87.4	514.02	87.69	519.01	87.62
524.01	87.41	529	87.2	533.99	86.96	538.99	86.91	543.98	86.88
548.98	86.82	553.97	86.84	558.96	86.84	563.96	86.84	568.95	86.87
573.94	86.86	578.94	86.77	583.93	86.77	588.92	86.79	593.92	86.86
598.91	86.81	603.9	86.78	608.9	86.72	613.89	86.75	618.88	86.78
623.88	86.79	628.87	86.78	633.86	86.76	638.86	86.79	643.85	86.86
648.84	86.84	653.84	86.8	658.83	86.79	663.83	86.71	668.82	86.72
673.81	86.88	678.81	86.62	683.8	86.78	688.79	86.78	693.79	86.68
698.78	86.58	703.77	86.65	708.77	86.68	713.76	86.76	718.75	86.87
723.75	86.81	728.74	86.87	733.73	86.86	738.73	86.77	743.72	86.77
748.71	86.74	753.71	86.71	758.7	86.74	763.69	86.75	768.69	86.92
773.68	86.94	778.67	86.8	783.67	86.83	788.66	86.84	793.66	86.84
798.65	86.9	803.64	86.83	808.64	86.73	813.63	86.76	818.62	86.79
823.62	86.76	828.61	86.65	833.6	86.66	838.6	86.68	843.59	86.73
848.58	86.81	853.58	86.67	858.57	86.63	863.56	86.84	868.56	87.11
873.55	87.32	878.54	87.38	883.54	87.65	888.53	88.17	893.52	88.84
898.52	88.47	903.51	88.09	908.51	84.88	913.5	79.37	918.49	76.09
923.49	75.46	928.48	75.58	933.47	75.87	938.47	76.07	943.46	76.12
948.45	76.1	953.45	76.1	958.44	76.15	963.43	76.17	968.43	76.07
973.42	76.04	978.41	76.06	983.41	76.07	988.4	76.06	993.39	76.21
998.39	76.41	1003.38	76.61	1008.37	76.95	1013.37	77.31	1018.36	77.6
1023.36	78.38	1028.35	80.05	1033.34	81.13	1038.34	81.34	1043.33	81.74
1048.32	83.2	1053.32	85.34	1058.31	86.68	1063.3	87.78	1068.3	89.99
1073.29	90.42	1078.28	90.24	1083.28	90.06	1088.27	89.9	1093.26	89.41
1098.26	88.92	1103.25	88.71	1108.24	88.6	1113.24	88.19	1118.23	87.84
1123.22	87.79	1128.22	87.8	1133.21	87.79	1138.2	87.69	1143.2	87.8
1148.19	87.77	1153.19	87.65	1158.18	87.53	1163.17	87.17	1168.17	86.88
1173.16	86.87	1178.15	86.84	1183.15	86.79	1188.14	86.75	1193.13	86.74
1198.13	86.64	1203.12	86.62	1208.11	86.6	1213.11	86.65	1218.1	86.86
1223.09	86.92	1228.09	86.78	1233.08	86.74	1238.07	86.58	1243.07	86.36
1248.06	86.22	1253.06	86.26	1258.05	86.21	1263.04	86.14	1268.04	86.02
1273.03	85.73	1278.02	85.72	1283.02	85.56	1288.01	85.41	1293	85.34
1298	85.33	1302.99	85.24	1307.98	85.21	1312.98	85.47	1317.97	85.5
1322.96	85.94	1327.96	86.25	1332.95	86.16	1337.94	86.14	1342.94	86
1347.93	86.01	1352.92	86.01	1357.92	86.01	1362.91	86	1367.9	86.2
1372.9	86.31	1377.89	86.48	1382.89	86.5	1387.88	86.76	1392.87	87.17
1397.87	87.32	1402.86	87.34	1407.85	87.46	1412.85	87.68	1417.84	87.59
1422.83	87.55	1427.83	87.4	1432.82	87.27	1437.81	87.3	1442.81	87.44
1447.8	87.5	1452.79	87.26	1457.79	87.25	1462.78	87.45	1467.77	87.53
1472.77	87.47	1477.76	87.31	1482.76	87.32	1487.75	87.37	1492.74	87.18
1497.74	87.02	1502.73	87	1507.72	87.03	1512.72	87.07	1517.71	87.04
1522.7	87.06	1527.7	87.37	1532.69	87.57	1537.68	87.68	1542.68	87.94
1547.67	88.12	1552.66	88.16	1557.66	88.12	1562.65	88.03	1567.64	87.97
1572.64	87.98	1577.63	87.91	1582.62	87.76	1587.62	87.54	1592.61	87.4
1597.6	87.29	1602.6	87.17	1607.59	87.24	1612.59	87.25	1617.58	87.25
1622.57	87.16	1627.57	87.04	1632.56	87.21	1637.55	87.53	1642.55	87.64
1647.54	87.88	1652.53	88.08	1657.53	88.16	1662.52	88.17	1667.51	88.08

NM102 OUTPUT REPORT.TXT

1672.48	87.93	1677.44	87.86	1682.4	87.76	1687.36	87.36	1692.32	87.25
1697.28	87.31	1702.25	87.34	1707.21	87.37	1712.17	87.59	1717.13	87.85
1722.09	87.53	1727.06	87.52	1732.02	87.41	1736.98	87.18	1741.94	87.06
1746.9	87.05	1751.86	87.02	1756.83	87.48	1761.79	87.54	1766.75	87.54
1771.71	87.09	1776.67	86.23	1781.64	85.67	1786.6	85.62	1791.56	85.48
1796.52	85.44	1801.48	85.48	1806.44	85.43	1811.41	85.41	1816.37	85.35
1821.33	85.47	1826.29	85.51	1831.25	85.51	1836.22	85.53	1841.18	85.58
1846.14	85.54	1851.1	85.53	1856.06	85.67	1861.02	85.63	1865.99	85.58
1870.95	85.57	1875.91	85.59	1880.87	85.59	1885.83	85.59	1890.8	85.58
1895.76	85.56	1900.72	85.62	1905.68	85.59	1910.64	85.55	1915.6	85.56
1920.57	85.66	1925.53	85.75	1930.49	85.7	1935.45	85.66	1940.41	85.68
1945.38	85.71	1950.34	85.76	1955.3	85.81	1960.26	85.88	1965.22	85.98
1970.18	85.85	1975.15	85.69	1980.11	85.58	1985.07	85.55		

Manning's n Values
 num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 903.51 .045 1068.3 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 903.51 1068.3 1358 1358 1358 .1 .3
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 903.51 88.09 F
 1068.3 1985.07 89.99 F

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	80.21	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-val.		0.045
w.s. Elev (ft)	80.21	Reach Len. (ft)	1358.00	1358.00
1358.00 Crit w.s. (ft)	76.47	Flow Area (sq ft)		428.15
E.G. slope (ft/ft)	0.000016	Area (sq ft)		428.15
Q Total (cfs)	134.00	Flow (cfs)		134.00
Top width (ft)	116.36	Top width (ft)		116.36
vel Total (ft/s)	0.31	Avg. vel. (ft/s)		0.31
Max Chl Dpth (ft)	4.75	Hydr. Depth (ft)		3.68
Conv. Total (cfs)	33353.0	Conv. (cfs)		33353.0
Length wtd. (ft)	1358.00	wetted Per. (ft)		118.16
Min Ch El (ft)	75.46	Shear (lb/sq ft)		0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	1985.07	0.00
Frctn Loss (ft)	0.01	Cum volume (acre-ft)		21.93
C & E Loss (ft)	0.00	Cum SA (acres)		5.30

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

NM102 OUTPUT REPORT.TXT

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	81.66	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-val.		0.045
W.S. Elev (ft)	81.66	Reach Len. (ft)	1358.00	1358.00
1358.00 Crit w.s. (ft)	76.58	Flow Area (sq ft)		604.69
E.G. slope (ft/ft)	0.000012	Area (sq ft)		604.69
Q Total (cfs)	186.00	Flow (cfs)		186.00
Top width (ft)	130.91	Top width (ft)		130.91
vel Total (ft/s)	0.31	Avg. vel. (ft/s)		0.31
Max Chl Dpth (ft)	6.20	Hydr. Depth (ft)		4.62
Conv. Total (cfs)	54669.8	Conv. (cfs)		54669.8
Length wtd. (ft)	1358.00	wetted Per. (ft)		133.47
Min Ch El (ft)	75.46	Shear (lb/sq ft)		0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	1985.07	0.00
Frctn Loss (ft)	0.01	Cum volume (acre-ft)	9.74	30.70
8.99 C & E Loss (ft)	0.00	Cum SA (acres)	6.95	5.98
20.49				

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	82.23	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-val.		0.045
W.S. Elev (ft)	82.23	Reach Len. (ft)	1358.00	1358.00
1358.00 Crit w.s. (ft)	76.82	Flow Area (sq ft)		679.89
E.G. slope (ft/ft)	0.000024	Area (sq ft)		679.89
Q Total (cfs)	321.00	Flow (cfs)		321.00
Top width (ft)	134.08	Top width (ft)		134.08
vel Total (ft/s)	0.47	Avg. vel. (ft/s)		0.47
Max Chl Dpth (ft)	6.77	Hydr. Depth (ft)		5.07

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Conv. Total (cfs)	65329.0	Conv. (cfs)	65329.0
Length wtd. (ft)	1358.00	wetted Per. (ft)	136.96
Min Ch El (ft)	75.46	Shear (lb/sq ft)	0.01
Alpha 0.00	1.00	Stream Power (lb/ft s)	1985.07
Frctn Loss (ft) 18.58	0.02	Cum volume (acre-ft)	13.60
C & E Loss (ft) 21.54	0.00	Cum SA (acres)	10.48

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	81.81	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-val.		0.045
W.S. Elev (ft)	81.80	Reach Len. (ft)	1358.00	1358.00
1358.00 Crit w.s. (ft)	76.63	Flow Area (sq ft)		623.65
E.G. slope (ft/ft)	0.000014	Area (sq ft)		623.65
Q Total (cfs)	211.00	Flow (cfs)		211.00
Top width (ft)	132.25	Top width (ft)		132.25
vel Total (ft/s)	0.34	Avg. vel. (ft/s)		0.34
Max Chl Dpth (ft)	6.34	Hydr. Depth (ft)		4.72
Conv. Total (cfs)	57152.0	Conv. (cfs)		57152.0
Length wtd. (ft)	1358.00	wetted Per. (ft)		134.89
Min Ch El (ft)	75.46	Shear (lb/sq ft)		0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	1985.07	0.00
Frctn Loss (ft) 11.64	0.01	Cum volume (acre-ft)	10.67	31.55
C & E Loss (ft) 21.07	0.00	Cum SA (acres)	7.12	6.02

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	82.08	Element	Left OB	Channel
Right OB				

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Vel Head (ft)	0.00	wt. n-Val.		0.045
W.S. Elev (ft)	82.08	Reach Len. (ft)	1358.00	1358.00
1358.00 Crit w.s. (ft)	76.75	Flow Area (sq ft)		660.47
E.G. Slope (ft/ft)	0.000020	Area (sq ft)		660.47
Q Total (cfs)	276.00	Flow (cfs)		276.00
Top width (ft)	133.45	Top width (ft)		133.45
Vel Total (ft/s)	0.42	Avg. Vel. (ft/s)		0.42
Max Chl Dpth (ft)	6.62	Hydr. Depth (ft)		4.95
Conv. Total (cfs)	62465.4	Conv. (cfs)		62465.4
Length wtd. (ft)	1358.00	wetted Per. (ft)		136.25
Min Ch El (ft)	75.46	Shear (lb/sq ft)		0.01
Alpha	1.00	Stream Power (lb/ft s)	1985.07	0.00
0.00		Cum volume (acre-ft)	12.55	33.17
Frctn Loss (ft)	0.02	Cum SA (acres)	8.73	6.09
16.40				
C & E Loss (ft)	0.00			
21.40				

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

Profile #ULT 100Y				
E.G. Elev (ft)	82.68	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	82.67	Reach Len. (ft)	1358.00	1358.00
1358.00 Crit w.s. (ft)	76.99	Flow Area (sq ft)		740.46
E.G. Slope (ft/ft)	0.000034	Area (sq ft)		740.46
Q Total (cfs)	436.00	Flow (cfs)		436.00
Top width (ft)	136.02	Top width (ft)		136.02
Vel Total (ft/s)	0.59	Avg. Vel. (ft/s)		0.59
Max Chl Dpth (ft)	7.21	Hydr. Depth (ft)		5.44
Conv. Total (cfs)	74517.3	Conv. (cfs)		74517.3
Length wtd. (ft)	1358.00	wetted Per. (ft)		139.17
Min Ch El (ft)	75.46	Shear (lb/sq ft)		0.01
Alpha	1.00	Stream Power (lb/ft s)	1985.07	0.00
0.00				

		NM102 OUTPUT REPORT.TXT			
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	18.29	36.67	
25.97					
C & E Loss (ft)	0.00	Cum SA (acres)	16.50	6.22	
21.80					

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-102
 REACH: NM-102C RS: 2159

INPUT

Description:

Station	Elevation	Data	num=	396					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	85.11	4.96	85.11	9.91	85.11	14.87	85.14	19.82	85.14
24.78	85.14	29.73	85.07	34.69	85.07	39.64	85.15	44.6	85.08
49.55	85.03	54.51	85.04	59.46	84.99	64.42	85.02	69.37	84.96
74.33	85.02	79.28	85.05	84.24	85.06	89.19	85.04	94.15	85.05
99.1	85.06	104.06	84.96	109.01	84.86	113.97	84.88	118.92	84.89
123.88	84.93	128.83	84.94	133.79	84.96	138.74	84.97	143.7	84.89
148.65	84.81	153.61	84.77	158.56	84.83	163.52	84.91	168.47	84.8
173.43	84.72	178.38	84.81	183.34	84.84	188.3	84.83	193.25	84.81
198.21	84.83	203.16	84.86	208.12	84.86	213.07	84.9	218.03	85.03
222.98	85.16	227.94	85.18	232.89	85.14	237.85	85.17	242.8	85.64
247.76	85.79	252.71	85.7	257.67	85.29	262.62	84.89	267.58	84.29
272.53	84.42	277.49	84.99	282.44	85.13	287.4	85.17	292.35	85.17
297.31	85.06	302.26	85.02	307.22	85.27	312.17	85.27	317.13	85.33
322.08	85.3	327.04	85.3	331.99	85.3	336.95	85.3	341.9	85.3
346.86	85.27	351.81	85.18	356.77	85.16	361.73	85.18	366.68	85.14
371.64	85.07	376.59	85.07	381.55	85	386.5	84.97	391.5	84.85
396.49	84.81	401.49	84.74	406.48	84.6	411.48	84.64	416.48	84.66
421.47	84.71	426.47	84.8	431.46	84.94	436.46	84.85	441.45	84.78
446.45	84.6	451.44	84.51	456.44	84.51	461.44	84.51	466.43	84.63
471.43	84.69	476.42	84.61	481.42	84.56	486.41	84.5	491.41	84.43
496.41	84.31	501.4	84.23	506.4	84.27	511.39	84.3	516.39	84.27
521.38	84.32	526.38	84.38	531.38	84.29	536.37	84.17	541.37	84.18
546.36	84.22	551.36	84.2	556.35	84.15	561.35	84.16	566.35	84.18
571.34	84.2	576.34	84.27	581.33	84.37	586.33	84.39	591.32	84.39
596.32	84.42	601.32	84.39	606.31	84.27	611.31	84.19	616.3	84.18
621.3	84.19	626.29	84.24	631.29	84.25	636.29	84.25	641.28	84.27
646.28	84.24	651.27	84.22	656.27	84.23	661.26	84.27	666.26	84.31
671.26	84.28	676.25	84.29	681.25	84.32	686.24	84.28	691.24	84.13
696.23	84.15	701.23	84.17	706.23	84.22	711.22	84.15	716.22	84.18
721.21	84.16	726.21	84.13	731.2	84.2	736.2	84.11	741.2	84.13
746.19	84.24	751.19	84.43	756.18	84.22	761.18	84.22	766.17	84.18
771.17	84.16	776.17	84.21	781.16	84.06	786.16	84.09	791.15	84.14
796.15	84.36	801.14	84.33	806.14	84.34	811.14	84.31	816.13	84.4
821.13	84.5	826.12	84.48	831.12	84.36	836.11	84.34	841.11	84.27
846.11	84.26	851.1	84.29	856.1	84.36	861.09	84.44	866.09	84.43
871.08	84.55	876.08	84.57	881.08	84.36	886.07	84.45	891.07	84.46
896.06	84.56	901.06	84.77	906.05	85.32	911.05	85.43	916.04	85.2
921.04	82.1	926.04	77.68	931.03	76.67	936.03	75.09	941.02	74.4
946.02	74.31	951.02	74.33	956.01	74.38	961.01	74.39	966	74.44
971	74.44	975.99	74.42	980.99	74.57	985.98	74.62	990.98	74.7
995.98	74.68	1000.97	74.44	1005.97	74.55	1010.96	75.01	1015.96	75.23
1020.95	75.55	1025.95	76.65	1030.95	78.51	1035.94	79.39	1040.94	79.59
1045.93	80.32	1050.93	81.98	1055.92	84.01	1060.92	84.84	1065.92	86.08

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1070.91	87.45	1075.91	87.49	1080.9	87.3	1085.9	87.14	1090.89	86.75
1095.89	86.28	1100.89	86.01	1105.88	85.75	1110.88	85.41	1115.87	85.32
1120.87	85.24	1125.86	85.29	1130.86	85.44	1135.86	85.49	1140.85	85.4
1145.85	85.33	1150.84	85.39	1155.84	85.3	1160.83	84.97	1165.83	84.81
1170.83	84.8	1175.82	84.81	1180.82	84.87	1185.81	85.12	1190.81	85.05
1195.8	85	1200.8	85.04	1205.8	85.25	1210.79	85.18	1215.79	84.88
1220.78	84.47	1225.78	84.08	1230.77	83.99	1235.77	84.13	1240.77	84.44
1245.76	84.5	1250.76	84.81	1255.75	84.79	1260.75	84.7	1265.74	84.76
1270.74	85.3	1275.74	85.32	1280.73	85.39	1285.73	85.18	1290.72	85.24
1295.72	85.25	1300.71	85.36	1305.71	85.18	1310.71	85.44	1315.7	85.4
1320.7	85.66	1325.69	85.87	1330.69	85.84	1335.68	85.34	1340.68	85.23
1345.68	85.57	1350.67	85.61	1355.67	86.28	1360.66	86.45	1365.66	86.1
1370.65	86.12	1375.65	86.31	1380.65	86.54	1385.64	86.42	1390.64	86.35
1395.63	86.26	1400.63	86.33	1405.62	85.98	1410.62	85.59	1415.62	85.53
1420.61	85.98	1425.61	86.26	1430.6	85.91	1435.6	85.86	1440.59	85.97
1445.59	86.16	1450.59	85.74	1455.58	85.73	1460.58	85.44	1465.57	85.74
1470.57	85.72	1475.56	85.74	1480.56	85.48	1485.55	85.68	1490.55	85.89
1495.55	85.55	1500.54	85.43	1505.54	85.38	1510.53	84.88	1515.53	84.66
1520.53	84.65	1525.52	84.53	1530.52	85.08	1535.51	85.16	1540.51	85.02
1545.5	84.94	1550.5	84.91	1555.49	84.91	1560.49	84.9	1565.49	84.94
1570.48	85.1	1575.48	85.09	1580.47	85.11	1585.47	85.03	1590.46	84.85
1595.46	84.91	1600.46	85.02	1605.45	85.09	1610.45	84.99	1615.44	85.21
1620.44	85.23	1625.43	85.05	1630.43	84.86	1635.43	84.71	1640.42	84.74
1645.42	84.64	1650.41	84.84	1655.41	85.07	1660.4	85.01	1665.4	85.01
1670.4	85.13	1675.39	84.99	1680.39	84.69	1685.38	84.79	1690.38	84.86
1695.32	85.03	1700.27	85.18	1705.21	85.13	1710.15	85.07	1715.1	85.07
1720.04	84.96	1724.98	84.68	1729.93	84.51	1734.87	84.53	1739.82	84.69
1744.76	84.89	1749.7	85.01	1754.65	84.96	1759.59	84.97	1764.53	84.87
1769.48	84.48	1774.42	84.51	1779.36	84.53	1784.31	84.59	1789.25	84.87
1794.2	84.8	1799.14	84.77	1804.08	84.85	1809.03	84.81	1813.97	85.06
1818.91	85.07	1823.86	85.07	1828.8	85.19	1833.74	84.69	1838.69	84.61
1843.63	84.72	1848.58	84.66	1853.52	84.59	1858.46	84.74	1863.41	84.8
1868.35	84.45	1873.29	84.49	1878.24	84.92	1883.18	85.11	1888.12	84.25
1893.07	83.56	1898.01	83.56	1902.96	83.62	1907.9	83.64	1912.84	83.65
1917.79	83.61	1922.73	83.57	1927.67	83.54	1932.62	83.37	1937.56	83.28
1942.5	83.27	1947.45	83.28	1952.39	83.23	1957.34	83.24	1962.28	83.43
1967.22	83.6								

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 916.04 .045 1065.92 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 916.04 1065.92 834 834 834 .1 .3
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 916.04 85.2 F
 1065.92 1967.22 86.08 F

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	80.20	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-val.		0.045
w.s. Elev (ft)	80.20	Reach Len. (ft)	834.00	834.00
834.00 Crit w.s. (ft)	74.97	Flow Area (sq ft)		560.07
E.G. slope (ft/ft)	0.000007	Area (sq ft)		560.07
Q Total (cfs)	134.00	Flow (cfs)		134.00

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Top width (ft)	121.90	Top width (ft)	121.90
Vel Total (ft/s)	0.24	Avg. Vel. (ft/s)	0.24
Max Chl Dpth (ft)	5.89	Hydr. Depth (ft)	4.59
Conv. Total (cfs)	50566.5	Conv. (cfs)	50566.5
Length wtd. (ft)	834.00	wetted Per. (ft)	123.87
Min Ch El (ft)	74.31	Shear (lb/sq ft)	0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	1967.22
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	6.53
C & E Loss (ft)	0.01	Cum SA (acres)	1.59

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	81.65	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-val.		0.045
W.S. Elev (ft)	81.65	Reach Len. (ft)	834.00	834.00
834.00 Crit w.s. (ft)	75.09	Flow Area (sq ft)		742.12
E.G. slope (ft/ft)	0.000006	Area (sq ft)		742.12
Q Total (cfs)	186.00	Flow (cfs)		186.00
Top width (ft)	128.39	Top width (ft)		128.39
Vel Total (ft/s)	0.25	Avg. Vel. (ft/s)		0.25
Max Chl Dpth (ft)	7.34	Hydr. Depth (ft)		5.78
Conv. Total (cfs)	77820.6	Conv. (cfs)		77820.6
Length wtd. (ft)	834.00	wetted Per. (ft)		131.13
Min Ch El (ft)	74.31	Shear (lb/sq ft)		0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	1967.22	0.00
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	9.74	9.71
8.99 C & E Loss (ft)	0.01	Cum SA (acres)	6.95	1.93
20.49				

NM102 OUTPUT REPORT.TXT

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	82.21	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-val.		0.045
W.S. Elev (ft)	82.20	Reach Len. (ft)	834.00	834.00
834.00				
Crit w.s. (ft)	75.36	Flow Area (sq ft)		813.87
E.G. slope (ft/ft)	0.000013	Area (sq ft)		813.87
Q Total (cfs)	321.00	Flow (cfs)		321.00
Top width (ft)	130.61	Top width (ft)		130.61
vel Total (ft/s)	0.39	Avg. vel. (ft/s)		0.39
Max Chl Dpth (ft)	7.89	Hydr. Depth (ft)		6.23
Conv. Total (cfs)	89616.8	Conv. (cfs)		89616.8
Length wtd. (ft)	834.00	wetted Per. (ft)		133.65
Min Ch El (ft)	74.31	Shear (lb/sq ft)		0.00
Alpha	1.00	Stream Power (lb/ft s)	1967.22	0.00
0.00				
Frctn Loss (ft)	0.04	Cum volume (acre-ft)	13.60	10.73
18.58				
C & E Loss (ft)	0.02	Cum SA (acres)	10.48	1.99
21.54				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	81.79	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-val.		0.045
W.S. Elev (ft)	81.79	Reach Len. (ft)	834.00	834.00
834.00				
Crit w.s. (ft)	75.14	Flow Area (sq ft)		760.39
E.G. slope (ft/ft)	0.000007	Area (sq ft)		760.39
Q Total (cfs)	211.00	Flow (cfs)		211.00
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Top width (ft)	128.97	Top width (ft)	128.97
Vel Total (ft/s)	0.28	Avg. Vel. (ft/s)	0.28
Max Chl Dpth (ft)	7.48	Hydr. Depth (ft)	5.90
Conv. Total (cfs)	80767.2	Conv. (cfs)	80767.2
Length wtd. (ft)	834.00	wetted Per. (ft)	131.80
Min Ch El (ft)	74.31	Shear (lb/sq ft)	0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	1967.22
Frctn Loss (ft) 11.64	0.02	Cum Volume (acre-ft)	10.67
C & E Loss (ft) 21.07	0.01	Cum SA (acres)	7.12

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	82.07	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-val.		0.045
W.S. Elev (ft)	82.06	Reach Len. (ft)	834.00	834.00
834.00 Crit w.s. (ft)	75.27	Flow Area (sq ft)		795.54
E.G. slope (ft/ft)	0.000010	Area (sq ft)		795.54
Q Total (cfs)	276.00	Flow (cfs)		276.00
Top width (ft)	130.05	Top width (ft)		130.05
Vel Total (ft/s)	0.35	Avg. Vel. (ft/s)		0.35
Max Chl Dpth (ft)	7.75	Hydr. Depth (ft)		6.12
Conv. Total (cfs)	86548.6	Conv. (cfs)		86548.6
Length wtd. (ft)	834.00	wetted Per. (ft)		133.03
Min Ch El (ft)	74.31	Shear (lb/sq ft)		0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	1967.22	0.00
Frctn Loss (ft) 16.40	0.03	Cum Volume (acre-ft)	12.55	10.48
C & E Loss (ft) 21.40	0.01	Cum SA (acres)	8.73	1.98

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Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	82.65	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-val.		0.045
W.S. Elev (ft)	82.64	Reach Len. (ft)	834.00	834.00
834.00				
Crit w.s. (ft)	75.53	Flow Area (sq ft)		871.47
E.G. slope (ft/ft)	0.000019	Area (sq ft)		871.47
Q Total (cfs)	436.00	Flow (cfs)		436.00
Top width (ft)	132.39	Top width (ft)		132.39
vel Total (ft/s)	0.50	Avg. vel. (ft/s)		0.50
Max Chl Dpth (ft)	8.33	Hydr. Depth (ft)		6.58
Conv. Total (cfs)	99448.0	Conv. (cfs)		99448.0
Length wtd. (ft)	834.00	wetted Per. (ft)		135.65
Min Ch El (ft)	74.31	Shear (lb/sq ft)		0.01
Alpha	1.00	Stream Power (lb/ft s)	1967.22	0.00
0.00				
Frctn Loss (ft)	0.05	Cum volume (acre-ft)	18.29	11.54
25.97				
C & E Loss (ft)	0.03	Cum SA (acres)	16.50	2.03
21.80				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-102
REACH: NM-102C

RS: 1325

INPUT

Description:

Station	Elevation	Data	num=	397							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	82.28	4.97	82.38	9.95	82.51	14.92	82.42	19.89	82.34		
24.86	82.33	29.83	82.33	34.81	82.35	39.78	82.4	44.75	82.45		
49.72	82.45	54.7	82.41	59.67	82.31	64.64	82.27	69.61	82.22		
74.59	82.15	79.56	82.16	84.53	82.18	89.5	82.18	94.48	82.13		

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99.45	82.14	104.42	82.15	109.39	82.24	114.37	82.25	119.34	82.24
124.31	82.25	129.28	82.21	134.26	82.19	139.23	82.19	144.2	82.15
149.17	82.17	154.15	82.18	159.12	82.23	164.09	82.24	169.06	82.22
174.04	82.31	179.01	82.17	183.98	82.16	188.95	82.2	193.93	82.09
198.9	82.18	203.87	82.17	208.84	82.21	213.82	82.22	218.79	82.16
223.76	82.15	228.73	82.18	233.71	82.41	238.68	82.53	243.65	82.6
248.62	82.61	253.6	82.72	258.57	82.79	263.54	82.65	268.51	82.59
273.49	82.64	278.46	82.84	283.43	82.94	288.4	82.96	293.38	82.72
298.35	82.18	303.32	82.41	308.29	82.64	313.27	83.2	318.24	83.4
323.21	83.25	328.18	83.17	333.16	83.17	338.13	83.19	343.1	83.17
348.07	83.19	353.05	83.22	358.04	83.07	363.04	82.84	368.04	82.6
373.03	82.48	378.03	82.51	383.03	82.5	388.02	82.6	393.02	82.74
398.02	82.79	403.02	82.59	408.01	82.36	413.01	82.43	418.01	82.45
423	82.56	428	82.68	433	82.58	437.99	82.41	442.99	82.35
447.99	82.22	452.98	82.16	457.98	82.09	462.98	82.14	467.97	82.33
472.97	82.48	477.97	82.41	482.97	82.45	487.96	82.56	492.96	82.69
497.96	82.78	502.95	82.66	507.95	82.43	512.95	82.4	517.94	82.28
522.94	82.22	527.94	82.35	532.93	82.71	537.93	82.78	542.93	82.71
547.92	82.63	552.92	82.5	557.92	82.54	562.91	82.81	567.91	82.78
572.91	82.63	577.91	82.51	582.9	82.26	587.9	82.27	592.9	82.3
597.89	82.35	602.89	82.27	607.89	82.11	612.88	82.13	617.88	82.01
622.88	81.95	627.87	81.96	632.87	81.96	637.87	81.98	642.86	81.93
647.86	81.99	652.86	81.98	657.86	81.86	662.85	81.93	667.85	82.02
672.85	82.02	677.84	81.92	682.84	81.97	687.84	82.07	692.83	81.98
697.83	81.98	702.83	82.1	707.82	82.12	712.82	82.15	717.82	82.15
722.81	81.86	727.81	81.7	732.81	81.68	737.8	81.68	742.8	81.83
747.8	82.03	752.8	81.88	757.79	81.88	762.79	81.76	767.79	81.88
772.78	81.78	777.78	81.75	782.78	81.76	787.77	81.85	792.77	81.89
797.77	81.83	802.76	81.82	807.76	81.84	812.76	81.96	817.75	81.91
822.75	81.9	827.75	82.02	832.75	82.13	837.74	82	842.74	81.96
847.74	81.85	852.73	81.72	857.73	81.79	862.73	81.97	867.72	82.02
872.72	81.95	877.72	81.93	882.71	82.05	887.71	82.1	892.71	82.01
897.7	82.03	902.7	82.13	907.7	82.13	912.7	82.2	917.69	82.08
922.69	82.16	927.69	82.23	932.68	82.34	937.68	82.75	942.68	83.56
947.67	84.73	952.67	85.24	955	82.09	958.2	79.37	961.3	76.3
964.5	75.56	967.7	74.75	970.8	76.18	974	79.43	977.1	81.05
982.65	82.53	987.65	83.79	992.64	83.64	997.64	83.73	1002.64	83.96
1007.64	84.04	1012.63	83.99	1017.63	83.84	1022.63	83.5	1027.62	83.3
1032.62	83.3	1037.62	83.21	1042.61	83	1047.61	82.75	1052.61	82.56
1057.6	82.52	1062.6	82.52	1067.6	82.59	1072.59	82.77	1077.59	82.89
1082.59	83.05	1087.58	83.07	1092.58	82.65	1097.58	82.52	1102.58	82.58
1107.57	82.61	1112.57	82.33	1117.57	82.17	1122.56	82.12	1127.56	81.94
1132.56	81.56	1137.55	81.26	1142.55	81.17	1147.55	81.14	1152.54	81.14
1157.54	81.19	1162.54	81.14	1167.53	81.18	1172.53	81.29	1177.53	81.27
1182.53	81.27	1187.52	81.24	1192.52	81.2	1197.52	81.3	1202.51	81.2
1207.51	81.22	1212.51	81.3	1217.5	81.32	1222.5	81.35	1227.5	81.42
1232.49	81.42	1237.49	81.3	1242.49	81.42	1247.48	81.82	1252.48	81.84
1257.48	81.92	1262.47	81.89	1267.47	81.62	1272.47	81.6	1277.47	81.63
1282.46	81.61	1287.46	81.36	1292.46	81.35	1297.45	81.33	1302.45	81.35
1307.45	81.36	1312.44	81.29	1317.44	81.43	1322.44	81.4	1327.43	81.4
1332.43	81.43	1337.43	81.39	1342.42	81.44	1347.42	81.47	1352.42	81.44
1357.42	81.33	1362.41	81.34	1367.41	81.35	1372.41	81.4	1377.4	81.41
1382.4	81.35	1387.4	81.35	1392.39	81.53	1397.39	81.61	1402.39	81.55
1407.38	81.34	1412.38	81.33	1417.38	81.28	1422.37	81.28	1427.37	81.39
1432.37	81.41	1437.36	81.45	1442.36	81.4	1447.36	81.34	1452.36	81.33
1457.35	81.33	1462.35	81.12	1467.35	81.15	1472.34	81.17	1477.34	81.19
1482.34	81.13	1487.33	81.05	1492.33	81.16	1497.33	81.2	1502.32	81.32
1507.32	81.49	1512.32	81.4	1517.31	81.35	1522.31	81.31	1527.31	81.25
1532.3	81.48	1537.3	81.63	1542.3	81.52	1547.3	81.46	1552.29	81.39
1557.29	81.36	1562.29	81.44	1567.28	81.54	1572.28	81.54	1577.28	81.43
1582.27	81.36	1587.27	81.32	1592.27	81.31	1597.26	81.3	1602.26	81.27
1607.26	81.3	1612.25	81.29	1617.25	81.31	1622.25	81.36	1627.25	81.35
1632.24	81.3	1637.24	81.25	1642.24	81.23	1647.23	81.33	1652.18	81.48

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1657.14	81.51	1662.09	81.4	1667.04	81.3	1671.99	81.24	1676.94	81.26
1681.9	81.36	1686.85	81.3	1691.8	81.32	1696.75	81.37	1701.7	81.32
1706.65	81.07	1711.61	81.04	1716.56	81	1721.51	81.07	1726.46	81.13
1731.41	81.14	1736.36	81.15	1741.32	81.17	1746.27	81.07	1751.22	81.09
1756.17	81.18	1761.12	81.13	1766.08	81.16	1771.03	81.14	1775.98	81.13
1780.93	81	1785.88	81.01	1790.83	81.1	1795.79	81.1	1800.74	81.2
1805.69	81.23	1810.64	81.26	1815.59	81.27	1820.55	81.27	1825.5	81.21
1830.45	81.19	1835.4	81.2	1840.35	81.15	1845.3	81.24	1850.26	81.4
1855.21	81.29	1860.16	81.28	1865.11	81.15	1870.06	81.11	1875.02	81.2
1879.97	81.26	1884.92	81.33	1889.87	81.4	1894.82	81.37	1899.77	81.32
1904.73	81.22	1909.68	81.17	1914.63	81.2	1919.58	81.21	1924.53	81.23
1929.48	81.28	1934.44	81.28	1939.39	81.28	1944.34	81.29	1949.29	81.31
1954.24	81.35	1959.2	81.28						

Manning's n Values
 num= 3
 Sta n Val Sta n Val
 0 .06 952.67 .045 982.65 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 952.67 982.65 661 661 661 .1 .3
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 952.67 85.24 F
 1007 1959.2 84 F

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	80.17	Element	Left OB	Channel
Right OB Vel Head (ft)	0.08	wt. n-val.		0.045
w.s. Elev (ft)	80.09	Reach Len. (ft)	661.00	661.00
661.00 Crit w.s. (ft)	77.36	Flow Area (sq ft)		58.44
E.G. slope (ft/ft)	0.001268	Area (sq ft)		58.44
Q Total (cfs)	134.00	Flow (cfs)		134.00
Top width (ft)	17.91	Top width (ft)		17.91
vel Total (ft/s)	2.29	Avg. vel. (ft/s)		2.29
Max Chl Dpth (ft)	5.34	Hydr. Depth (ft)		3.26
Conv. Total (cfs)	3763.6	Conv. (cfs)		3763.6
Length wtd. (ft)	661.00	wetted Per. (ft)		21.45
Min Ch El (ft)	74.75	Shear (lb/sq ft)		0.22
Alpha 0.00	1.00	Stream Power (lb/ft s)	1959.20	0.00
Frctn Loss (ft)	2.43	Cum volume (acre-ft)		0.61
C & E Loss (ft)	0.06	Cum SA (acres)		0.25

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

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Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	81.63	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.07	wt. n-Val.		0.045
W.S. Elev (ft)	81.56	Reach Len. (ft)	661.00	661.00
661.00				
Crit w.s. (ft)	77.78	Flow Area (sq ft)		88.35
E.G. Slope (ft/ft)	0.000869	Area (sq ft)		88.35
210.80				
Q Total (cfs)	186.00	Flow (cfs)		186.00
Top width (ft)	797.71	Top width (ft)		23.38
774.32				
Vel Total (ft/s)	2.11	Avg. Vel. (ft/s)		2.11
Max Chl Dpth (ft)	6.81	Hydr. Depth (ft)		3.78
Conv. Total (cfs)	6309.3	Conv. (cfs)		6309.3
Length wtd. (ft)	661.00	wetted Per. (ft)		27.78
Min Ch El (ft)	74.75	Shear (lb/sq ft)		0.17
Alpha	1.00	Stream Power (lb/ft s)	1959.20	0.00
0.00				
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	9.74	1.76
6.97				
C & E Loss (ft)	0.02	Cum SA (acres)	6.95	0.48
13.07				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	82.15	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.16	wt. n-Val.		0.045
W.S. Elev (ft)	81.99	Reach Len. (ft)	661.00	661.00
661.00				

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Crit w.s. (ft)	78.67	Flow Area (sq ft)		98.88
E.G. Slope (ft/ft)	0.001980	Area (sq ft)	22.19	98.88
560.92 Q Total (cfs)	321.00	Flow (cfs)		321.00
Top width (ft)	1060.17	Top width (ft)	201.63	25.51
833.03 Vel Total (ft/s)	3.25	Avg. Vel. (ft/s)		3.25
Max Chl Dpth (ft)	7.24	Hydr. Depth (ft)		3.88
Conv. Total (cfs)	7213.1	Conv. (cfs)		7213.1
Length wtd. (ft)	661.00	wetted Per. (ft)		30.11
Min Ch El (ft)	74.75	Shear (lb/sq ft)		0.41
Alpha	1.00	Stream Power (lb/ft s)	1959.20	0.00
0.00 Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	13.39	1.99
13.21 C & E Loss (ft)	0.05	Cum SA (acres)	8.55	0.50
13.56				

Warning: Divided flow computed for this cross-section.
 Warning: The cross-section end points had to be extended vertically for the computed water surface.
 Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.
 Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	81.77	Element	Left OB	Channel
Right OB Vel Head (ft)	0.08	wt. n-Val.		0.045
W.S. Elev (ft)	81.68	Reach Len. (ft)	661.00	661.00
661.00 Crit w.s. (ft)	77.96	Flow Area (sq ft)		91.27
E.G. Slope (ft/ft)	0.001036	Area (sq ft)	0.01	91.27
308.99 Q Total (cfs)	211.00	Flow (cfs)		211.00
Top width (ft)	837.38	Top width (ft)	5.68	23.99
807.70 Vel Total (ft/s)	2.31	Avg. Vel. (ft/s)		2.31
Max Chl Dpth (ft)	6.93	Hydr. Depth (ft)		3.80
Conv. Total (cfs)	6556.3	Conv. (cfs)		6556.3
Length wtd. (ft)	661.00	wetted Per. (ft)		28.45
Min Ch El (ft)	74.75	Shear (lb/sq ft)		0.21

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Alpha	1.00	Stream Power (lb/ft s)	1959.20	0.00
0.00				
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	10.67	1.82
8.68				
C & E Loss (ft)	0.02	Cum SA (acres)	7.07	0.49
13.34				

Warning: Divided flow computed for this cross-section.
 Warning: The cross-section end points had to be extended vertically for the computed water surface.
 Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.
 Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	82.02	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.13	wt. n-Val.		0.045
W.S. Elev (ft)	81.90	Reach Len. (ft)	661.00	661.00
661.00				
Crit w.s. (ft)	78.39	Flow Area (sq ft)		96.52
E.G. Slope (ft/ft)	0.001551	Area (sq ft)	9.10	96.52
483.39				
Q Total (cfs)	276.00	Flow (cfs)		276.00
Top width (ft)	950.13	Top width (ft)	99.36	25.05
825.72				
Vel Total (ft/s)	2.86	Avg. Vel. (ft/s)		2.86
Max Chl Dpth (ft)	7.15	Hydr. Depth (ft)		3.85
Conv. Total (cfs)	7007.5	Conv. (cfs)		7007.5
Length wtd. (ft)	661.00	wetted Per. (ft)		29.61
Min Ch El (ft)	74.75	Shear (lb/sq ft)		0.32
Alpha	1.00	Stream Power (lb/ft s)	1959.20	0.00
0.00				
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	12.46	1.94
11.77				
C & E Loss (ft)	0.04	Cum SA (acres)	7.78	0.49
13.50				

Warning: Divided flow computed for this cross-section.
 Warning: The cross-section end points had to be extended vertically for the computed water surface.
 Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.
 Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	82.57	Element	Left OB	Channel
Right OB Vel Head (ft)	0.26	Wt. n-Val.		0.045
W.S. Elev (ft)	82.31	Reach Len. (ft)	661.00	661.00
661.00 Crit w.s. (ft)	79.29	Flow Area (sq ft)		107.26
E.G. Slope (ft/ft)	0.002993	Area (sq ft)	138.14	107.26
828.78 Q Total (cfs)	436.00	Flow (cfs)		436.00
Top width (ft)	1425.18	Top width (ft)	552.23	26.98
845.97 Vel Total (ft/s)	4.06	Avg. Vel. (ft/s)		4.06
Max Chl Dpth (ft)	7.56	Hydr. Depth (ft)		3.98
Conv. Total (cfs)	7969.3	Conv. (cfs)		7969.3
Length wtd. (ft)	661.00	wetted Per. (ft)		31.78
Min Ch El (ft)	74.75	Shear (lb/sq ft)		0.63
Alpha	1.00	Stream Power (lb/ft s)	1959.20	0.00
0.00 Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	16.97	2.17
18.03 C & E Loss (ft)	0.08	Cum SA (acres)	11.21	0.51
13.70				

Warning: Divided flow computed for this cross-section.
 Warning: The cross-section end points had to be extended vertically for the computed water surface.
 Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.
 Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-102
 REACH: NM-102C RS: 664

INPUT

Description:

Station Elevation Data		num= 392							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	79.82	4.94	79.61	9.88	79.59	14.81	79.55	19.75	79.55
24.69	79.62	29.63	79.66	34.57	79.58	39.5	79.5	44.44	79.63
49.38	79.56	54.32	79.54	59.26	79.48	64.19	79.54	69.13	79.53
74.07	79.54	79.01	79.62	83.95	79.58	88.89	79.58	93.82	79.44
98.76	79.48	103.7	79.59	108.64	79.59	113.58	79.54	118.51	79.58
123.45	79.44	128.39	79.42	133.33	79.9	138.27	80.34	143.2	80.37
148.14	80.37	153.08	80.31	158.02	80.19	162.96	80.01	167.89	79.95
172.83	79.91	177.77	79.91	182.71	80	187.65	80.05	192.58	79.98

NM102 OUTPUT REPORT.TXT

197.52	79.95	202.46	80.03	207.4	80.06	212.34	80	217.27	79.99
222.21	79.98	227.15	79.93	232.09	79.89	237.03	79.94	241.97	79.93
246.9	79.91	251.84	79.98	256.78	79.98	261.72	80.02	266.66	80.01
271.59	79.94	276.53	79.9	281.47	79.87	286.41	79.69	291.35	79.69
296.28	79.66	301.22	79.66	306.16	79.62	311.1	79.56	316.04	79.79
321.03	79.79	326.03	79.79	331.03	79.93	336.03	79.78	341.03	79.79
346.02	79.67	351.02	79.82	356.02	79.71	361.02	79.69	366.02	79.81
371.01	79.72	376.01	79.8	381.01	80.02	386.01	80.09	391.01	79.75
396	79.71	401	79.78	406	79.82	411	79.93	416	80.01
420.99	79.92	425.99	79.89	430.99	79.87	435.99	79.99	440.99	80.09
445.98	80.09	450.98	80.21	455.98	80.36	460.98	80.26	465.98	80.29
470.97	80.35	475.97	80.06	480.97	80.03	485.97	80.16	490.97	80.18
495.96	80.38	500.96	80.66	505.96	80.76	510.96	80.72	515.96	80.57
520.95	80.58	525.95	80.84	530.95	80.87	535.95	80.5	540.95	80.27
545.94	80.38	550.94	80.38	555.94	80.26	560.94	80.2	565.94	80.15
570.93	80.24	575.93	80.38	580.93	80.32	585.93	80.22	590.93	80.22
595.92	80.15	600.92	80.17	605.92	80.27	610.92	80.36	615.92	80.32
620.91	80.28	625.91	80.18	630.91	80.21	635.91	80.23	640.91	80.21
645.9	80.19	650.9	80.16	655.9	80.17	660.9	80.25	665.9	80.31
670.89	80.34	675.89	80.48	680.89	80.52	685.89	80.53	690.89	80.6
695.88	80.76	700.88	80.83	705.88	80.87	710.88	81.12	715.88	81.04
720.87	80.92	725.87	80.88	730.87	80.77	735.87	80.68	740.87	80.71
745.86	80.77	750.86	80.77	755.86	80.71	760.86	80.8	765.86	80.94
770.85	80.93	775.85	80.91	780.85	80.83	785.85	80.91	790.85	80.91
795.84	80.53	800.84	80.45	805.84	80.64	810.84	80.68	815.84	80.57
820.83	80.71	825.83	80.56	830.83	80.57	835.83	80.57	840.83	80.49
845.82	80.52	850.82	80.51	855.82	80.49	860.82	80.64	865.82	80.66
870.81	80.66	875.81	80.69	880.81	80.68	885.81	80.68	890.81	80.81
895.8	80.87	900.8	80.91	905.8	81.09	910.8	81.4	915.8	81.67
920.79	81.72	925.79	81.5	930.79	80.61	935.79	78.12	940.79	76.54
945.78	75.13	950.78	74.47	955.78	77.58	960.78	80.09	965.78	81.34
970.77	82.57	975.77	82.49	980.77	82.57	985.77	82.62	990.77	82.56
995.76	82.08	1000.76	81.44	1005.76	81.07	1010.76	80.99	1015.76	81.02
1020.75	81.26	1025.75	81.27	1030.75	81.25	1035.75	81.22	1040.75	81.29
1045.74	81.46	1050.74	81.47	1055.74	81.48	1060.74	81.5	1065.74	81.43
1070.73	81.44	1075.73	81.48	1080.73	81.45	1085.73	81.4	1090.73	81.3
1095.72	80.92	1100.72	81	1105.72	81.14	1110.72	81	1115.72	80.99
1120.71	80.89	1125.71	81.03	1130.71	80.97	1135.71	80.98	1140.71	80.94
1145.7	81.02	1150.7	81.03	1155.7	81	1160.7	80.95	1165.7	80.98
1170.69	80.94	1175.69	80.92	1180.69	80.91	1185.69	80.96	1190.69	80.94
1195.68	80.76	1200.68	80.77	1205.68	80.91	1210.68	80.93	1215.68	80.97
1220.67	81.01	1225.67	81.01	1230.67	80.78	1235.67	80.88	1240.67	80.91
1245.66	80.91	1250.66	80.96	1255.66	80.89	1260.66	80.87	1265.66	80.87
1270.65	80.79	1275.65	80.75	1280.65	80.68	1285.65	80.62	1290.65	80.7
1295.64	80.68	1300.64	80.78	1305.64	80.83	1310.64	80.8	1315.64	80.8
1320.63	80.85	1325.63	80.9	1330.63	80.8	1335.63	80.77	1340.63	80.75
1345.62	80.71	1350.62	80.78	1355.62	80.82	1360.62	80.72	1365.61	80.7
1370.61	80.74	1375.61	80.83	1380.61	80.91	1385.61	80.87	1390.6	80.84
1395.6	80.78	1400.6	80.78	1405.6	80.84	1410.6	80.81	1415.59	80.81
1420.59	80.82	1425.59	80.79	1430.59	80.74	1435.59	80.74	1440.58	80.75
1445.58	80.8	1450.58	80.82	1455.58	80.75	1460.58	80.82	1465.57	80.75
1470.57	80.73	1475.57	80.76	1480.57	80.74	1485.57	80.83	1490.56	80.84
1495.56	80.89	1500.56	81	1505.56	80.87	1510.56	80.87	1515.55	80.81
1520.55	80.71	1525.55	80.87	1530.55	80.84	1535.55	80.68	1540.54	80.73
1545.54	80.74	1550.54	80.81	1555.54	80.8	1560.54	80.84	1565.53	81.09
1570.53	80.96	1575.53	80.91	1580.53	80.85	1585.53	80.8	1590.52	80.95
1595.52	80.97	1600.52	81.04	1605.52	80.84	1610.52	80.52	1615.51	80.51
1620.51	80.76	1625.51	81.02	1630.51	81.03	1635.51	80.94	1640.5	80.95
1645.5	81.05	1650.5	80.99	1655.45	80.84	1660.4	80.79	1665.35	80.6
1670.3	80.87	1675.25	80.82	1680.2	80.74	1685.15	80.69	1690.09	80.65
1695.04	80.58	1699.99	80.56	1704.94	80.59	1709.89	80.58	1714.84	80.54
1719.79	80.49	1724.74	80.48	1729.69	80.66	1734.64	80.93	1739.59	81.04
1744.54	81.04	1749.49	81.01	1754.44	80.9	1759.39	80.75	1764.33	80.67

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1769.28	80.6	1774.23	80.53	1779.18	80.62	1784.13	80.71	1789.08	80.71
1794.03	80.64	1798.98	80.59	1803.93	80.62	1808.88	80.63	1813.83	80.67
1818.78	80.74	1823.73	80.75	1828.68	80.64	1833.63	80.64	1838.57	80.65
1843.52	80.63	1848.47	80.59	1853.42	80.59	1858.37	80.63	1863.32	80.52
1868.27	80.42	1873.22	80.41	1878.17	80.5	1883.12	80.63	1888.07	80.56
1893.02	80.54	1897.97	80.47	1902.92	80.69	1907.87	80.63	1912.81	80.66
1917.76	80.68	1922.71	80.69	1927.66	80.66	1932.61	80.62	1937.56	80.62
1942.51	80.56	1947.46	80.55						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	925.79	.045	965.78	.06

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	925.79	965.78		664	664	664		.1	.3
Ineffective Flow	num=								
	2								
Sta L	Sta R	Elev	Permanent						
0	925.79	81.5	F						
965.78	1947.46	81.34	F						

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	77.67	Element	Left OB	Channel
Right OB Vel Head (ft)	0.71	wt. n-Val.		0.045
w.s. Elev (ft)	76.97	Reach Len. (ft)		
Crit w.s. (ft)	76.97	Flow Area (sq ft)		21.76
E.G. Slope (ft/ft)	0.028638	Area (sq ft)		21.76
Q Total (cfs)	147.00	Flow (cfs)		147.00
Top width (ft)	15.35	Top width (ft)		15.35
Vel Total (ft/s)	6.76	Avg. Vel. (ft/s)		6.76
Max Chl Dpth (ft)	2.50	Hydr. Depth (ft)		1.42
Conv. Total (cfs)	868.7	Conv. (cfs)		868.7
Length wtd. (ft)		Wetted Per. (ft)		16.36
Min Ch El (ft)	74.47	Shear (lb/sq ft)		2.38
Alpha	1.00	Stream Power (lb/ft s)	1947.46	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)		
C & E Loss (ft)		Cum SA (acres)		

Warning: Slope-Area method could not converge on a starting water surface elevation within the specified number of trials. The program used critical depth as the starting water surface.
 Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

NM102 OUTPUT REPORT.TXT

E.G. Elev (ft)	81.59	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-val.	0.060	0.045
0.060				
W.S. Elev (ft)	81.59	Reach Len. (ft)		
Crit w.s. (ft)	77.37	Flow Area (sq ft)	1283.86	143.62
708.19				
E.G. slope (ft/ft)	0.000010	Area (sq ft)	1283.86	143.62
708.19				
Q Total (cfs)	205.00	Flow (cfs)	125.81	33.61
45.59				
Top width (ft)	1905.08	Top width (ft)	916.24	39.99
948.85				
Vel Total (ft/s)	0.10	Avg. vel. (ft/s)	0.10	0.23
0.06				
Max Chl Dpth (ft)	7.12	Hydr. Depth (ft)	1.40	3.59
0.75				
Conv. Total (cfs)	64868.1	Conv. (cfs)	39808.6	10634.2
14425.4				
Length wtd. (ft)		wetted Per. (ft)	918.26	42.77
950.10				
Min Ch El (ft)	74.47	Shear (lb/sq ft)	0.00	0.00
0.00				
Alpha	1.71	Stream Power (lb/ft s)	1947.46	0.00
0.00				
Frctn Loss (ft)		Cum Volume (acre-ft)		
C & E Loss (ft)		Cum SA (acres)		

Warning: Divided flow computed for this cross-section.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	82.08	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-val.	0.060	0.045
0.060				
W.S. Elev (ft)	82.08	Reach Len. (ft)		
Crit w.s. (ft)	78.17	Flow Area (sq ft)	1742.31	163.46
1180.34				
E.G. slope (ft/ft)	0.000010	Area (sq ft)	1742.31	163.46
1180.34				
Q Total (cfs)	356.00	Flow (cfs)	207.74	41.75
106.51				
Top width (ft)	1920.53	Top width (ft)	925.79	39.99
954.75				
Vel Total (ft/s)	0.12	Avg. vel. (ft/s)	0.12	0.26
0.09				
Max Chl Dpth (ft)	7.61	Hydr. Depth (ft)	1.88	4.09
1.24				
Conv. Total (cfs)	112508.9	Conv. (cfs)	65653.3	13193.3
33662.3				
Length wtd. (ft)		wetted Per. (ft)	928.31	42.77

NM102 OUTPUT REPORT.TXT

956.59				
Min Ch El (ft)	74.47	Shear (lb/sq ft)	0.00	0.00
0.00				
Alpha	1.38	Stream Power (lb/ft s)	1947.46	0.00
0.00				
Frctn Loss (ft)		Cum Volume (acre-ft)		
C & E Loss (ft)		Cum SA (acres)		

Warning: Divided flow computed for this cross-section.
 Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	81.72	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-val.	0.060	0.045
0.060				
W.S. Elev (ft)	81.72	Reach Len. (ft)		
Crit w.s. (ft)	77.58	Flow Area (sq ft)	1406.79	148.97
835.11				
E.G. slope (ft/ft)	0.000010	Area (sq ft)	1406.79	148.97
835.11				
Q Total (cfs)	241.00	Flow (cfs)	145.33	35.72
59.95				
Top width (ft)	1916.22	Top width (ft)	925.79	39.99
950.44				
Vel Total (ft/s)	0.10	Avg. vel. (ft/s)	0.10	0.24
0.07				
Max Chl Dpth (ft)	7.25	Hydr. Depth (ft)	1.52	3.73
0.88				
Conv. Total (cfs)	76246.1	Conv. (cfs)	45977.4	11301.9
18966.7				
Length wtd. (ft)		wetted Per. (ft)	927.95	42.77
951.85				
Min Ch El (ft)	74.47	Shear (lb/sq ft)	0.00	0.00
0.00				
Alpha	1.60	Stream Power (lb/ft s)	1947.46	0.00
0.00				
Frctn Loss (ft)		Cum volume (acre-ft)		
C & E Loss (ft)		Cum SA (acres)		

Warning: Divided flow computed for this cross-section.
 Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	81.97	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-val.	0.060	0.045
0.060				

NM102 OUTPUT REPORT.TXT

w.S. Elev (ft)	81.97	Reach Len. (ft)		
Crit w.S. (ft)	77.98	Flow Area (sq ft)	1633.05	158.74
1067.75				
E.G. slope (ft/ft)	0.000010	Area (sq ft)	1633.05	158.74
1067.75				
Q Total (cfs)	316.00	Flow (cfs)	186.22	39.70
90.08				
Top width (ft)	1919.12	Top width (ft)	925.79	39.99
953.34				
Vel Total (ft/s)	0.11	Avg. Vel. (ft/s)	0.11	0.25
0.08				
Max Chl Dpth (ft)	7.50	Hydr. Depth (ft)	1.76	3.97
1.12				
Conv. Total (cfs)	100015.8	Conv. (cfs)	58940.9	12564.6
28510.3				
Length wtd. (ft)		wetted Per. (ft)	928.19	42.77
955.04				
Min Ch El (ft)	74.47	Shear (lb/sq ft)	0.00	0.00
0.00				
Alpha	1.44	Stream Power (lb/ft s)	1947.46	0.00
0.00				
Frctn Loss (ft)		Cum Volume (acre-ft)		
C & E Loss (ft)		Cum SA (acres)		

Warning: Divided flow computed for this cross-section.
 Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	82.47	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-val.	0.060	0.045
0.060				
w.S. Elev (ft)	82.47	Reach Len. (ft)		
Crit w.S. (ft)	78.74	Flow Area (sq ft)	2097.88	178.82
1548.10				
E.G. Slope (ft/ft)	0.000010	Area (sq ft)	2097.88	178.82
1548.10				
Q Total (cfs)	498.00	Flow (cfs)	282.88	48.46
166.66				
Top width (ft)	1926.08	Top width (ft)	925.79	39.99
960.30				
Vel Total (ft/s)	0.13	Avg. Vel. (ft/s)	0.13	0.27
0.11				
Max Chl Dpth (ft)	8.00	Hydr. Depth (ft)	2.27	4.47
1.61				
Conv. Total (cfs)	157466.2	Conv. (cfs)	89446.2	15323.5
52696.5				
Length wtd. (ft)		wetted Per. (ft)	928.70	42.77
962.59				
Min Ch El (ft)	74.47	Shear (lb/sq ft)	0.00	0.00
0.00				
Alpha	1.26	Stream Power (lb/ft s)	1947.46	0.00
0.00				
Frctn Loss (ft)		Cum Volume (acre-ft)		

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C & E Loss (ft)

Cum SA (acres)

Warning: Divided flow computed for this cross-section.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

SUMMARY OF MANNING'S N VALUES

River:N-NM-102

Reach	River Sta.	n1	n2	n3
NM-102-01	3452	.06	.045	.06
NM-102-01	2176	.06	.045	.06
NM-102-01	656	.06	.045	.06
NM-102-02	3577	.06	.045	.06
NM-102-02	2137	.06	.045	.06
NM-102-02	569	.06	.045	.06
NM-102B	12505	.06	.045	.06
NM-102B	11504	.06	.045	.06
NM-102B	10288	.06	.045	.06
NM-102B	9226	.06	.045	.06
NM-102A	19462	.06	.045	.06
NM-102A	18419	.06	.045	.06
NM-102A	18004	.06	.045	.06
NM-102A	16917	.06	.045	.06
NM-102A	16116	.06	.045	.06
NM-102A	15326	.06	.045	.06
NM-102A	13789	.06	.045	.06
NM-102C	7972	.06	.045	.06
NM-102C	7022	.06	.045	.06
NM-102C	6093	.06	.045	.06
NM-102C	5122	.06	.045	.06
NM-102C	4131	.06	.045	.06
NM-102C	3517	.06	.045	.06
NM-102C	2159	.06	.045	.06
NM-102C	1325	.06	.045	.06
NM-102C	664	.06	.045	.06

SUMMARY OF REACH LENGTHS

River: N-NM-102

Reach	River Sta.	Left	Channel	Right
NM-102-01	3452	1276	1276	1276
NM-102-01	2176	1520	1520	1520
NM-102-01	656	656	656	656
NM-102-02	3577	1440	1440	1440
NM-102-02	2137	1568	1568	1568
NM-102-02	569	569	569	569
NM-102B	12505	1001	1001	1001
NM-102B	11504	1216	1216	1216
NM-102B	10288	1062	1062	1062

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NM-102B	9226	1254	1254	1254
NM-102A	19462	1043	1043	1043
NM-102A	18419	415	415	415
NM-102A	18004	1087	1087	1087
NM-102A	16917	801	801	801
NM-102A	16116	790	790	790
NM-102A	15326	1537	1537	1537
NM-102A	13789	1284	1284	1284
NM-102C	7972	950	950	950
NM-102C	7022	929	929	929
NM-102C	6093	971	971	971
NM-102C	5122	991	991	991
NM-102C	4131	614	614	614
NM-102C	3517	1358	1358	1358
NM-102C	2159	834	834	834
NM-102C	1325	661	661	661
NM-102C	664	664	664	664

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: N-NM-102

Reach	River Sta.	Contr.	Expan.
NM-102-01	3452	.1	.3
NM-102-01	2176	.1	.3
NM-102-01	656	.1	.3
NM-102-02	3577	.1	.3
NM-102-02	2137	.1	.3
NM-102-02	569	.1	.3
NM-102B	12505	.1	.3
NM-102B	11504	.1	.3
NM-102B	10288	.1	.3
NM-102B	9226	.1	.3
NM-102A	19462	.1	.3
NM-102A	18419	.1	.3
NM-102A	18004	.1	.3
NM-102A	16917	.1	.3
NM-102A	16116	.1	.3
NM-102A	15326	.1	.3
NM-102A	13789	.1	.3
NM-102C	7972	.1	.3
NM-102C	7022	.1	.3
NM-102C	6093	.1	.3
NM-102C	5122	.1	.3
NM-102C	4131	.1	.3
NM-102C	3517	.1	.3
NM-102C	2159	.1	.3
NM-102C	1325	.1	.3
NM-102C	664	.1	.3

Profile Output Table - Table 1

Reach Vel Chnl	River Sta Flow Area	Profile Top width	Q Total Volume (cfs)	W.S. Elev (ft)	E.G. Elev (ft)	Min Ch El (ft)
(ft/s)	(sq ft)	(ft)	(acre-ft)			

NM102 OUTPUT REPORT.TXT

NM-102C	664	EX 10Y	147.00	76.97	77.67	74.47
6.76	21.76	15.35				
NM-102C	664	EX 25Y	205.00	81.59	81.59	74.47
0.23	2135.68	1905.08				
NM-102C	664	EX 100Y	356.00	82.08	82.08	74.47
0.26	3086.11	1920.53				
NM-102C	664	ULT 10Y	241.00	81.72	81.72	74.47
0.24	2390.88	1916.22				
NM-102C	664	ULT 25Y	316.00	81.97	81.97	74.47
0.25	2859.54	1919.12				
NM-102C	664	ULT 100Y	498.00	82.47	82.47	74.47
0.27	3824.80	1926.08				
NM-102C	1325	EX 10Y	134.00	80.09	80.17	74.75
2.29	58.44	17.91	0.61			
NM-102C	1325	EX 25Y	186.00	81.56	81.63	74.75
2.11	88.35	797.71	18.47			
NM-102C	1325	EX 100Y	321.00	81.99	82.15	74.75
3.25	98.88	1060.17	28.59			
NM-102C	1325	ULT 10Y	211.00	81.68	81.77	74.75
2.31	91.27	837.38	21.18			
NM-102C	1325	ULT 25Y	276.00	81.90	82.02	74.75
2.86	96.52	950.13	26.16			
NM-102C	1325	ULT 100Y	436.00	82.31	82.57	74.75
4.06	107.26	1425.18	37.17			
NM-102C	2159	EX 10Y	134.00	80.20	80.20	74.31
0.24	560.07	121.90	6.53			
NM-102C	2159	EX 25Y	186.00	81.65	81.65	74.31
0.25	742.12	128.39	28.44			
NM-102C	2159	EX 100Y	321.00	82.20	82.21	74.31
0.39	813.87	130.61	42.91			
NM-102C	2159	ULT 10Y	211.00	81.79	81.79	74.31
0.28	760.39	128.97	32.29			
NM-102C	2159	ULT 25Y	276.00	82.06	82.07	74.31
0.35	795.54	130.05	39.42			
NM-102C	2159	ULT 100Y	436.00	82.64	82.65	74.31
0.50	871.47	132.39	55.80			
NM-102C	3517	EX 10Y	134.00	80.21	80.21	75.46
0.31	428.15	116.36	21.93			
NM-102C	3517	EX 25Y	186.00	81.66	81.66	75.46
0.31	604.69	130.91	49.44			
NM-102C	3517	EX 100Y	321.00	82.23	82.23	75.46
0.47	679.89	134.08	66.19			
NM-102C	3517	ULT 10Y	211.00	81.80	81.81	75.46
0.34	623.65	132.25	53.86			
NM-102C	3517	ULT 25Y	276.00	82.08	82.08	75.46
0.42	660.47	133.45	62.12			
NM-102C	3517	ULT 100Y	436.00	82.67	82.68	75.46
0.59	740.46	136.02	80.92			
NM-102C	4131	EX 10Y	115.00	80.19	80.26	76.02
2.10	54.75	19.28	25.34			
NM-102C	4131	EX 25Y	158.00	81.64	81.70	76.02
1.86	85.02	22.45	54.30			
NM-102C	4131	EX 100Y	268.00	82.19	82.30	76.02
2.75	97.55	23.64	71.67			

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NM-102C	4131	ULT 10Y	168.00	81.79	81.84	76.02
1.90	88.28	22.77	58.88			
NM-102C	4131	ULT 25Y	218.00	82.06	82.14	76.02
2.31	94.47	23.35	67.44			
NM-102C	4131	ULT 100Y	346.00	82.62	82.78	76.02
3.20	108.02	25.12	86.90			
NM-102C	5122	EX 10Y	115.00	80.99	81.03	76.49
1.55	74.16	23.15	26.80			
NM-102C	5122	EX 25Y	158.00	82.16	82.20	76.49
1.53	103.01	25.90	56.43			
NM-102C	5122	EX 100Y	268.00	83.11	83.18	76.49
2.09	128.50	28.11	74.24			
NM-102C	5122	ULT 10Y	168.00	82.32	82.36	76.49
1.57	107.03	26.26	61.10			
NM-102C	5122	ULT 25Y	218.00	82.76	82.82	76.49
1.83	118.93	27.30	69.86			
NM-102C	5122	ULT 100Y	346.00	83.74	83.83	76.49
2.36	146.81	30.74	89.80			
NM-102C	6093	EX 10Y	115.00	81.56	81.60	76.45
1.67	68.74	21.29	28.40			
NM-102C	6093	EX 25Y	158.00	82.61	82.66	76.45
1.72	92.05	23.08	58.61			
NM-102C	6093	EX 100Y	268.00	83.77	83.84	76.45
2.24	119.78	24.94	77.01			
NM-102C	6093	ULT 10Y	168.00	82.77	82.82	76.45
1.75	95.77	23.33	63.36			
NM-102C	6093	ULT 25Y	218.00	83.32	83.38	76.45
2.01	108.71	24.21	72.40			
NM-102C	6093	ULT 100Y	346.00	84.49	84.59	76.45
2.50	138.33	26.11	92.98			
NM-102C	7022	EX 10Y	115.00	82.18	82.23	77.09
1.76	65.48	19.27	29.83			
NM-102C	7022	EX 25Y	158.00	83.15	83.20	77.09
1.86	84.95	21.07	60.50			
NM-102C	7022	EX 100Y	268.00	84.48	84.56	77.09
2.34	114.59	23.54	79.51			
NM-102C	7022	ULT 10Y	168.00	83.31	83.37	77.09
1.90	88.47	21.37	65.33			
NM-102C	7022	ULT 25Y	218.00	83.94	84.01	77.09
2.13	102.28	22.55	74.65			
NM-102C	7022	ULT 100Y	346.00	85.28	85.38	77.09
2.58	134.14	25.20	95.88			
NM-102C	7972	EX 10Y	115.00	82.63	82.66	77.26
1.31	88.04	23.50	31.50			
NM-102C	7972	EX 25Y	158.00	83.58	83.61	77.26
1.42	111.20	25.38	62.64			
NM-102C	7972	EX 100Y	268.00	85.03	85.08	77.26
1.79	150.13	28.27	82.40			
NM-102C	7972	ULT 10Y	168.00	83.75	83.79	77.26
1.45	115.61	25.72	67.55			
NM-102C	7972	ULT 25Y	218.00	84.44	84.48	77.26
1.63	133.80	27.09	77.22			
NM-102C	7972	ULT 100Y	346.00	85.89	85.95	77.26
1.98	175.13	29.95	99.26			

NM102 OUTPUT REPORT.TXT

NM-102B	9226	EX 10Y	97.00	83.06	83.08	78.71
1.27	76.60	23.47	2.37			
NM-102B	9226	EX 25Y	133.00	83.98	84.01	78.71
1.34	99.21	25.34	3.03			
NM-102B	9226	EX 100Y	225.00	85.51	85.55	78.71
1.60	140.27	290.20	5.32			
NM-102B	9226	ULT 10Y	142.00	84.16	84.19	78.71
1.37	103.72	25.69	3.16			
NM-102B	9226	ULT 25Y	185.00	84.89	84.92	78.71
1.50	122.97	42.14	3.71			
NM-102B	9226	ULT 100Y	293.00	86.36	86.40	78.71
1.57	280.87	1050.06	14.04			
NM-102B	10288	EX 10Y	87.00	83.39	83.40	77.78
1.12	77.88	22.10	4.25			
NM-102B	10288	EX 25Y	117.00	84.29	84.31	77.78
1.18	98.99	1004.23	9.89			
NM-102B	10288	EX 100Y	197.00	85.58	85.61	77.78
1.47	133.82	1869.30	37.12			
NM-102B	10288	ULT 10Y	120.00	84.46	84.48	77.78
1.16	103.30	1115.31	12.28			
NM-102B	10288	ULT 25Y	156.00	85.21	85.24	77.78
1.27	123.26	1750.92	26.24			
NM-102B	10288	ULT 100Y	247.00	86.41	86.41	77.78
0.13	4032.54	2014.14	72.95			
NM-102B	11504	EX 10Y	87.00	83.67	83.69	77.92
1.02	85.19	88.72	6.61			
NM-102B	11504	EX 25Y	117.00	84.57	84.59	77.92
1.08	107.87	953.54	25.03			
NM-102B	11504	EX 100Y	197.00	85.65	85.65	77.92
0.27	1632.83	1908.36	101.04			
NM-102B	11504	ULT 10Y	120.00	84.73	84.74	77.92
1.07	112.12	1000.25	32.07			
NM-102B	11504	ULT 25Y	156.00	85.28	85.28	77.92
0.29	1280.24	1680.96	71.53			
NM-102B	11504	ULT 100Y	247.00	86.41	86.41	77.92
0.15	3715.72	2021.44	181.10			
NM-102B	12505	EX 10Y	87.00	83.91	83.92	78.99
1.10	79.44	24.02	8.58			
NM-102B	12505	EX 25Y	117.00	84.80	84.82	78.99
1.14	102.66	280.44	33.60			
NM-102B	12505	EX 100Y	197.00	85.67	85.68	78.99
0.90	551.64	1926.36	139.51			
NM-102B	12505	ULT 10Y	120.00	84.94	84.96	78.99
1.12	107.07	516.58	43.07			
NM-102B	12505	ULT 25Y	156.00	85.30	85.32	78.99
1.11	258.96	1415.31	95.02			
NM-102B	12505	ULT 100Y	247.00	86.42	86.42	78.99
0.25	2651.48	2028.54	254.26			
NM-102-02	569	EX 10Y	16.00	83.93	83.93	78.46
0.10	167.86	43.19				
NM-102-02	569	EX 25Y	23.00	84.82	84.82	78.46
0.11	208.63	83.10				
NM-102-02	569	EX 100Y	40.00	85.68	85.68	78.46
0.13	501.67	597.48				

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NM-102-02	569	ULT 10Y	29.00	84.96	84.96	78.46
0.13	215.71	188.41				
NM-102-02	569	ULT 25Y	39.00	85.32	85.32	78.46
0.16	330.99	380.07				
NM-102-02	569	ULT 100Y	61.00	86.42	86.42	78.46
0.13	998.06	686.29				
NM-102-02	2137	EX 10Y	16.00	83.93	83.93	79.61
0.13	119.37	44.46	5.17			
NM-102-02	2137	EX 25Y	23.00	84.82	84.82	79.61
0.14	203.51	313.82	7.51			
NM-102-02	2137	EX 100Y	40.00	85.68	85.68	79.61
0.12	624.69	577.22	20.27			
NM-102-02	2137	ULT 10Y	29.00	84.97	84.97	79.61
0.16	261.24	399.08	8.83			
NM-102-02	2137	ULT 25Y	39.00	85.32	85.32	79.61
0.16	425.48	519.10	13.62			
NM-102-02	2137	ULT 100Y	61.00	86.42	86.42	79.61
0.11	1063.56	602.13	37.11			
NM-102-02	3577	EX 10Y	16.00	84.73	84.84	84.19
2.63	6.08	27.30	7.24			
NM-102-02	3577	EX 25Y	23.00	84.79	84.93	84.19
2.97	7.76	27.77	11.06			
NM-102-02	3577	EX 100Y	40.00	85.69	85.70	84.19
0.87	46.14	492.84	33.41			
NM-102-02	3577	ULT 10Y	29.00	84.93	85.03	84.19
2.44	11.86	28.88	13.35			
NM-102-02	3577	ULT 25Y	39.00	85.33	85.36	84.19
1.49	26.16	204.68	21.28			
NM-102-02	3577	ULT 100Y	61.00	86.43	86.43	84.19
0.16	628.20	666.17	65.07			
NM-102-01	656	EX 10Y	18.00	82.66	82.66	79.89
0.24	75.77	35.69				
NM-102-01	656	EX 25Y	25.00	83.61	83.62	79.89
0.22	112.45	43.26				
NM-102-01	656	EX 100Y	43.00	85.09	85.09	79.89
0.24	181.24	50.58				
NM-102-01	656	ULT 10Y	26.00	83.79	83.79	79.89
0.22	120.10	44.25				
NM-102-01	656	ULT 25Y	34.00	84.49	84.49	79.89
0.22	151.93	47.30				
NM-102-01	656	ULT 100Y	54.00	85.96	85.96	79.89
0.24	227.31	55.14				
NM-102-01	2176	EX 10Y	18.00	82.73	82.73	81.06
0.51	35.25	29.23	1.94			
NM-102-01	2176	EX 25Y	25.00	83.65	83.65	81.06
0.39	64.79	35.25	3.09			
NM-102-01	2176	EX 100Y	43.00	85.11	85.11	81.06
0.35	124.27	45.70	5.33			
NM-102-01	2176	ULT 10Y	26.00	83.82	83.82	81.06
0.37	70.89	36.63	3.33			
NM-102-01	2176	ULT 25Y	34.00	84.51	84.51	81.06
0.35	98.13	41.86	4.36			
NM-102-01	2176	ULT 100Y	54.00	85.98	85.98	81.06
0.33	165.44	49.11	6.85			

NM102 OUTPUT REPORT.TXT

NM-102-01	3452	EX 10Y	18.00	82.89	82.89	81.05
0.37	48.46	37.42	3.16			
NM-102-01	3452	EX 25Y	25.00	83.71	83.71	81.05
0.31	81.54	42.94	5.24			
NM-102-01	3452	EX 100Y	43.00	85.14	85.14	81.05
0.29	148.92	50.73	9.33			
NM-102-01	3452	ULT 10Y	26.00	83.87	83.87	81.05
0.29	88.51	44.01	5.67			
NM-102-01	3452	ULT 25Y	34.00	84.55	84.55	81.05
0.28	119.74	48.07	7.55			
NM-102-01	3452	ULT 100Y	54.00	86.00	86.00	81.05
0.28	194.03	54.65	12.12			
NM-102A	13789	EX 10Y	74.00	83.95	83.96	77.36
0.23	317.53	71.25	5.85			
NM-102A	13789	EX 25Y	99.00	84.85	84.85	77.36
0.26	385.27	892.27	9.99			
NM-102A	13789	EX 100Y	165.00	85.70	85.70	77.36
0.25	1319.39	1431.00	39.46			
NM-102A	13789	ULT 10Y	95.00	84.99	84.99	77.36
0.24	396.64	918.53	12.77			
NM-102A	13789	ULT 25Y	123.00	85.36	85.36	77.36
0.29	425.99	1196.23	23.29			
NM-102A	13789	ULT 100Y	196.00	86.42	86.42	77.36
0.17	2652.79	1689.66	78.18			
NM-102A	15326	EX 10Y	45.00	83.96	83.96	77.46
0.17	270.06	60.93	16.22			
NM-102A	15326	EX 25Y	59.00	84.86	84.86	77.46
0.18	327.07	1264.69	32.12			
NM-102A	15326	EX 100Y	95.00	85.71	85.71	77.46
0.12	1871.28	1484.65	99.28			
NM-102A	15326	ULT 10Y	47.00	85.00	85.00	77.46
0.14	336.44	1302.58	40.39			
NM-102A	15326	ULT 25Y	61.00	85.37	85.37	77.46
0.17	361.23	1400.49	66.20			
NM-102A	15326	ULT 100Y	97.00	86.43	86.43	77.46
0.08	3013.24	1671.03	178.14			
NM-102A	16116	EX 10Y	45.00	83.97	83.97	77.64
0.17	267.93	61.70	21.10			
NM-102A	16116	EX 25Y	59.00	84.86	84.86	77.64
0.18	326.96	976.64	43.18			
NM-102A	16116	EX 100Y	95.00	85.71	85.71	77.64
0.15	1270.30	1502.37	130.67			
NM-102A	16116	ULT 10Y	47.00	85.00	85.00	77.64
0.14	336.80	1134.21	54.42			
NM-102A	16116	ULT 25Y	61.00	85.37	85.37	77.64
0.13	952.42	1322.14	88.74			
NM-102A	16116	ULT 100Y	97.00	86.43	86.43	77.64
0.08	2695.89	1582.85	229.91			
NM-102A	16917	EX 10Y	45.00	83.97	83.97	77.36
0.23	192.68	46.99	25.33			
NM-102A	16917	EX 25Y	59.00	84.87	84.87	77.36
0.25	236.12	50.07	50.10			
NM-102A	16917	EX 100Y	95.00	85.71	85.71	77.36
0.34	279.76	60.06	147.87			

NM102 OUTPUT REPORT.TXT						
NM-102A	16917	ULT 10Y	47.00	85.00	85.00	77.36
0.19	243.07	50.54	62.77			
NM-102A	16917	ULT 25Y	61.00	85.37	85.37	77.36
0.23	261.78	51.80	101.36			
NM-102A	16917	ULT 100Y	97.00	86.43	86.43	77.36
0.30	318.53	247.60	258.24			
NM-102A	18004	EX 10Y	26.00	86.14	86.32	85.62
3.43	7.59	20.83	27.83			
NM-102A	18004	EX 25Y	34.00	86.22	86.43	85.62
3.63	9.37	22.77	53.16			
NM-102A	18004	EX 100Y	55.00	86.39	86.65	85.62
4.04	13.61	26.82	151.54			
NM-102A	18004	ULT 10Y	27.00	86.15	86.34	85.62
3.50	7.72	20.98	65.90			
NM-102A	18004	ULT 25Y	35.00	86.23	86.44	85.62
3.68	9.51	22.91	104.75			
NM-102A	18004	ULT 100Y	56.00	86.40	86.66	85.62
4.04	13.88	27.06	263.23			
NM-102A	18419	EX 10Y	26.00	86.51	86.51	84.70
0.40	65.31	54.41	28.18			
NM-102A	18419	EX 25Y	34.00	86.65	86.66	84.70
0.47	73.01	55.66	53.55			
NM-102A	18419	EX 100Y	55.00	86.95	86.95	84.70
0.61	89.90	58.16	152.03			
NM-102A	18419	ULT 10Y	27.00	86.53	86.53	84.70
0.41	66.36	54.58	66.25			
NM-102A	18419	ULT 25Y	35.00	86.67	86.67	84.70
0.47	73.94	55.81	105.14			
NM-102A	18419	ULT 100Y	56.00	86.96	86.97	84.70
0.62	90.60	58.25	263.73			
NM-102A	19462	EX 10Y	26.00	86.78	86.80	85.33
1.14	22.87	24.09	29.23			
NM-102A	19462	EX 25Y	34.00	86.97	86.99	85.33
1.24	27.38	25.18	54.76			
NM-102A	19462	EX 100Y	55.00	87.35	87.39	85.33
1.47	37.53	27.45	153.55			
NM-102A	19462	ULT 10Y	27.00	86.81	86.83	85.33
1.15	23.47	24.24	67.33			
NM-102A	19462	ULT 25Y	35.00	86.99	87.01	85.33
1.25	27.92	25.30	106.36			
NM-102A	19462	ULT 100Y	56.00	87.37	87.40	85.33
1.48	37.96	27.55	265.27			

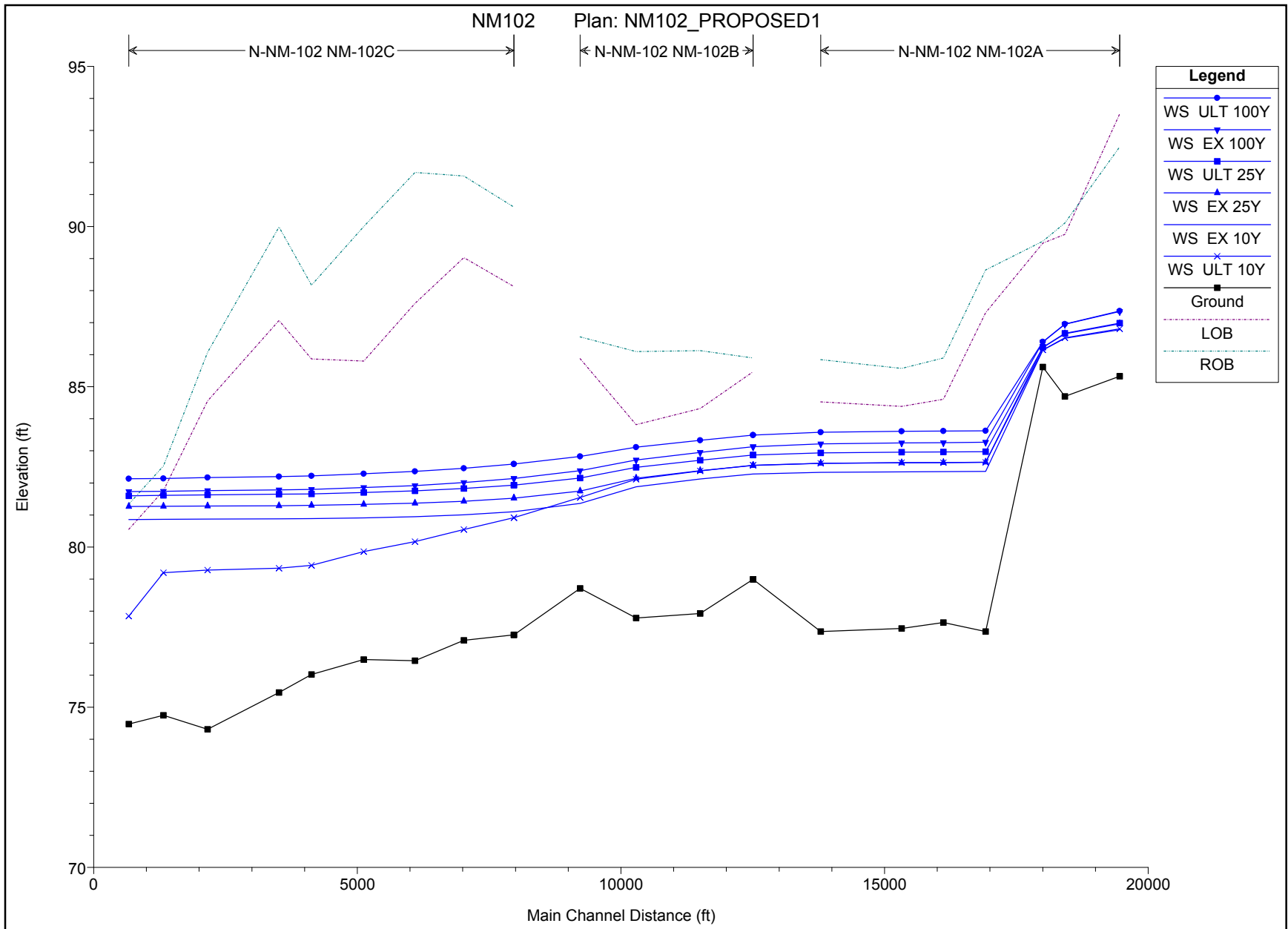
APPENDIX D
HEC-RAS HYDRAULIC OUTPUT
NM-102 PROPOSED CONDITION

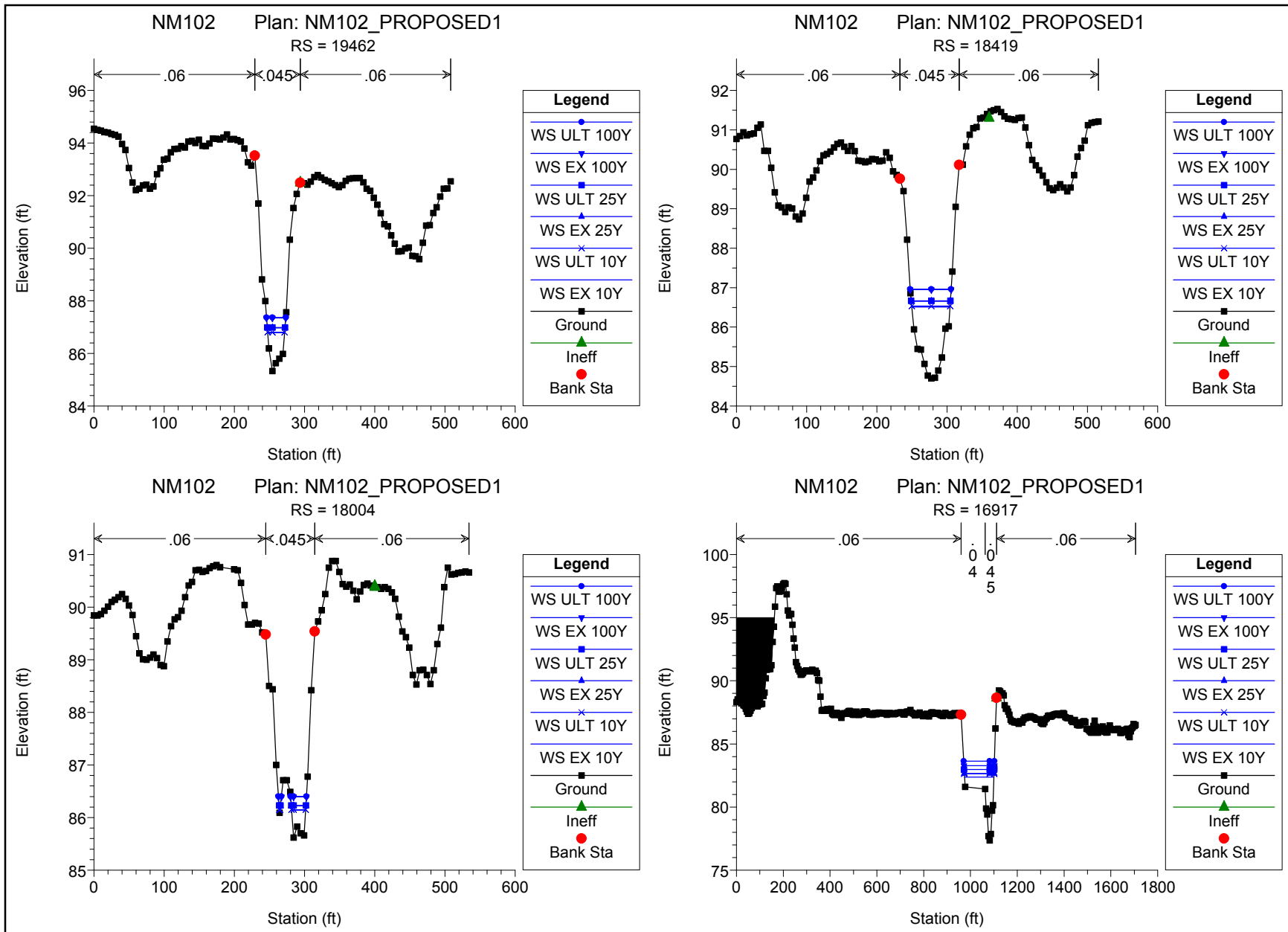
HEC-RAS Plan: PROPOSED1

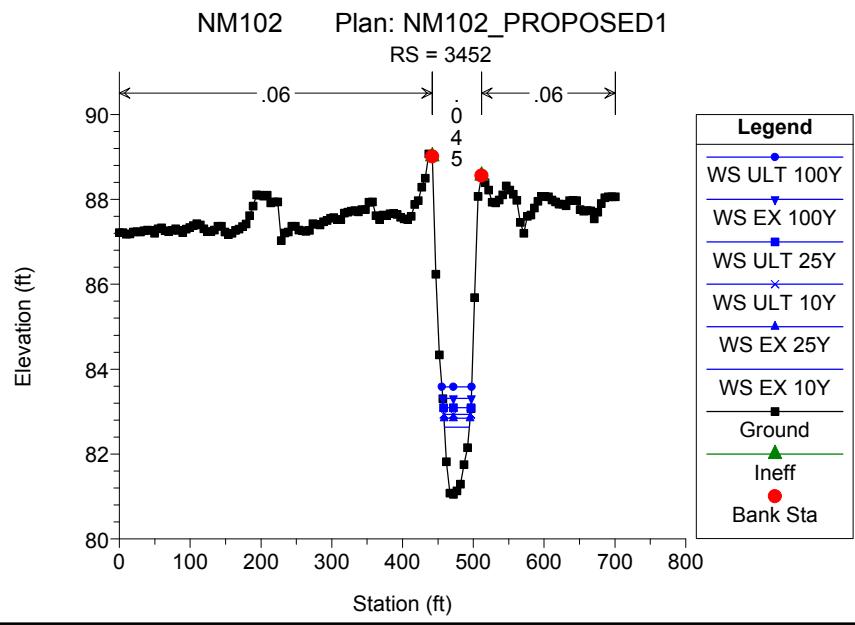
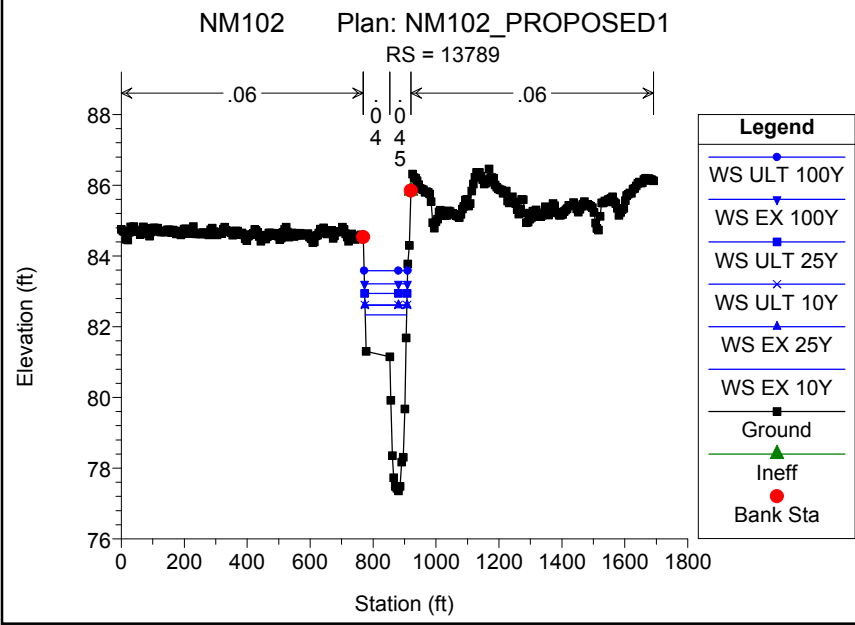
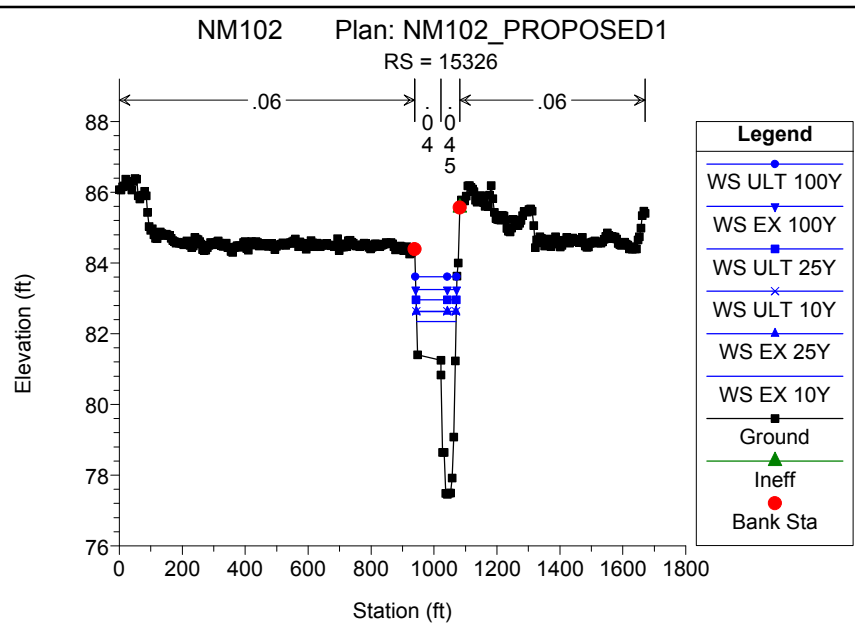
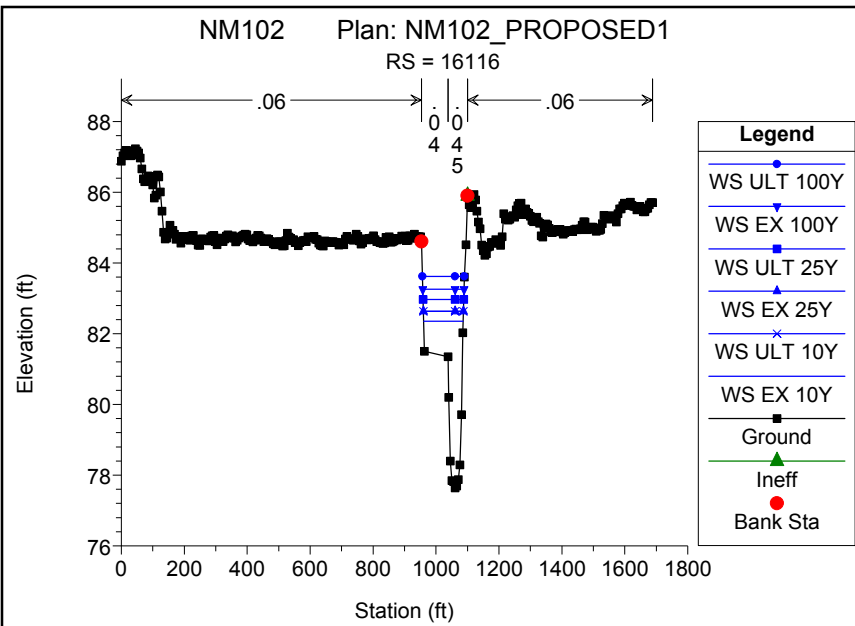
Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
NM-102C	664	EX 10Y	147.00	74.47	80.86	76.96	80.86	0.000010	0.25	1026.63	1475.98	0.02
NM-102C	664	EX 25Y	205.00	74.47	81.26	77.37	81.26	0.000010	0.27	1412.53	1849.50	0.02
NM-102C	664	EX 100Y	356.00	74.47	81.73	78.00	81.73	0.000010	0.29	2705.33	1916.30	0.03
NM-102C	664	ULT 10Y	241.00	74.47	77.84	77.84	78.11	0.012848	4.16	57.99	110.93	1.01
NM-102C	664	ULT 25Y	316.00	74.47	81.60	77.95	81.60	0.000010	0.28	2461.77	1914.79	0.03
NM-102C	664	ULT 100Y	498.00	74.47	82.13	78.17	82.13	0.000010	0.31	3471.96	1921.16	0.03
NM-102C	1325	EX 10Y	134.00	74.75	80.86	77.35	80.87	0.000022	0.36	370.95	118.22	0.04
NM-102C	1325	EX 25Y	186.00	74.75	81.27	77.97	81.27	0.000029	0.44	419.21	422.67	0.04
NM-102C	1325	EX 100Y	321.00	74.75	81.74	78.17	81.74	0.000059	0.67	476.87	948.55	0.06
NM-102C	1325	ULT 10Y	211.00	74.75	79.20	78.01	79.22	0.000546	1.17	180.73	110.25	0.16
NM-102C	1325	ULT 25Y	276.00	74.75	81.61	78.11	81.61	0.000049	0.60	460.63	914.19	0.05
NM-102C	1325	ULT 100Y	436.00	74.75	82.13	78.32	82.14	0.000079	0.82	577.62	1217.88	0.07
NM-102C	2159	EX 10Y	134.00	74.31	80.87	74.97	80.87	0.000004	0.18	753.32	165.32	0.01
NM-102C	2159	EX 25Y	186.00	74.31	81.28	75.10	81.28	0.000005	0.23	821.25	167.77	0.02
NM-102C	2159	EX 100Y	321.00	74.31	81.76	75.35	81.76	0.000012	0.36	902.53	170.66	0.03
NM-102C	2159	ULT 10Y	211.00	74.31	79.28	75.15	79.28	0.000028	0.42	500.52	148.26	0.04
NM-102C	2159	ULT 25Y	276.00	74.31	81.63	75.27	81.63	0.000009	0.31	880.09	169.86	0.02
NM-102C	2159	ULT 100Y	436.00	74.31	82.17	75.54	82.17	0.000017	0.45	972.70	173.01	0.03
NM-102C	3517	EX 10Y	134.00	75.46	80.88	76.47	80.88	0.000007	0.23	592.17	154.27	0.02
NM-102C	3517	EX 25Y	186.00	75.46	81.29	76.58	81.29	0.000011	0.28	656.45	160.45	0.02
NM-102C	3517	EX 100Y	321.00	75.46	81.78	76.82	81.78	0.000023	0.44	737.49	168.27	0.04
NM-102C	3517	ULT 10Y	211.00	75.46	79.34	76.63	79.34	0.000081	0.58	363.08	143.69	0.06
NM-102C	3517	ULT 25Y	276.00	75.46	81.64	76.74	81.65	0.000019	0.39	714.72	166.54	0.03
NM-102C	3517	ULT 100Y	436.00	75.46	82.20	76.99	82.20	0.000032	0.54	808.30	170.95	0.04
NM-102C	4131	EX 10Y	115.00	76.02	80.88	78.35	80.89	0.000025	0.35	328.63	121.02	0.04
NM-102C	4131	EX 25Y	158.00	76.02	81.30	78.43	81.30	0.000030	0.42	379.00	122.69	0.04
NM-102C	4131	EX 100Y	268.00	76.02	81.80	78.60	81.80	0.000053	0.61	440.96	124.73	0.06
NM-102C	4131	ULT 10Y	168.00	76.02	79.42	78.45	79.44	0.000590	1.08	156.16	115.09	0.16
NM-102C	4131	ULT 25Y	218.00	76.02	81.66	78.53	81.66	0.000040	0.51	423.59	124.16	0.05
NM-102C	4131	ULT 100Y	346.00	76.02	82.22	78.70	82.23	0.000062	0.70	494.09	126.45	0.06
NM-102C	5122	EX 10Y	115.00	76.49	80.91	78.14	80.91	0.000029	0.37	314.85	121.61	0.04
NM-102C	5122	EX 25Y	158.00	76.49	81.33	78.60	81.33	0.000034	0.43	366.05	123.26	0.04
NM-102C	5122	EX 100Y	268.00	76.49	81.85	78.77	81.86	0.000058	0.62	431.22	125.33	0.06
NM-102C	5122	ULT 10Y	168.00	76.49	79.85	78.61	79.87	0.000324	0.89	188.56	117.44	0.12
NM-102C	5122	ULT 25Y	218.00	76.49	81.70	78.69	81.71	0.000044	0.53	412.10	124.72	0.05
NM-102C	5122	ULT 100Y	346.00	76.49	82.29	78.87	82.29	0.000066	0.71	485.68	127.03	0.06
NM-102C	6093	EX 10Y	115.00	76.45	80.95	78.77	80.95	0.000044	0.43	268.47	112.12	0.05
NM-102C	6093	EX 25Y	158.00	76.45	81.37	78.86	81.37	0.000049	0.50	316.26	113.83	0.05
NM-102C	6093	EX 100Y	268.00	76.45	81.92	79.03	81.93	0.000080	0.71	379.47	116.05	0.07
NM-102C	6093	ULT 10Y	168.00	76.45	80.17	78.88	80.18	0.000325	0.92	182.72	108.99	0.13
NM-102C	6093	ULT 25Y	218.00	76.45	81.75	78.95	81.76	0.000062	0.61	360.08	115.37	0.06
NM-102C	6093	ULT 100Y	346.00	76.45	82.36	79.14	82.37	0.000089	0.80	430.91	117.77	0.07
NM-102C	7022	EX 10Y	115.00	77.09	81.00	79.39	81.01	0.000100	0.55	208.68	110.67	0.07
NM-102C	7022	EX 25Y	158.00	77.09	81.43	79.46	81.44	0.000098	0.62	256.21	112.32	0.07
NM-102C	7022	EX 100Y	268.00	77.09	82.01	79.64	82.02	0.000135	0.83	322.17	114.58	0.09
NM-102C	7022	ULT 10Y	168.00	77.09	80.54	79.48	80.56	0.000523	1.06	158.35	108.89	0.16
NM-102C	7022	ULT 25Y	218.00	77.09	81.82	79.56	81.83	0.000111	0.72	300.90	113.86	0.08
NM-102C	7022	ULT 100Y	346.00	77.09	82.46	79.75	82.47	0.000140	0.93	373.84	116.32	0.09
NM-102C	7972	EX 10Y	115.00	77.26	81.10	79.02	81.10	0.000099	0.54	213.75	115.74	0.07
NM-102C	7972	EX 25Y	158.00	77.26	81.52	79.59	81.53	0.000095	0.60	263.13	117.43	0.07
NM-102C	7972	EX 100Y	268.00	77.26	82.14	79.76	82.15	0.000125	0.80	335.96	119.87	0.08
NM-102C	7972	ULT 10Y	168.00	77.26	80.92	79.61	80.93	0.000294	0.87	192.72	115.02	0.12
NM-102C	7972	ULT 25Y	218.00	77.26	81.93	79.69	81.94	0.000106	0.70	311.22	119.04	0.08
NM-102C	7972	ULT 100Y	346.00	77.26	82.59	79.87	82.60	0.000129	0.89	390.57	121.66	0.09
NM-102B	9226	EX 10Y	97.00	78.71	81.36	80.03	81.38	0.001199	1.08	89.58	110.90	0.21
NM-102B	9226	EX 25Y	133.00	78.71	81.74	80.32	81.76	0.000627	1.00	132.43	112.63	0.16
NM-102B	9226	EX 100Y	225.00	78.71	82.38	81.06	82.40	0.000433	1.10	205.02	115.19	0.14
NM-102B	9226	ULT 10Y	142.00	78.71	81.54	80.37	81.57	0.001308	1.29	110.06	111.77	0.23
NM-102B	9226	ULT 25Y	185.00	78.71	82.15	80.99	82.17	0.000458	1.04	178.56	114.26	0.15
NM-102B	9226	ULT 100Y	293.00	78.71	82.82	81.15	82.84	0.000356	1.14	256.44	116.96	0.14
NM-102B	10288	EX 10Y	87.00	77.78	81.88	79.72	81.89	0.000239	0.63	137.81	113.48	0.10
NM-102B	10288	EX 25Y	117.00	77.78	82.14	80.04	82.15	0.000229	0.70	167.53	114.52	0.10
NM-102B	10288	EX 100Y	197.00	77.78	82.72	81.11	82.73	0.000220	0.84	233.86	116.80	0.10
NM-102B	10288	ULT 10Y	120.00	77.78	82.12	80.07	82.13	0.000254	0.73	164.88	114.43	0.11
NM-102B	10288	ULT 25Y	156.00	77.78	82.48	80.43	82.49	0.000205	0.75	206.82	115.88	0.10

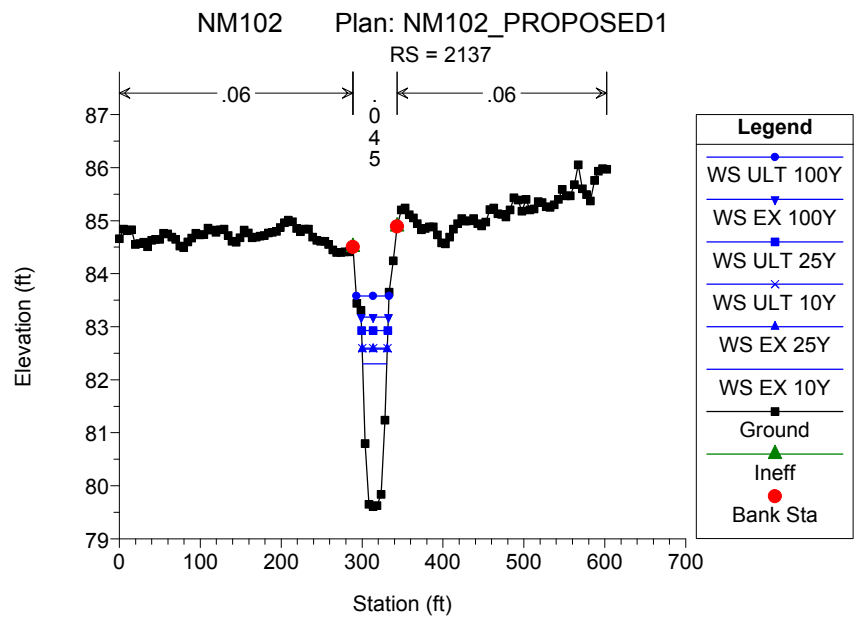
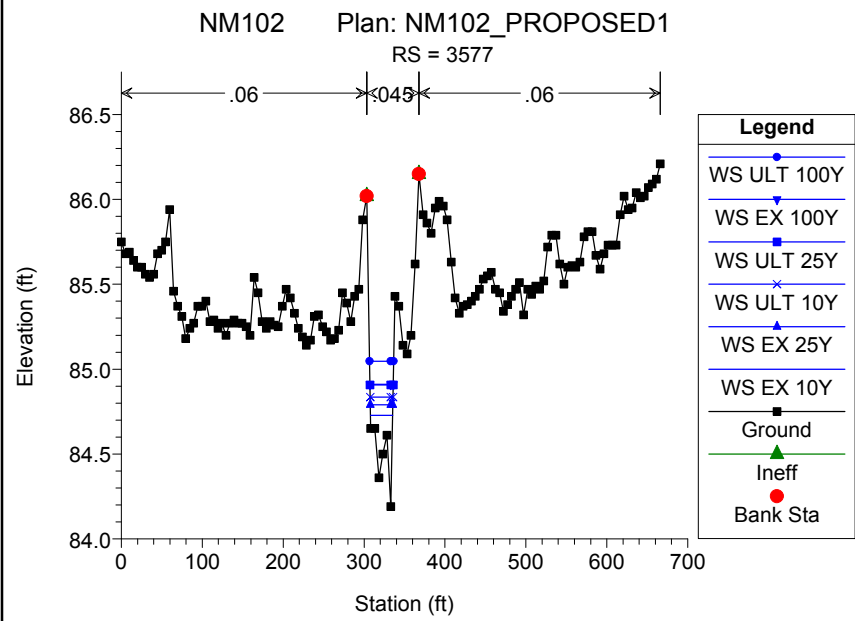
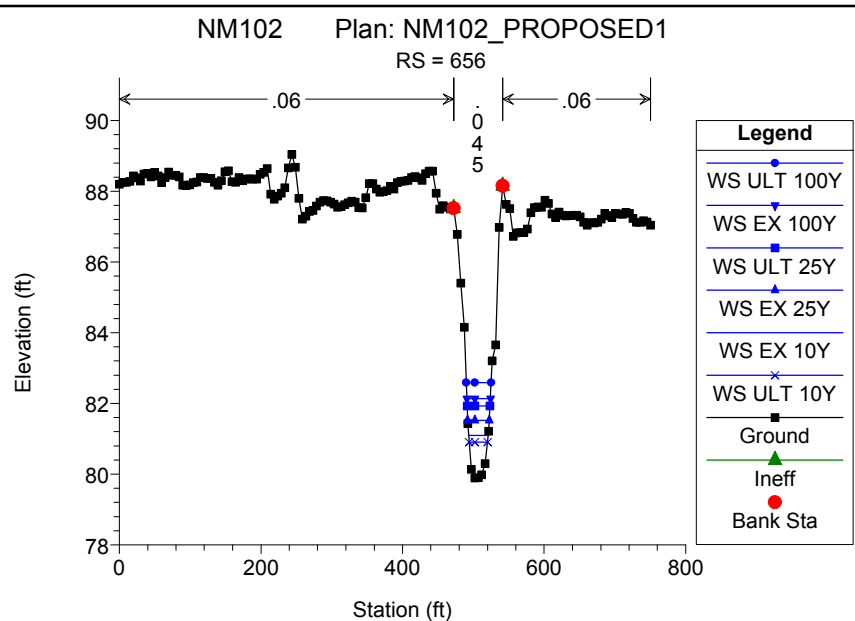
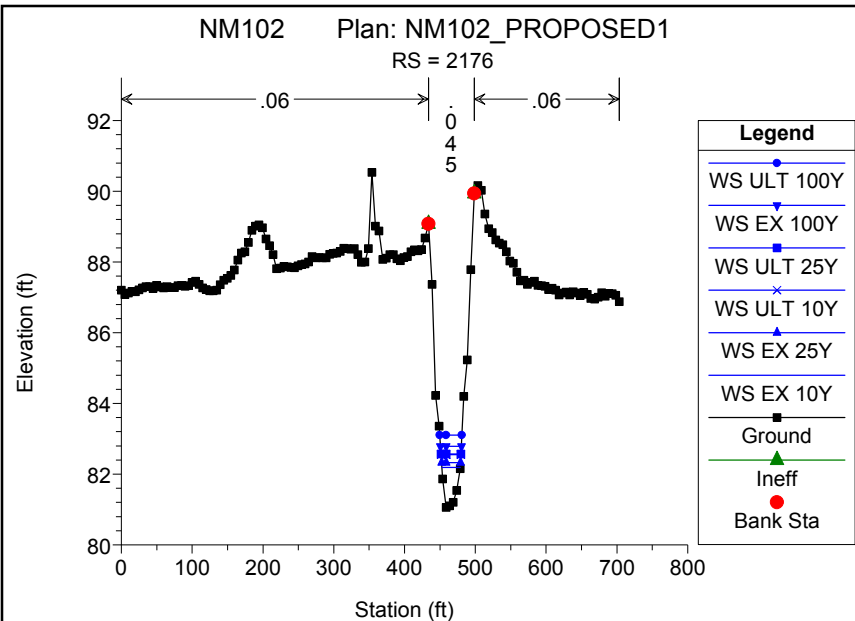
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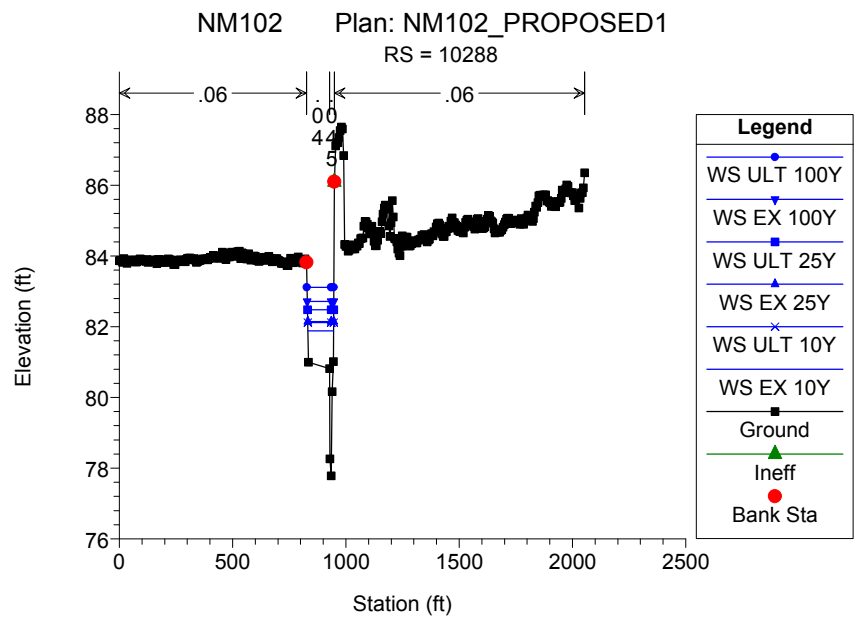
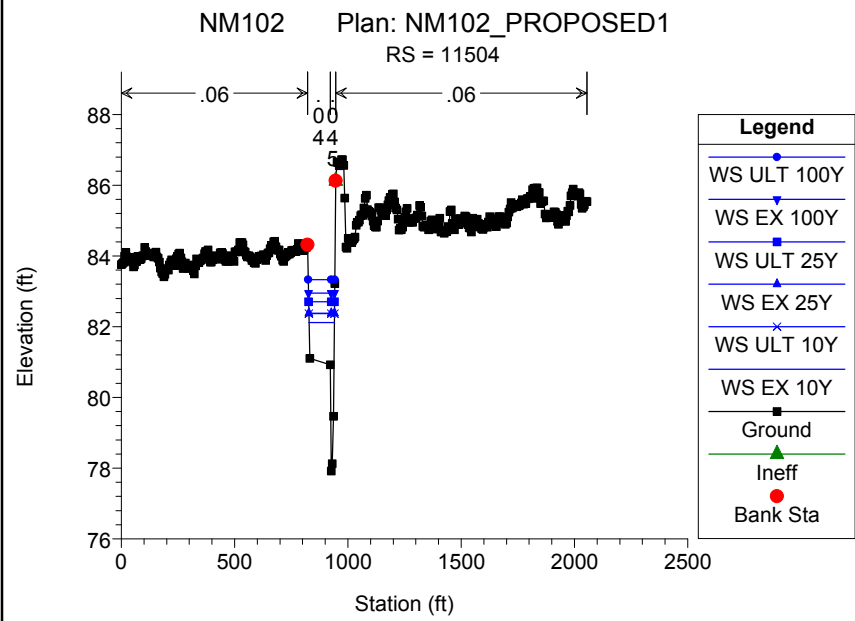
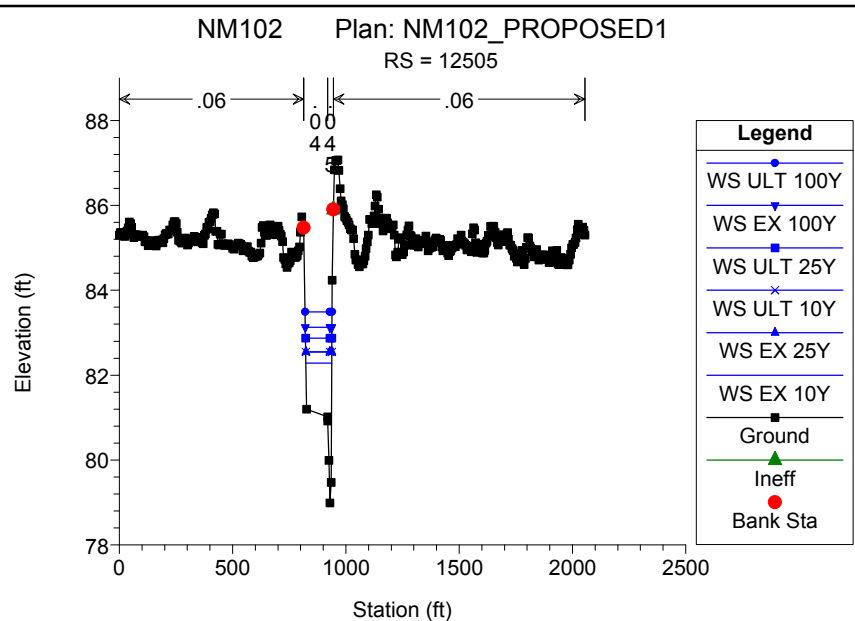
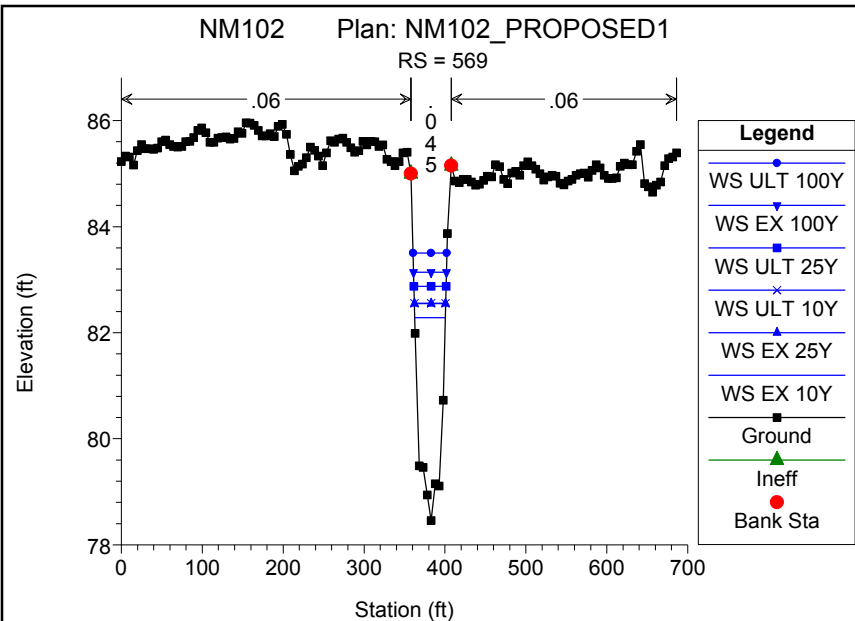
Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
NM-102B	10288	ULT 100Y	247.00	77.78	83.11	81.19	83.12	0.000192	0.88	280.52	118.38	0.10
NM-102B	11504	EX 10Y	87.00	77.92	82.12	79.66	82.12	0.000160	0.56	154.35	111.58	0.08
NM-102B	11504	EX 25Y	117.00	77.92	82.38	79.92	82.38	0.000165	0.64	183.44	112.70	0.09
NM-102B	11504	EX 100Y	197.00	77.92	82.95	80.52	82.96	0.000175	0.79	249.08	115.20	0.09
NM-102B	11504	ULT 10Y	120.00	77.92	82.38	79.96	82.38	0.000175	0.66	183.08	112.69	0.09
NM-102B	11504	ULT 25Y	156.00	77.92	82.70	80.24	82.71	0.000162	0.71	220.50	114.12	0.09
NM-102B	11504	ULT 100Y	247.00	77.92	83.33	80.85	83.34	0.000164	0.84	292.53	116.86	0.09
NM-102B	12505	EX 10Y	87.00	78.99	82.28	80.68	82.28	0.000162	0.57	152.37	113.67	0.09
NM-102B	12505	EX 25Y	117.00	78.99	82.54	80.93	82.55	0.000166	0.64	182.55	114.74	0.09
NM-102B	12505	EX 100Y	197.00	78.99	83.13	81.37	83.14	0.000173	0.79	250.39	117.11	0.09
NM-102B	12505	ULT 10Y	120.00	78.99	82.55	80.94	82.56	0.000173	0.66	183.14	114.76	0.09
NM-102B	12505	ULT 25Y	156.00	78.99	82.87	81.30	82.88	0.000163	0.71	220.07	116.06	0.09
NM-102B	12505	ULT 100Y	247.00	78.99	83.49	81.45	83.50	0.000164	0.84	293.35	118.59	0.09
NM-102A	13789	EX 10Y	74.00	77.36	82.33	78.20	82.33	0.000014	0.25	290.87	131.85	0.03
NM-102A	13789	EX 25Y	99.00	77.36	82.61	78.34	82.61	0.000018	0.30	327.46	133.33	0.03
NM-102A	13789	EX 100Y	165.00	77.36	83.21	78.61	83.22	0.000027	0.40	409.43	136.60	0.04
NM-102A	13789	ULT 10Y	95.00	77.36	82.61	78.33	82.61	0.000017	0.29	328.09	133.36	0.03
NM-102A	13789	ULT 25Y	123.00	77.36	82.94	78.45	82.94	0.000020	0.33	371.99	135.12	0.04
NM-102A	13789	ULT 100Y	196.00	77.36	83.58	78.72	83.58	0.000028	0.43	459.87	138.56	0.04
NM-102A	15326	EX 10Y	45.00	77.46	82.35	78.06	82.35	0.000007	0.17	258.65	125.10	0.02
NM-102A	15326	EX 25Y	59.00	77.46	82.63	78.16	82.63	0.000009	0.20	293.96	126.53	0.02
NM-102A	15326	EX 100Y	95.00	77.46	83.25	78.40	83.25	0.000011	0.25	372.97	129.66	0.03
NM-102A	15326	ULT 10Y	47.00	77.46	82.63	78.08	82.63	0.000005	0.16	294.07	126.53	0.02
NM-102A	15326	ULT 25Y	61.00	77.46	82.96	78.18	82.96	0.000006	0.18	336.14	128.21	0.02
NM-102A	15326	ULT 100Y	97.00	77.46	83.61	78.40	83.61	0.000008	0.23	420.55	131.52	0.02
NM-102A	16116	EX 10Y	45.00	77.64	82.35	78.27	82.35	0.000008	0.18	248.25	126.01	0.02
NM-102A	16116	EX 25Y	59.00	77.64	82.64	78.36	82.64	0.000009	0.21	284.03	127.75	0.02
NM-102A	16116	EX 100Y	95.00	77.64	83.26	78.55	83.26	0.000013	0.26	364.31	131.58	0.03
NM-102A	16116	ULT 10Y	47.00	77.64	82.63	78.29	82.63	0.000006	0.17	283.80	127.74	0.02
NM-102A	16116	ULT 25Y	61.00	77.64	82.97	78.38	82.97	0.000007	0.19	326.42	129.79	0.02
NM-102A	16116	ULT 100Y	97.00	77.64	83.62	78.56	83.62	0.000009	0.24	412.33	133.85	0.02
NM-102A	16917	EX 10Y	45.00	77.36	82.36	78.41	82.36	0.000017	0.23	194.89	125.96	0.03
NM-102A	16917	EX 25Y	59.00	77.36	82.65	78.56	82.65	0.000019	0.26	230.78	127.29	0.03
NM-102A	16917	EX 100Y	95.00	77.36	83.27	78.89	83.27	0.000021	0.31	310.80	130.19	0.03
NM-102A	16917	ULT 10Y	47.00	77.36	82.64	78.43	82.64	0.000012	0.20	230.09	127.26	0.03
NM-102A	16917	ULT 25Y	61.00	77.36	82.97	78.58	82.97	0.000013	0.22	272.57	128.82	0.03
NM-102A	16917	ULT 100Y	97.00	77.36	83.63	78.90	83.63	0.000014	0.27	357.74	131.84	0.03
NM-102A	18004	EX 10Y	26.00	85.62	86.14	86.14	86.32	0.041623	3.43	7.59	20.83	1.00
NM-102A	18004	EX 25Y	34.00	85.62	86.22	86.22	86.43	0.039723	3.63	9.37	22.77	1.00
NM-102A	18004	EX 100Y	55.00	85.62	86.39	86.39	86.65	0.037347	4.04	13.61	26.82	1.00
NM-102A	18004	ULT 10Y	27.00	85.62	86.15	86.15	86.34	0.042826	3.50	7.72	20.98	1.02
NM-102A	18004	ULT 25Y	35.00	85.62	86.23	86.23	86.44	0.040492	3.68	9.51	22.91	1.01
NM-102A	18004	ULT 100Y	56.00	85.62	86.40	86.40	86.66	0.036738	4.04	13.88	27.06	0.99
NM-102A	18419	EX 10Y	26.00	84.70	86.51	85.17	86.51	0.000115	0.40	65.31	54.41	0.06
NM-102A	18419	EX 25Y	34.00	84.70	86.65	85.24	86.65	0.000139	0.47	73.01	55.66	0.07
NM-102A	18419	EX 100Y	55.00	84.70	86.95	85.39	86.95	0.000194	0.61	89.90	58.16	0.09
NM-102A	18419	ULT 10Y	27.00	84.70	86.53	85.18	86.53	0.000118	0.41	66.36	54.58	0.07
NM-102A	18419	ULT 25Y	35.00	84.70	86.67	85.25	86.67	0.000142	0.47	73.94	55.81	0.07
NM-102A	18419	ULT 100Y	56.00	84.70	86.96	85.39	86.97	0.000196	0.62	90.60	58.25	0.09
NM-102A	19462	EX 10Y	26.00	85.33	86.78	86.09	86.80	0.001293	1.14	22.87	24.09	0.21
NM-102A	19462	EX 25Y	34.00	85.33	86.97	86.16	86.99	0.001289	1.24	27.38	25.18	0.21
NM-102A	19462	EX 100Y	55.00	85.33	87.35	86.34	87.39	0.001331	1.47	37.52	27.45	0.22
NM-102A	19462	ULT 10Y	27.00	85.33	86.81	86.09	86.83	0.001290	1.15	23.47	24.24	0.21
NM-102A	19462	ULT 25Y	35.00	85.33	86.99	86.17	87.01	0.001290	1.25	27.92	25.30	0.21
NM-102A	19462	ULT 100Y	56.00	85.33	87.37	86.34	87.40	0.001334	1.48	37.96	27.54	0.22





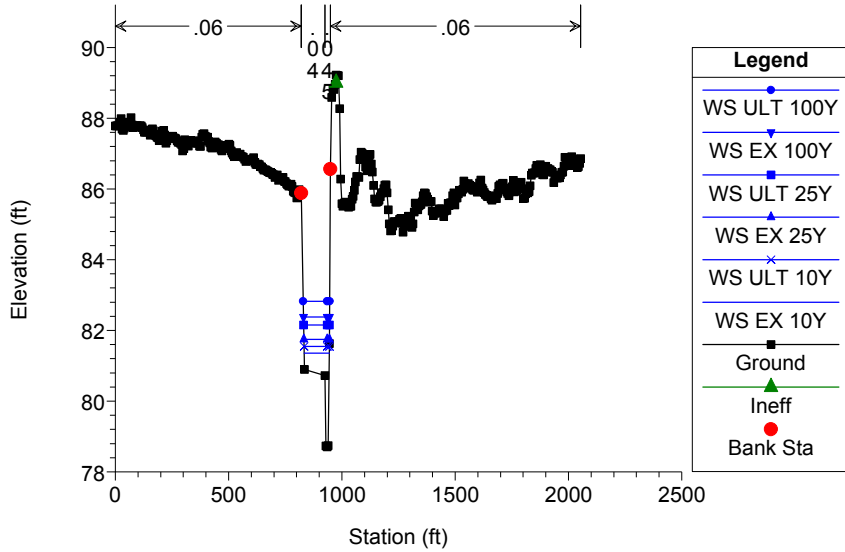






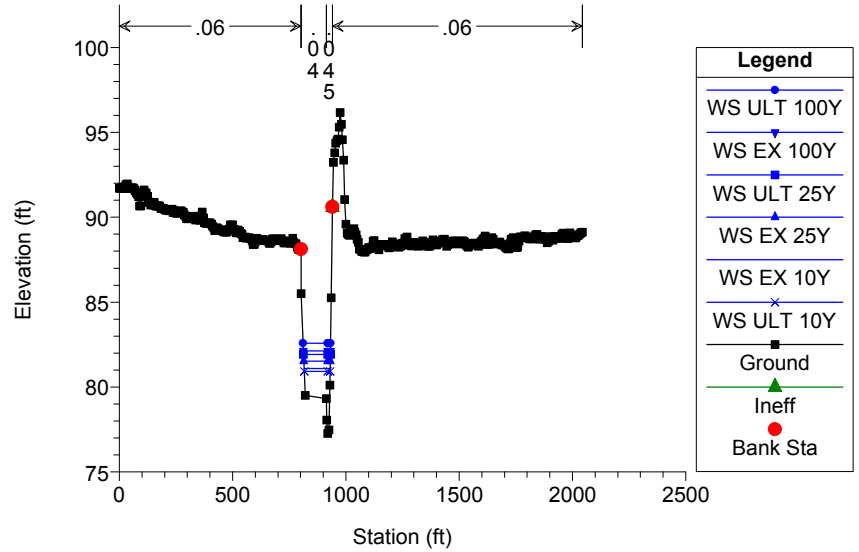
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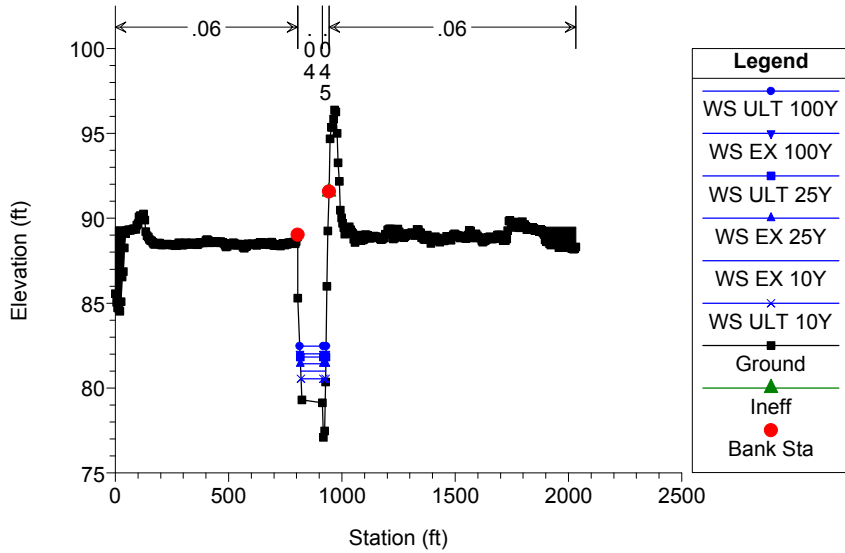
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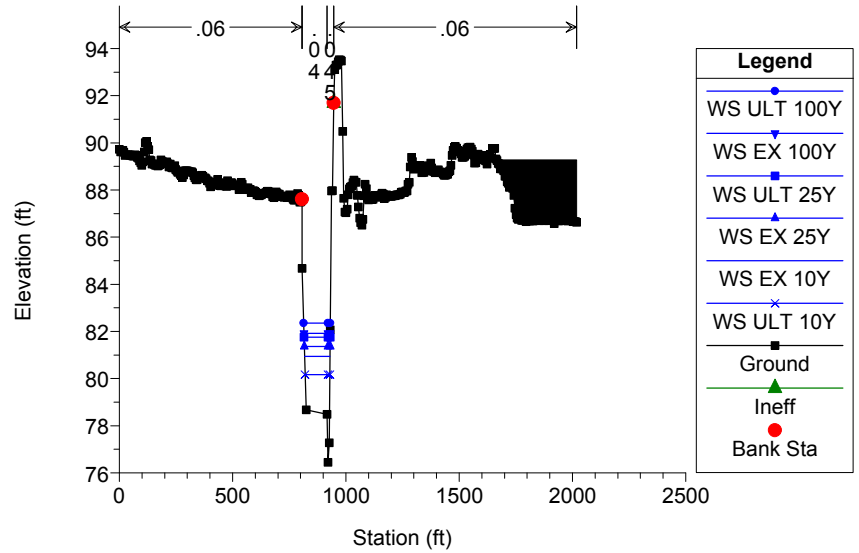
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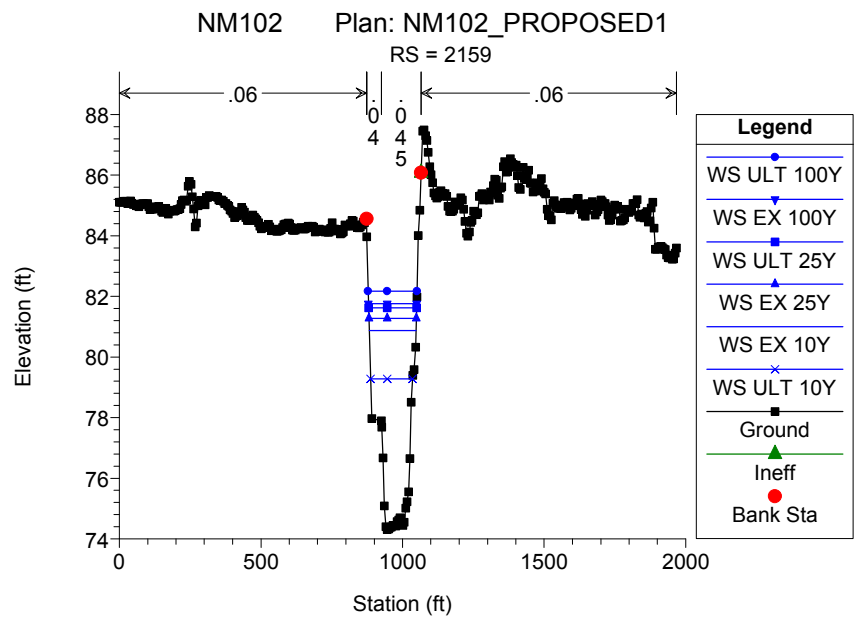
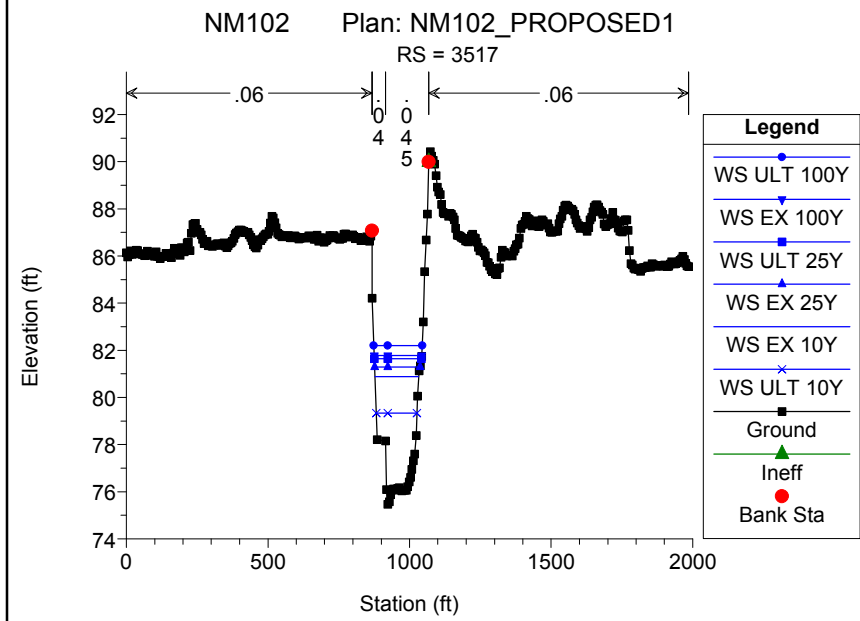
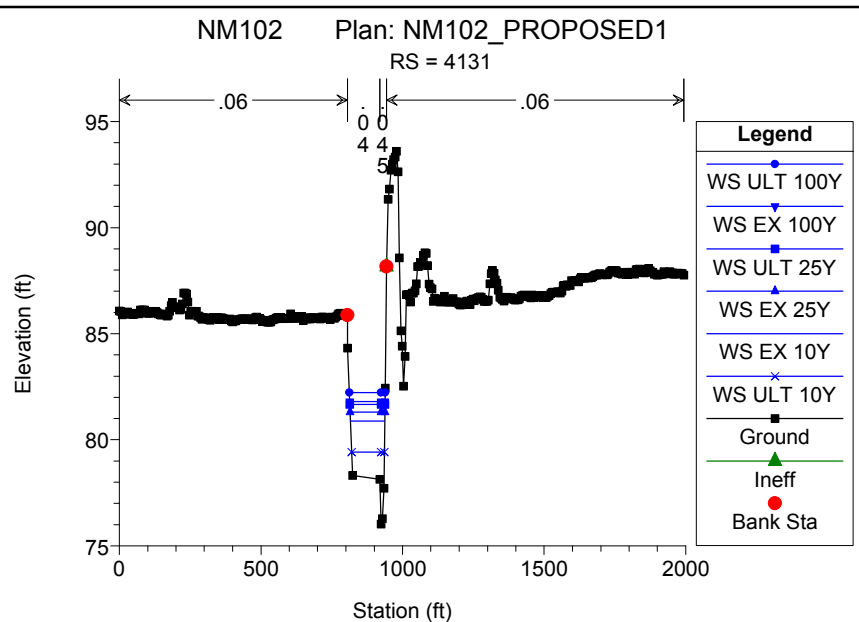
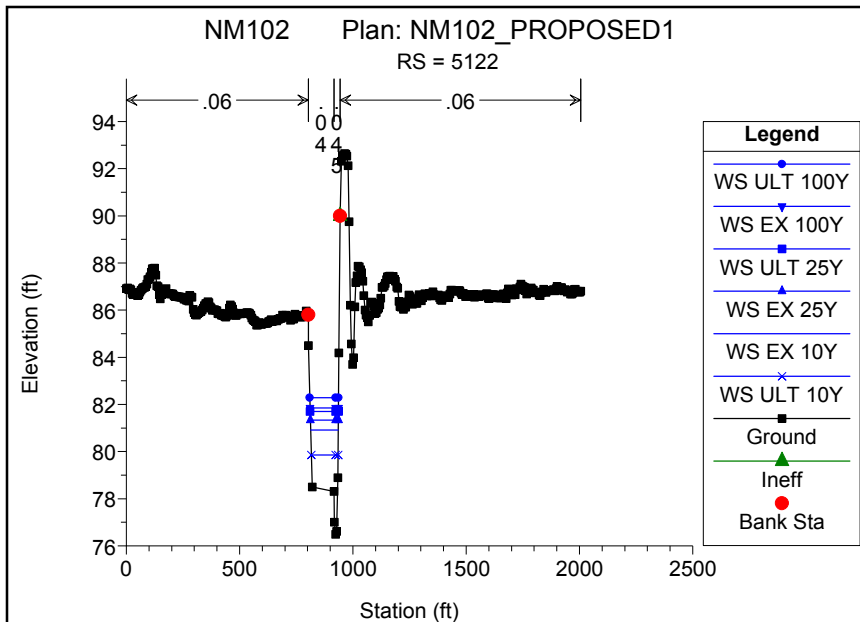
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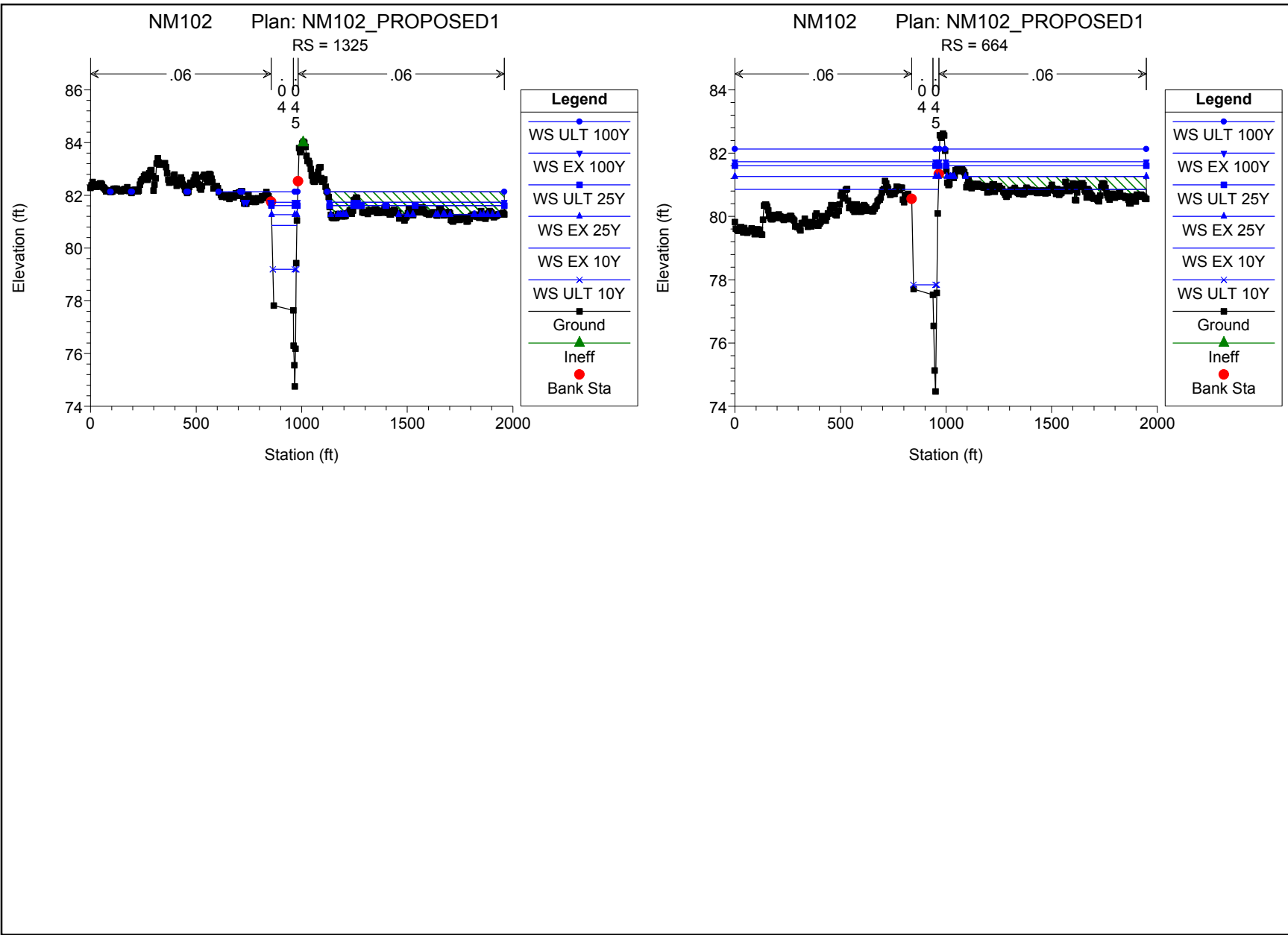


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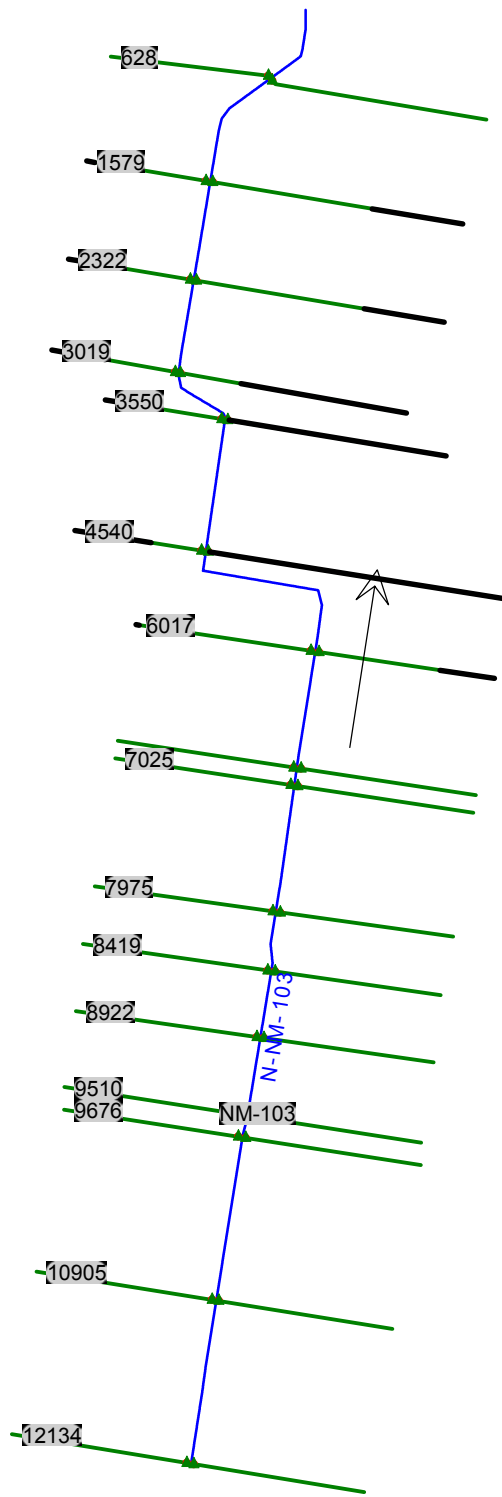
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APPENDIX D
HEC-RAS HYDRAULIC OUTPUT
NM-103 BASE CONDITION



HEC-RAS Plan: BASE River: N-NM-103 Reach: NM-103

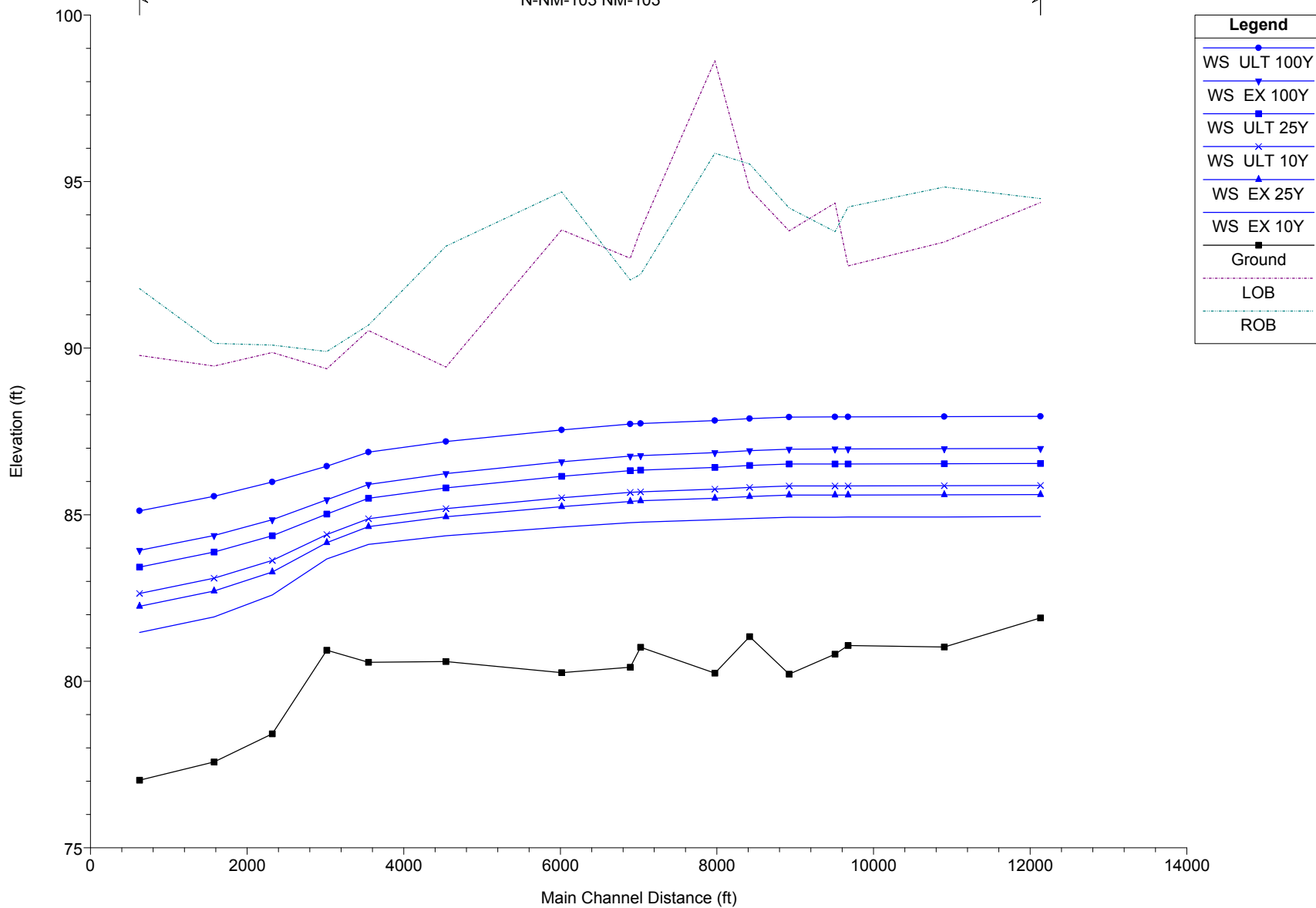
Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
NM-103	628	EX 10Y	108.00	77.03	81.46	78.74	81.50	0.000401	1.49	72.60	23.16	0.15
NM-103	628	EX 25Y	150.00	77.03	82.25	79.05	82.29	0.000401	1.64	91.34	24.67	0.15
NM-103	628	EX 100Y	261.00	77.03	83.93	79.69	83.98	0.000401	1.93	135.50	27.92	0.15
NM-103	628	ULT 10Y	173.00	77.03	82.64	79.20	82.68	0.000400	1.71	101.06	25.42	0.15
NM-103	628	ULT 25Y	225.00	77.03	83.43	79.50	83.48	0.000400	1.85	121.88	26.96	0.15
NM-103	628	ULT 100Y	356.00	77.03	85.11	80.12	85.18	0.000400	2.09	170.03	30.41	0.16
NM-103	1579	EX 10Y	108.00	77.58	81.93	79.41	81.98	0.000656	1.80	59.87	20.51	0.19
NM-103	1579	EX 25Y	150.00	77.58	82.71	79.74	82.77	0.000636	1.96	76.43	22.16	0.19
NM-103	1579	EX 100Y	261.00	77.58	84.37	80.46	84.45	0.000601	2.24	116.31	25.70	0.19
NM-103	1579	ULT 10Y	173.00	77.58	83.09	79.91	83.16	0.000627	2.03	85.11	22.98	0.19
NM-103	1579	ULT 25Y	225.00	77.58	83.88	80.25	83.95	0.000610	2.17	103.88	24.66	0.19
NM-103	1579	ULT 100Y	356.00	77.58	85.55	80.96	85.64	0.000579	2.41	148.01	28.20	0.19
NM-103	2322	EX 10Y	97.00	78.42	82.59	80.67	82.65	0.001332	1.96	49.48	26.23	0.25
NM-103	2322	EX 25Y	135.00	78.42	83.28	81.04	83.34	0.000970	1.98	68.06	27.50	0.22
NM-103	2322	EX 100Y	234.00	78.42	84.85	81.81	84.91	0.000633	2.06	113.39	30.36	0.19
NM-103	2322	ULT 10Y	152.00	78.42	83.62	81.19	83.68	0.000824	1.96	77.69	28.13	0.21
NM-103	2322	ULT 25Y	199.00	78.42	84.37	81.63	84.43	0.000681	2.01	99.14	29.49	0.19
NM-103	2322	ULT 100Y	314.00	78.42	85.98	82.19	86.05	0.000514	2.11	149.00	32.43	0.17
NM-103	3019	EX 10Y	97.00	80.93	83.67	82.38	83.76	0.001925	2.45	39.63	20.33	0.31
NM-103	3019	EX 25Y	135.00	80.93	84.16	82.66	84.27	0.001907	2.70	49.95	21.71	0.31
NM-103	3019	EX 100Y	234.00	80.93	85.45	83.28	85.58	0.001491	2.92	80.12	25.21	0.29
NM-103	3019	ULT 10Y	152.00	80.93	84.40	82.78	84.52	0.001807	2.75	55.27	22.37	0.31
NM-103	3019	ULT 25Y	199.00	80.93	85.02	83.08	85.15	0.001603	2.86	69.62	24.05	0.30
NM-103	3019	ULT 100Y	314.00	80.93	86.46	83.67	86.59	0.001196	2.93	107.00	27.97	0.26
NM-103	3550	EX 10Y	97.00	80.57	84.11	81.89	84.13	0.000349	1.27	76.22	28.98	0.14
NM-103	3550	EX 25Y	135.00	80.57	84.64	82.13	84.67	0.000388	1.47	91.91	30.23	0.15
NM-103	3550	EX 100Y	234.00	80.57	85.91	82.59	85.96	0.000404	1.77	132.17	33.22	0.16
NM-103	3550	ULT 10Y	152.00	80.57	84.88	82.22	84.92	0.000393	1.53	99.21	30.79	0.15
NM-103	3550	ULT 25Y	199.00	80.57	85.49	82.44	85.53	0.000401	1.68	118.47	32.23	0.15
NM-103	3550	ULT 100Y	314.00	80.57	86.88	82.91	86.93	0.000383	1.90	165.37	35.47	0.15
NM-103	4540	EX 10Y	97.00	80.59	84.37	81.71	84.39	0.000192	1.02	95.40	32.47	0.10
NM-103	4540	EX 25Y	135.00	80.59	84.94	81.92	84.96	0.000219	1.18	114.06	33.63	0.11
NM-103	4540	EX 100Y	234.00	80.59	86.23	82.37	86.27	0.000245	1.47	159.45	36.32	0.12
NM-103	4540	ULT 10Y	152.00	80.59	85.18	82.00	85.21	0.000225	1.24	122.40	34.14	0.12
NM-103	4540	ULT 25Y	199.00	80.59	85.81	82.22	85.84	0.000238	1.38	144.16	35.44	0.12
NM-103	4540	ULT 100Y	314.00	80.59	87.19	82.68	87.23	0.000246	1.61	195.28	38.32	0.13
NM-103	6017	EX 10Y	97.00	80.26	84.63	81.42	84.64	0.000158	0.99	97.74	29.01	0.10
NM-103	6017	EX 25Y	135.00	80.26	85.24	81.64	85.27	0.000199	1.16	116.44	32.62	0.11
NM-103	6017	EX 100Y	234.00	80.26	86.59	82.13	86.62	0.000232	1.42	164.72	37.62	0.12
NM-103	6017	ULT 10Y	152.00	80.26	85.51	81.73	85.53	0.000216	1.21	125.35	34.95	0.11
NM-103	6017	ULT 25Y	199.00	80.26	86.15	81.97	86.18	0.000227	1.34	148.55	36.71	0.12
NM-103	6017	ULT 100Y	314.00	80.26	87.55	82.48	87.59	0.000231	1.56	201.82	39.63	0.12
NM-103	6894	EX 10Y	56.00	80.42	84.76	81.65	84.77	0.000121	0.74	75.93	29.85	0.08
NM-103	6894	EX 25Y	79.00	80.42	85.40	81.89	85.41	0.000123	0.83	95.63	31.71	0.08
NM-103	6894	EX 100Y	137.00	80.42	86.76	82.35	86.78	0.000120	0.97	141.35	35.45	0.09
NM-103	6894	ULT 10Y	89.00	80.42	85.67	81.97	85.68	0.000121	0.85	104.32	32.45	0.08
NM-103	6894	ULT 25Y	116.00	80.42	86.32	82.20	86.33	0.000119	0.92	126.02	34.24	0.08
NM-103	6894	ULT 100Y	184.00	80.42	87.72	82.67	87.74	0.000114	1.04	176.69	38.05	0.09
NM-103	7025	EX 10Y	56.00	81.02	84.78	82.00	84.78	0.000080	0.62	89.75	32.71	0.07
NM-103	7025	EX 25Y	79.00	81.02	85.42	82.19	85.42	0.000084	0.71	111.20	34.22	0.07
NM-103	7025	EX 100Y	137.00	81.02	86.78	82.59	86.79	0.000087	0.86	159.74	37.06	0.07
NM-103	7025	ULT 10Y	89.00	81.02	85.69	82.26	85.69	0.000084	0.74	120.54	34.79	0.07
NM-103	7025	ULT 25Y	116.00	81.02	86.34	82.49	86.35	0.000085	0.81	143.63	36.14	0.07
NM-103	7025	ULT 100Y	184.00	81.02	87.74	82.80	87.75	0.000086	0.94	196.34	39.11	0.07
NM-103	7975	EX 10Y	56.00	80.24	84.85	81.39	84.85	0.000071	0.66	85.39	25.56	0.06
NM-103	7975	EX 25Y	79.00	80.24	85.49	81.60	85.50	0.000084	0.77	102.40	26.95	0.07
NM-103	7975	EX 100Y	137.00	80.24	86.86	82.02	86.88	0.000102	0.97	141.33	29.90	0.08
NM-103	7975	ULT 10Y	89.00	80.24	85.77	81.69	85.78	0.000088	0.81	109.81	27.53	0.07
NM-103	7975	ULT 25Y	116.00	80.24	86.42	81.88	86.43	0.000096	0.90	128.30	28.94	0.08
NM-103	7975	ULT 100Y	184.00	80.24	87.83	82.30	87.84	0.000109	1.08	171.11	31.95	0.08
NM-103	8419	EX 10Y	56.00	81.34	84.89	82.26	84.90	0.000170	0.89	62.74	22.64	0.09
NM-103	8419	EX 25Y	79.00	81.34	85.55	82.45	85.56	0.000215	1.00	79.09	28.98	0.11
NM-103	8419	EX 100Y	137.00	81.34	86.92	82.86	86.94	0.000184	1.13	120.85	31.84	0.10
NM-103	8419	ULT 10Y	89.00	81.34	85.82	82.53	85.84	0.000204	1.02	87.06	29.55	0.10
NM-103	8419	ULT 25Y	116.00	81.34	86.48	82.71	86.49	0.000189	1.09	106.90	30.90	0.10

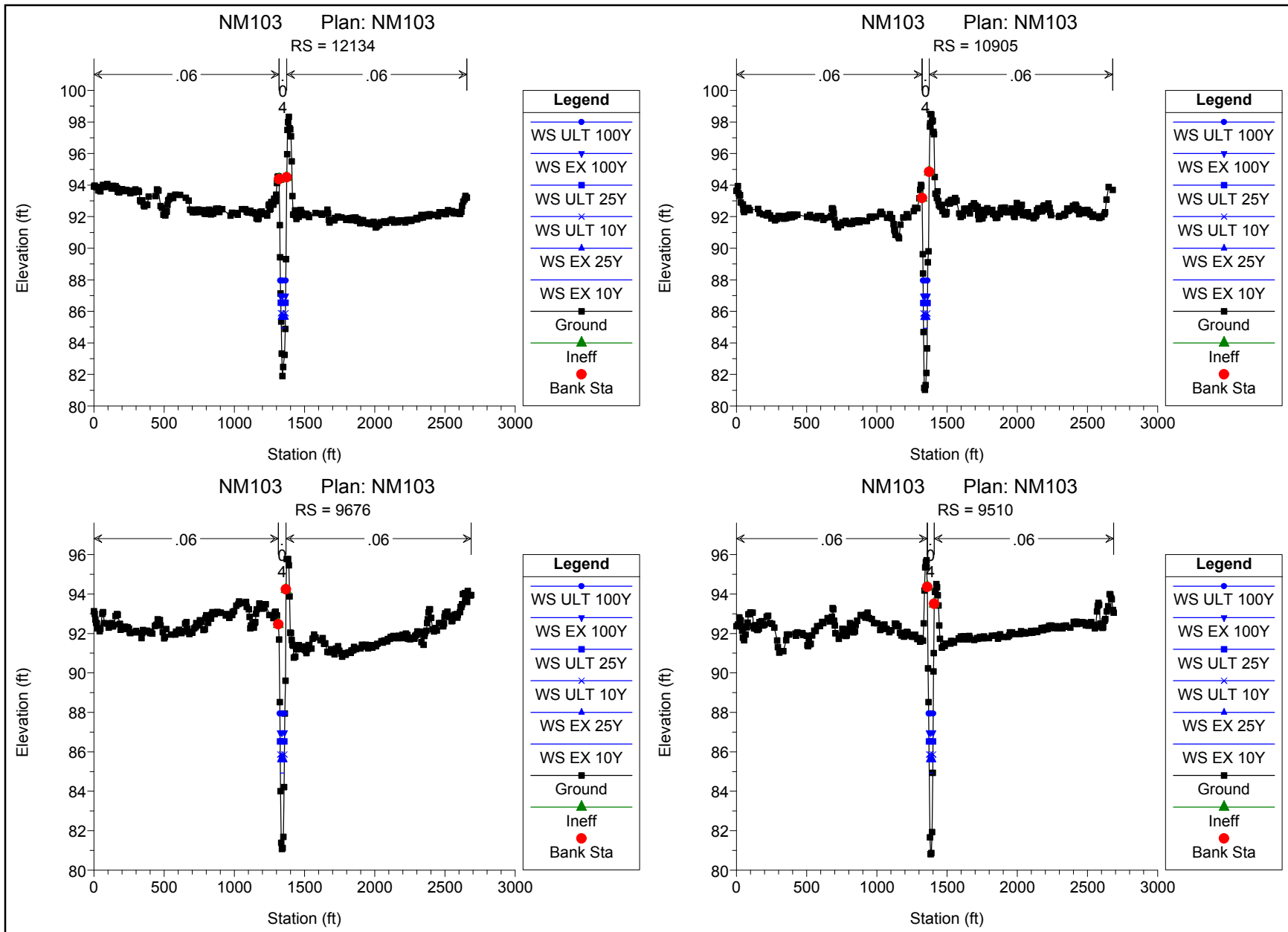
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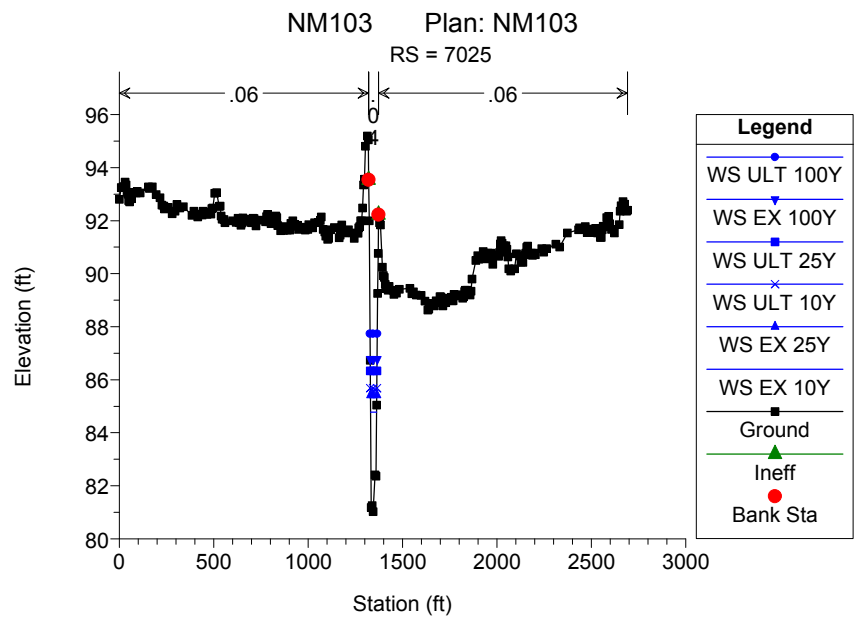
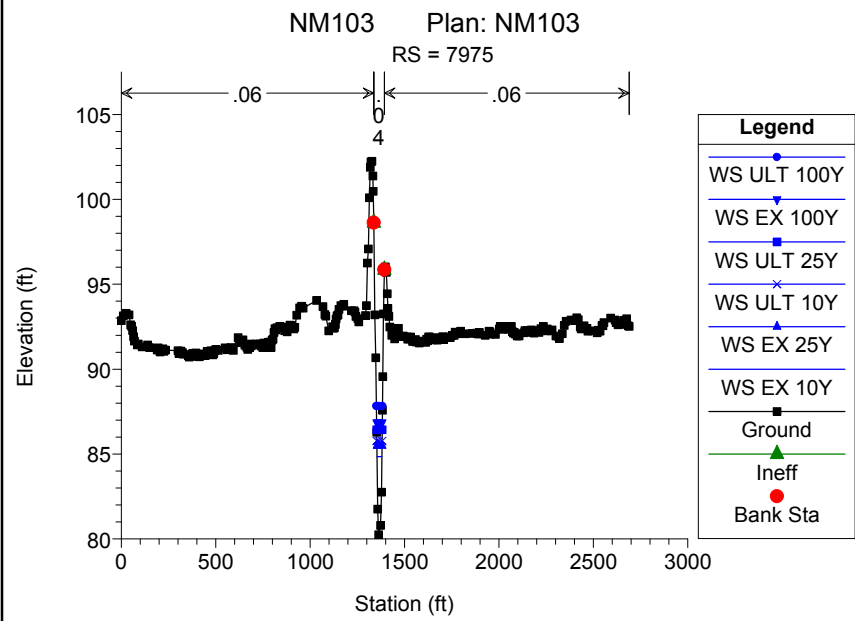
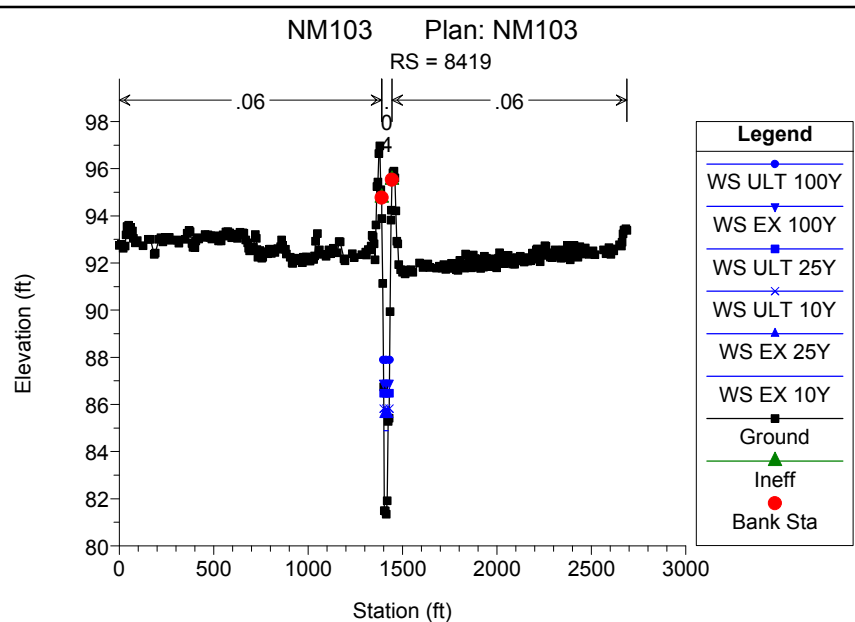
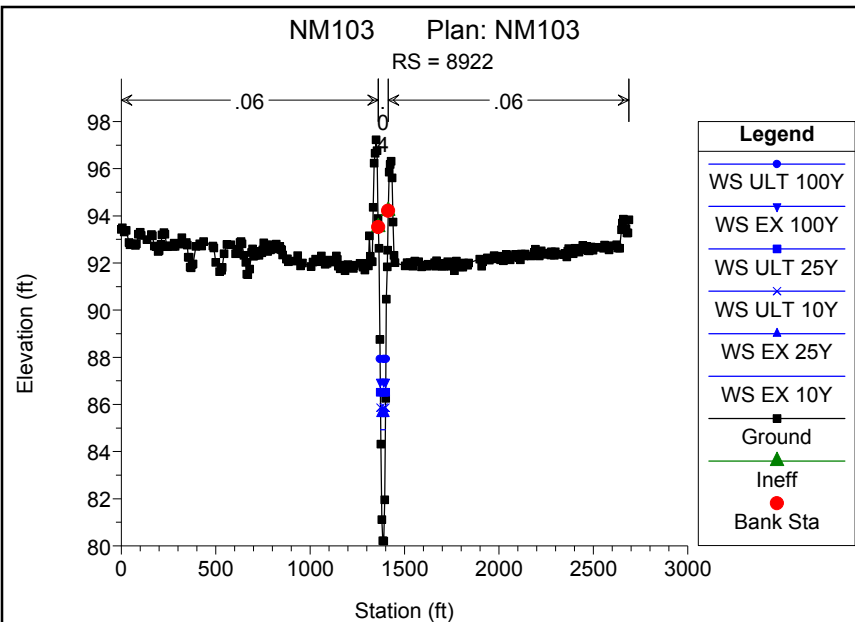
Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
NM-103	8419	ULT 100Y	184.00	81.34	87.88	83.14	87.91	0.000169	1.21	152.54	34.01	0.10
NM-103	8922	EX 10Y	12.00	80.21	84.92	80.70	84.92	0.000004	0.15	80.40	24.12	0.01
NM-103	8922	EX 25Y	16.00	80.21	85.59	80.79	85.59	0.000004	0.17	96.94	25.64	0.01
NM-103	8922	EX 100Y	28.00	80.21	86.97	81.00	86.97	0.000005	0.21	134.48	28.81	0.02
NM-103	8922	ULT 10Y	19.00	80.21	85.86	80.85	85.86	0.000005	0.18	104.04	26.26	0.02
NM-103	8922	ULT 25Y	24.00	80.21	86.52	80.94	86.52	0.000005	0.20	121.84	27.77	0.02
NM-103	8922	ULT 100Y	38.00	80.21	87.93	81.15	87.93	0.000005	0.23	163.37	31.04	0.02
NM-103	9510	EX 10Y	12.00	80.81	84.93	81.31	84.93	0.000005	0.17	71.61	24.71	0.02
NM-103	9510	EX 25Y	16.00	80.81	85.59	81.40	85.59	0.000005	0.18	88.57	26.33	0.02
NM-103	9510	EX 100Y	28.00	80.81	86.97	81.59	86.97	0.000006	0.22	127.22	29.68	0.02
NM-103	9510	ULT 10Y	19.00	80.81	85.87	81.45	85.87	0.000006	0.20	95.88	27.00	0.02
NM-103	9510	ULT 25Y	24.00	80.81	86.52	81.53	86.52	0.000006	0.21	114.19	28.60	0.02
NM-103	9510	ULT 100Y	38.00	80.81	87.94	81.73	87.94	0.000006	0.24	157.01	32.03	0.02
NM-103	9676	EX 10Y	12.00	81.07	84.93	81.50	84.93	0.000005	0.16	77.05	26.96	0.02
NM-103	9676	EX 25Y	16.00	81.07	85.59	81.56	85.59	0.000005	0.17	95.51	28.59	0.02
NM-103	9676	EX 100Y	28.00	81.07	86.97	81.72	86.97	0.000005	0.20	137.29	31.96	0.02
NM-103	9676	ULT 10Y	19.00	81.07	85.87	81.60	85.87	0.000005	0.18	103.44	29.26	0.02
NM-103	9676	ULT 25Y	24.00	81.07	86.52	81.67	86.53	0.000005	0.19	123.24	30.86	0.02
NM-103	9676	ULT 100Y	38.00	81.07	87.94	81.82	87.94	0.000005	0.22	169.28	34.31	0.02
NM-103	10905	EX 10Y	12.00	81.03	84.93	81.49	84.93	0.000005	0.16	75.20	26.38	0.02
NM-103	10905	EX 25Y	16.00	81.03	85.60	81.56	85.60	0.000005	0.17	93.15	27.66	0.02
NM-103	10905	EX 100Y	28.00	81.03	86.98	81.74	86.98	0.000005	0.21	133.17	30.32	0.02
NM-103	10905	ULT 10Y	19.00	81.03	85.87	81.61	85.87	0.000005	0.19	100.83	28.19	0.02
NM-103	10905	ULT 25Y	24.00	81.03	86.53	81.69	86.53	0.000005	0.20	119.81	29.46	0.02
NM-103	10905	ULT 100Y	38.00	81.03	87.94	81.87	87.94	0.000005	0.23	163.35	32.18	0.02
NM-103	12134	EX 10Y	12.00	81.90	84.94	82.65	84.94	0.000016	0.22	53.85	29.03	0.03
NM-103	12134	EX 25Y	16.00	81.90	85.61	82.74	85.61	0.000011	0.22	73.90	31.49	0.02
NM-103	12134	EX 100Y	28.00	81.90	86.99	82.94	86.99	0.000009	0.23	121.08	36.90	0.02
NM-103	12134	ULT 10Y	19.00	81.90	85.88	82.80	85.88	0.000012	0.23	82.72	32.57	0.03
NM-103	12134	ULT 25Y	24.00	81.90	86.54	82.88	86.54	0.000009	0.23	104.99	35.15	0.02
NM-103	12134	ULT 100Y	38.00	81.90	87.95	83.06	87.95	0.000007	0.24	157.99	39.36	0.02

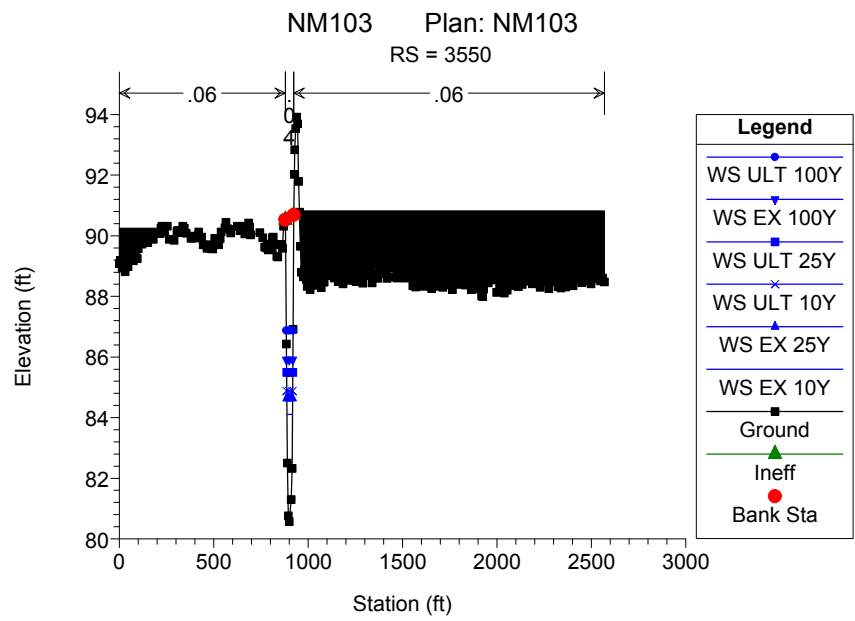
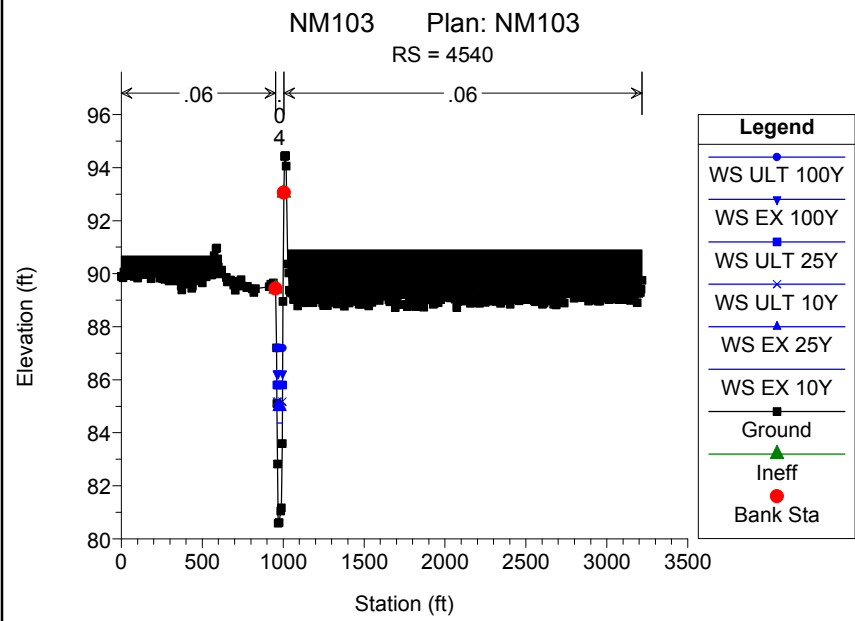
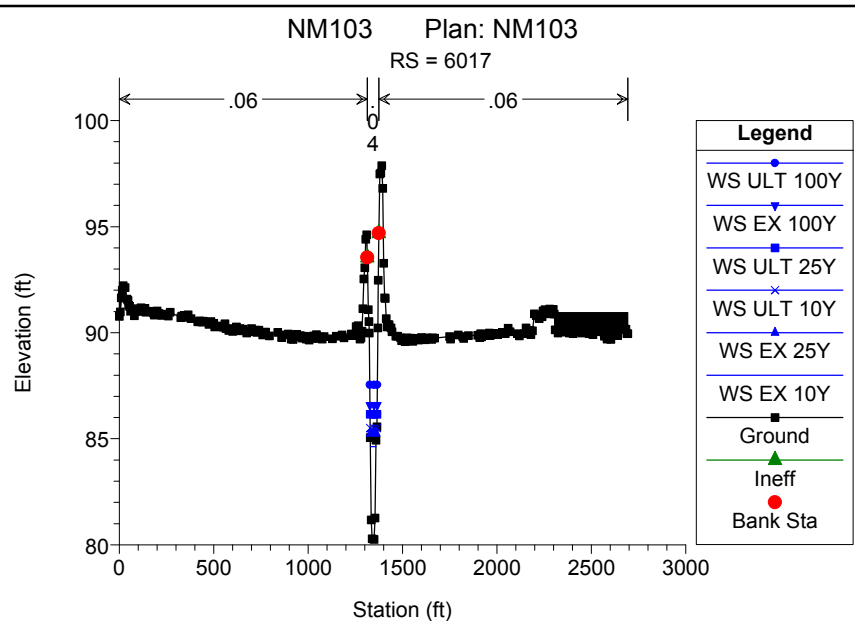
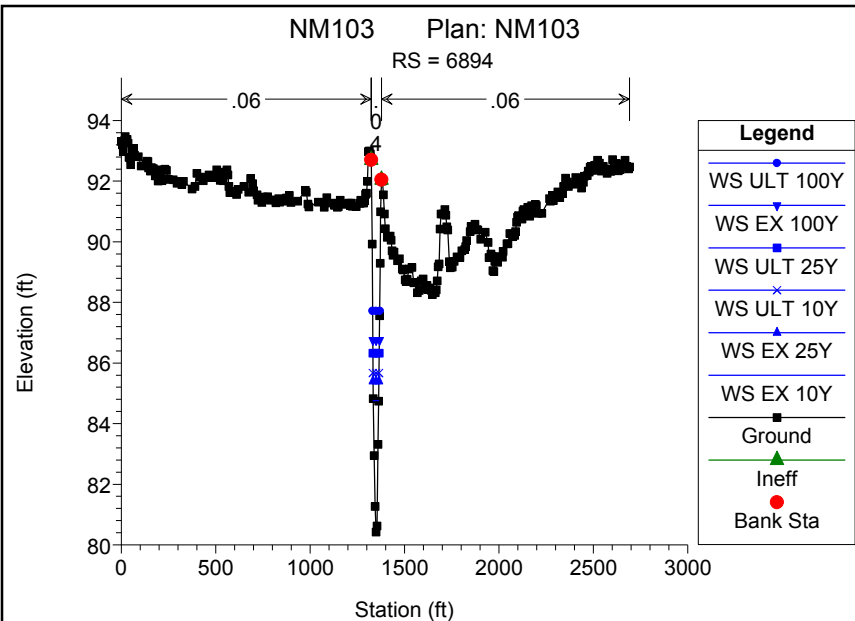
NM103 Plan: NM103

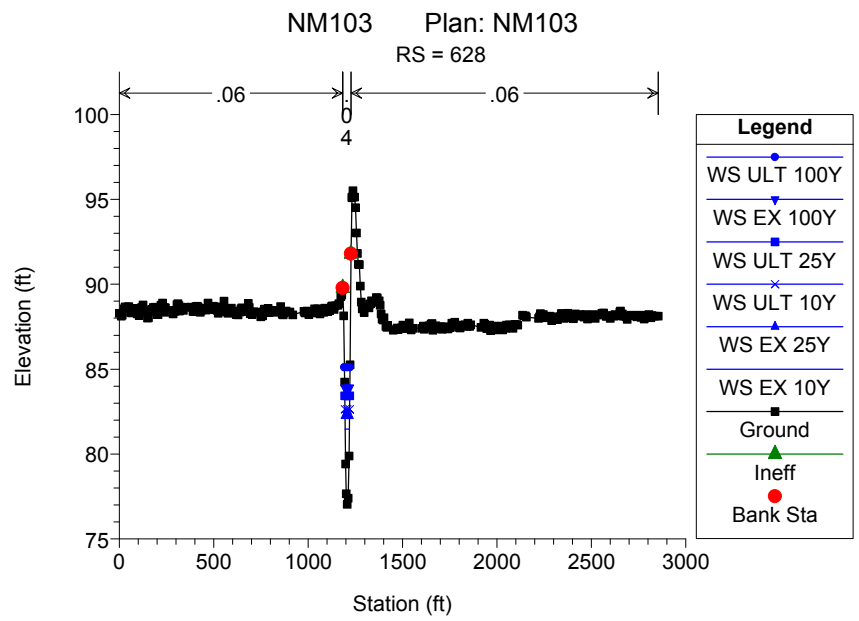
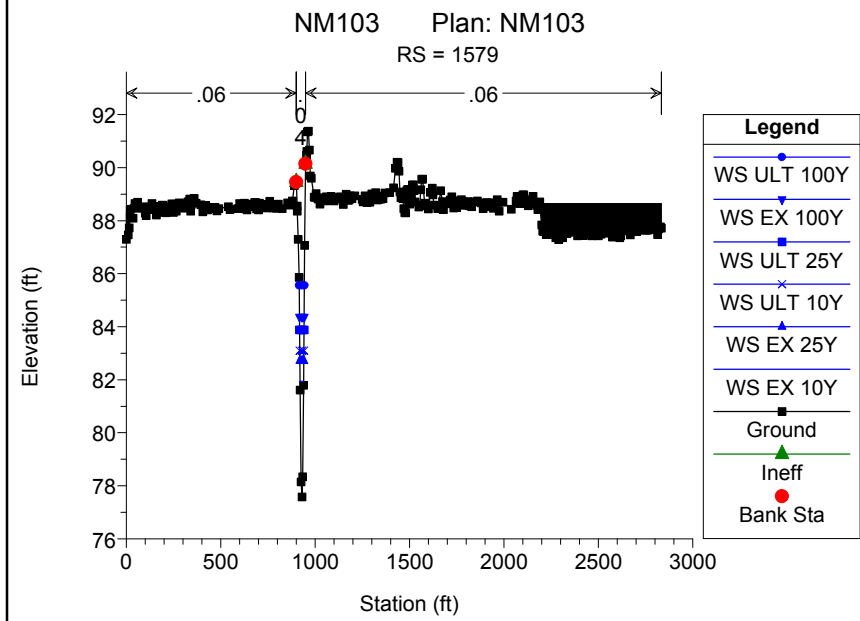
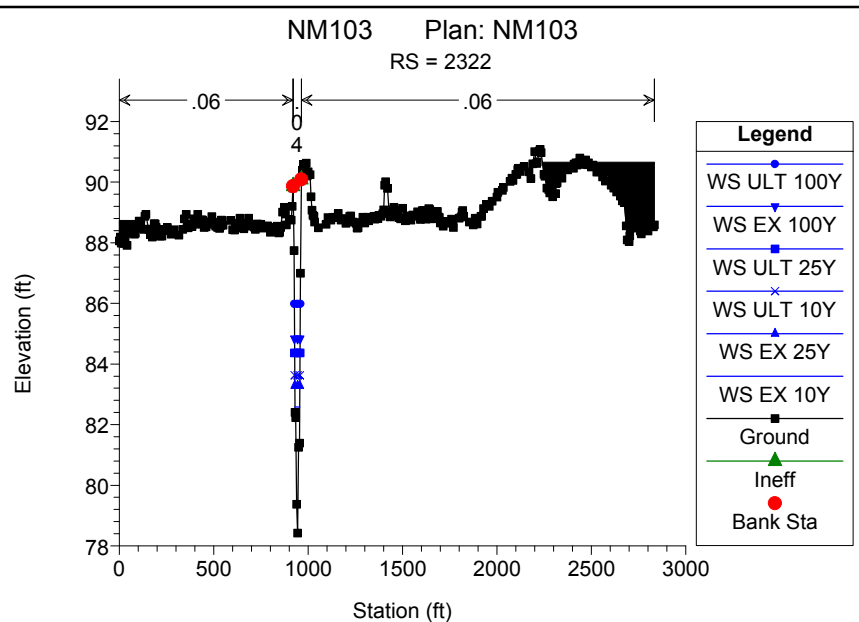
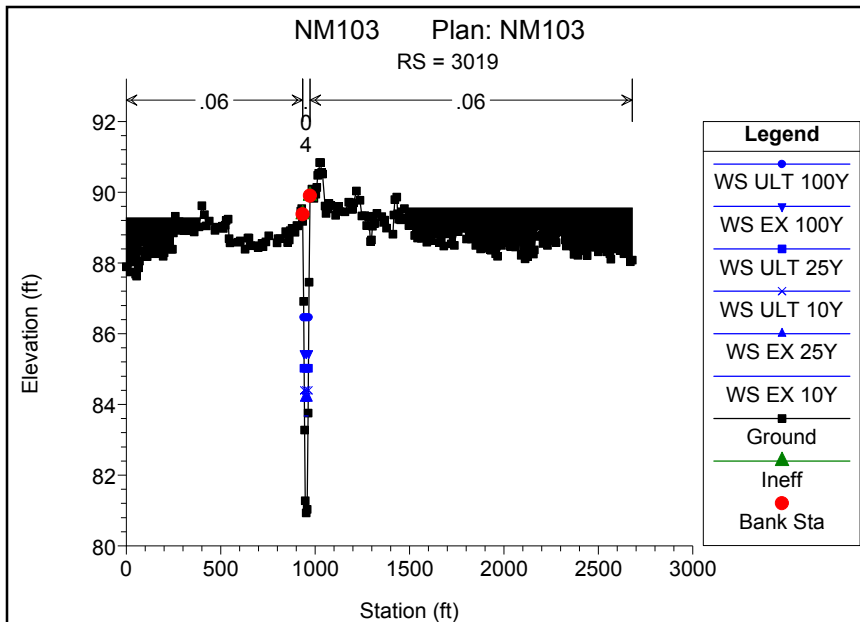
N-NM-103 NM-103











NM103 OUTPUT REPORT.TXT

HEC-RAS Version 4.1.0 Jan 2010
U.S. Army Corps of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

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X      X  XXXXXXX  XXXX      XXXX      XX      XXXX
X      X  X      X      X      X  X      X  X      X
X      X  X      X      X      X  X      X  X      X
XXXXXXXX XXXX      X      XXX  XXXX      XXXXXXX  XXXX
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PROJECT DATA

Project Title: NM103
Project File : NM103.prj

Project in English units

PLAN DATA

Plan Title: NM103
Plan File : K:\2014PROJECTS\COE_MDP_TEDSI\MODEL\APPENDIX C -
HYDRAULICS\NM103\NM103.p01

Geometry Title: NM103
Geometry File : K:\2014PROJECTS\COE_MDP_TEDSI\MODEL\APPENDIX C -
HYDRAULICS\NM103\NM103.g01

Flow Title : NM103 FLOW
Flow File : K:\2014PROJECTS\COE_MDP_TEDSI\MODEL\APPENDIX C -
HYDRAULICS\NM103\NM103.f01

Plan Summary Information:

Number of: Cross Sections	=	16	Multiple Openings	=	0
Culverts	=	0	Inline Structures	=	0
Bridges	=	0	Lateral Structures	=	0

Computational Information

Water surface calculation tolerance	=	0.01
Critical depth calculation tolerance	=	0.01
Maximum number of iterations	=	20
Maximum difference tolerance	=	0.3
Flow tolerance factor	=	0.001

Computation Options

Critical depth computed only	where necessary
Conveyance Calculation Method:	At breaks in n values only
Friction Slope Method:	Average Conveyance
Computational Flow Regime:	Subcritical Flow

NM103 OUTPUT REPORT.TXT

FLOW DATA

Flow Title: NM103 FLOW
 Flow File : K:\2014PROJECTS\COE_MDP_TEDSI\MODEL\APPENDIX C -
 HYDRAULICS\NM103\NM103.f01

Flow Data (cfs)

River	Reach	RS	EX 10Y	EX 25Y
EX 100Y	ULT 10Y	ULT 25Y	ULT 100Y	
N-NM-103	NM-103	12134	12	16
28	19	24	38	
N-NM-103	NM-103	8419	56	79
137	89	116	184	
N-NM-103	NM-103	6017	97	135
234	152	199	314	
N-NM-103	NM-103	1579	108	150
261	173	225	356	

Boundary Conditions

River	Reach	Profile	Upstream
N-NM-103	NM-103	EX 10Y	
Normal S = 0.0004			
N-NM-103	NM-103	EX 25Y	
Normal S = 0.0004			
N-NM-103	NM-103	EX 100Y	
Normal S = 0.0004			
N-NM-103	NM-103	ULT 10Y	
Normal S = 0.0004			
N-NM-103	NM-103	ULT 25Y	
Normal S = 0.0004			
N-NM-103	NM-103	ULT 100Y	
Normal S = 0.0004			

GEOMETRY DATA

Geometry Title: NM103
 Geometry File : K:\2014PROJECTS\COE_MDP_TEDSI\MODEL\APPENDIX C -
 HYDRAULICS\NM103\NM103.g01

CROSS SECTION

RIVER: N-NM-103
 REACH: NM-103 RS: 12134

INPUT

Description:

Station	Elevation	Data	num=	235	Sta	Elev	Sta	Elev	Sta	Elev
0	93.9	4.99	93.97	14.98	93.87	24.96	93.88	29.96	93.67	

NM103 OUTPUT REPORT.TXT

44.94	93.6	64.91	94.01	69.9	93.87	84.88	93.89	94.87	94.07
99.86	93.93	124.82	93.79	134.81	93.95	139.8	93.8	154.78	93.94
159.77	93.81	164.77	93.82	169.76	93.59	174.75	93.64	179.75	93.55
199.72	93.74	214.7	93.7	219.69	93.62	229.67	93.7	234.67	93.63
249.65	93.65	259.63	93.48	274.61	93.61	284.6	93.55	294.58	93.73
304.57	93.59	314.55	93.65	319.55	93.58	329.53	93.03	334.53	92.96
344.51	93.03	354.5	92.72	359.49	92.66	369.48	92.78	379.46	92.74
389.45	93.28	439.38	93.3	449.36	93.73	459.35	93.65	474.33	92.67
484.31	92.57	494.3	92.13	504.29	92.24	509.28	92.08	514.27	92.29
519.26	92.32	524.26	92.74	529.25	93.04	539.24	93.13	544.23	93.31
564.2	93.18	579.18	93.39	614.13	93.38	654.07	93.2	674.04	93.01
684.03	92.45	694.02	92.43	704	92.27	723.97	92.27	733.96	92.44
743.95	92.44	748.94	92.35	758.92	92.39	763.92	92.3	768.91	92.31
773.9	92.42	783.89	92.35	788.88	92.19	798.87	92.17	803.86	92.29
808.85	92.27	818.84	92.45	828.83	92.38	833.82	92.14	838.81	92.21
848.8	92.19	858.78	92.37	863.78	92.37	868.77	92.5	883.75	92.52
893.73	92.29	913.7	92.47	973.62	92.07	983.61	92.25	1013.56	92.23
1023.55	92.13	1053.51	92.48	1078.47	92.47	1088.46	92.31	1093.45	92.36
1098.44	92.26	1108.43	92.28	1113.42	92.37	1128.4	92.23	1133.39	92.28
1148.37	92.18	1158.36	91.9	1168.34	91.84	1173.34	91.9	1178.33	92.19
1183.32	92.29	1193.31	92.32	1203.29	92.16	1213.28	92.21	1233.25	92.06
1243.24	92.72	1248.23	92.78	1253.22	92.45	1258.22	92.5	1263.21	92.92
1278.19	92.76	1283.18	93.14	1293.17	92.99	1298.16	93.39	1303.15	94.14
1308.15	94.52	1313.14	94.56	1318.13	94.37	1323.12	91.47	1325.48	89.42
1328.12	87.14	1333.11	85.35	1338.1	83.32	1343.1	81.9	1348.09	82.47
1358.07	83.25	1363.07	84.88	1368.06	89.3	1373.05	94.49	1375.49	95.96
1378.05	97.5	1383.04	97.98	1388.03	98.33	1393.03	97.6	1398.02	97.53
1403.01	97.09	1408	95.51	1413	93.3	1417.99	92.13	1422.98	92.14
1432.97	92.4	1437.96	92.06	1442.95	91.85	1457.93	91.99	1467.92	92.17
1472.91	92.43	1477.9	92.26	1497.88	92.19	1502.87	92.09	1512.86	92.18
1527.83	92.09	1532.83	91.97	1577.76	92.23	1617.71	92.2	1622.7	92.12
1642.67	92.18	1662.64	92.45	1667.64	92.21	1672.63	91.79	1677.62	91.63
1712.57	91.76	1717.57	91.92	1737.54	92.01	1762.5	91.94	1797.45	91.79
1802.44	91.89	1827.41	91.9	1832.4	91.78	1837.4	91.92	1847.38	91.93
1852.37	91.83	1862.36	91.95	1872.35	91.74	1877.34	91.85	1897.31	91.58
1902.3	91.78	1917.28	91.78	1932.26	91.61	1952.23	91.56	1962.22	91.63
1972.2	91.53	1992.18	91.67	1997.17	91.59	2007.15	91.31	2017.14	91.39
2022.13	91.51	2032.12	91.48	2042.11	91.64	2067.07	91.71	2082.05	91.62
2112.01	91.75	2121.99	91.82	2136.97	91.63	2146.96	91.75	2166.93	91.64
2186.9	91.77	2206.87	91.76	2216.86	91.63	2231.84	91.8	2246.81	91.73
2251.81	91.81	2261.79	91.73	2296.74	91.91	2301.74	91.83	2321.71	91.92
2331.69	92.11	2341.68	91.95	2376.63	92.13	2386.62	92.03	2391.61	92.15
2421.57	92.11	2451.52	92.04	2461.51	92.28	2471.5	92.19	2491.47	92.28
2506.45	92.16	2521.43	92.42	2526.42	92.29	2551.38	92.36	2561.37	92.21
2571.36	92.29	2576.35	92.2	2601.31	92.23	2606.31	92.17	2616.29	92.31
2621.28	92.69	2631.27	92.96	2641.26	93.09	2646.25	93.32	2656.23	93.21

Manning's n Values num= 3
 Sta n Val Sta n Val
 0 .06 1318.13 .04 1373.05 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 1318.13 1373.05 1229 1229 1229 .1 .3
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 1318.13 94.37 F
 1373.05 2656.23 94.49 F

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft) 84.94 Element Left OB Channel
 Right OB

NM103 OUTPUT REPORT.TXT				
Vel Head (ft)	0.00	wt. n-Val.		0.040
W.S. Elev (ft)	84.94	Reach Len. (ft)	1229.00	1229.00
1229.00 Crit w.s. (ft)	82.65	Flow Area (sq ft)		53.85
E.G. Slope (ft/ft)	0.000016	Area (sq ft)		53.85
Q Total (cfs)	12.00	Flow (cfs)		12.00
Top width (ft)	29.03	Top width (ft)		29.03
Vel Total (ft/s)	0.22	Avg. Vel. (ft/s)		0.22
Max Chl Dpth (ft)	3.04	Hydr. Depth (ft)		1.85
Conv. Total (cfs)	2961.7	Conv. (cfs)		2961.7
Length wtd. (ft)	1229.00	wetted Per. (ft)		29.89
Min Ch El (ft)	81.90	Shear (lb/sq ft)		0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	2656.23	0.00
Frctn Loss (ft)	0.01	Cum volume (acre-ft)		19.79
C & E Loss (ft)	0.00	Cum SA (acres)		7.09

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

Profile #EX 25Y				
E.G. Elev (ft)	85.61	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-Val.		0.040
W.S. Elev (ft)	85.61	Reach Len. (ft)	1229.00	1229.00
1229.00 Crit w.s. (ft)	82.74	Flow Area (sq ft)		73.90
E.G. Slope (ft/ft)	0.000011	Area (sq ft)		73.90
Q Total (cfs)	16.00	Flow (cfs)		16.00
Top width (ft)	31.49	Top width (ft)		31.49
Vel Total (ft/s)	0.22	Avg. Vel. (ft/s)		0.22
Max Chl Dpth (ft)	3.71	Hydr. Depth (ft)		2.35
Conv. Total (cfs)	4724.3	Conv. (cfs)		4724.3
Length wtd. (ft)	1229.00	wetted Per. (ft)		32.73
Min Ch El (ft)	81.90	Shear (lb/sq ft)		0.00

NM103 OUTPUT REPORT.TXT

Alpha 0.00	1.00	Stream Power (lb/ft s)	2656.23	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)		24.46
C & E Loss (ft)	0.00	Cum SA (acres)		7.59

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	86.99	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-val.		0.040
W.S. Elev (ft)	86.99	Reach Len. (ft)	1229.00	1229.00
1229.00 Crit w.s. (ft)	82.94	Flow Area (sq ft)		121.08
E.G. slope (ft/ft)	0.000009	Area (sq ft)		121.08
Q Total (cfs)	28.00	Flow (cfs)		28.00
Top width (ft)	36.90	Top width (ft)		36.90
vel Total (ft/s)	0.23	Avg. vel. (ft/s)		0.23
Max Chl Dpth (ft)	5.09	Hydr. Depth (ft)		3.28
Conv. Total (cfs)	9589.3	Conv. (cfs)		9589.3
Length wtd. (ft)	1229.00	wetted Per. (ft)		38.90
Min Ch El (ft)	81.90	Shear (lb/sq ft)		0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	2656.23	0.00
Frctn Loss (ft)	0.01	Cum volume (acre-ft)		35.66
C & E Loss (ft)	0.00	Cum SA (acres)		8.49

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	85.88	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-val.		0.040
W.S. Elev (ft)	85.88	Reach Len. (ft)	1229.00	1229.00

NM103 OUTPUT REPORT.TXT

1229.00				
Crit w.s. (ft)	82.80	Flow Area (sq ft)		82.72
E.G. slope (ft/ft)	0.000012	Area (sq ft)		82.72
Q Total (cfs)	19.00	Flow (cfs)		19.00
Top width (ft)	32.57	Top width (ft)		32.57
Vel Total (ft/s)	0.23	Avg. vel. (ft/s)		0.23
Max Chl Dpth (ft)	3.98	Hydr. Depth (ft)		2.54
Conv. Total (cfs)	5563.1	Conv. (cfs)		5563.1
Length wtd. (ft)	1229.00	wetted Per. (ft)		33.96
Min Ch El (ft)	81.90	Shear (lb/sq ft)		0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	2656.23	0.00
Frctn Loss (ft)	0.01	Cum volume (acre-ft)		26.61
C & E Loss (ft)	0.00	Cum SA (acres)		7.81

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	86.54	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-val.		0.040
W.S. Elev (ft)	86.54	Reach Len. (ft)	1229.00	1229.00
1229.00 Crit w.s. (ft)	82.88	Flow Area (sq ft)		104.99
E.G. slope (ft/ft)	0.000009	Area (sq ft)		104.99
Q Total (cfs)	24.00	Flow (cfs)		24.00
Top width (ft)	35.15	Top width (ft)		35.15
Vel Total (ft/s)	0.23	Avg. vel. (ft/s)		0.23
Max Chl Dpth (ft)	4.64	Hydr. Depth (ft)		2.99
Conv. Total (cfs)	7830.9	Conv. (cfs)		7830.9
Length wtd. (ft)	1229.00	wetted Per. (ft)		36.90
Min Ch El (ft)	81.90	Shear (lb/sq ft)		0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	2656.23	0.00

	NM103 OUTPUT REPORT.TXT		
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	31.94
C & E Loss (ft)	0.00	Cum SA (acres)	8.22

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	87.95	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-val.		0.040
W.S. Elev (ft)	87.95	Reach Len. (ft)	1229.00	1229.00
1229.00				
Crit w.s. (ft)	83.06	Flow Area (sq ft)		157.99
E.G. slope (ft/ft)	0.000007	Area (sq ft)		157.99
Q Total (cfs)	38.00	Flow (cfs)		38.00
Top width (ft)	39.36	Top width (ft)		39.36
vel Total (ft/s)	0.24	Avg. vel. (ft/s)		0.24
Max Chl Dpth (ft)	6.05	Hydr. Depth (ft)		4.01
Conv. Total (cfs)	14183.9	Conv. (cfs)		14183.9
Length wtd. (ft)	1229.00	wetted Per. (ft)		42.05
Min Ch El (ft)	81.90	Shear (lb/sq ft)		0.00
Alpha	1.00	Stream Power (lb/ft s)	2656.23	0.00
0.00				
Frctn Loss (ft)	0.01	Cum volume (acre-ft)		44.40
C & E Loss (ft)	0.00	Cum SA (acres)		9.07

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-103
 REACH: NM-103 RS: 10905

INPUT

Description:

Station	Elevation	Data	num=	259					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	93.63	4.99	93.67	9.98	93.93	14.97	93.49	19.97	93.32
24.96	93.37	29.95	92.89	44.92	92.78	49.91	92.45	54.91	92.3
59.9	92.48	84.85	92.55	94.84	92.41	154.73	92.49	164.72	92.22
189.67	92.14	214.63	92.08	224.61	92.23	239.59	92.08	249.57	91.88

NM103 OUTPUT REPORT.TXT

274.53	91.77	279.52	91.91	289.5	91.86	299.49	92.05	309.47	91.94
329.43	92.04	339.42	91.87	349.4	91.95	354.39	91.9	369.37	92.06
374.36	91.96	379.35	92.12	384.34	92	394.32	91.96	399.31	92.11
409.3	92.12	414.29	92.03	434.25	92.13	504.13	91.99	524.1	92.11
539.07	91.96	569.02	91.9	579.01	92.03	603.96	92.04	618.94	91.8
628.92	91.92	668.85	91.96	673.84	92.05	678.83	92.5	683.82	92.54
688.82	92.46	693.81	92.21	698.8	91.8	703.79	91.52	708.78	91.54
718.76	91.32	723.76	91.33	743.72	91.47	753.7	91.65	773.67	91.6
778.66	91.74	798.63	91.59	803.62	91.62	808.61	91.54	823.58	91.55
833.57	91.74	858.52	91.65	868.51	91.76	878.49	91.66	893.46	91.75
928.4	91.72	948.37	91.97	958.35	92	963.34	91.93	993.29	92.01
1023.24	92.21	1028.23	92.31	1038.22	92.16	1073.16	91.93	1093.12	92.15
1103.1	91.91	1108.1	91.9	1118.08	91.52	1123.07	91.18	1128.06	91.09
1133.05	90.85	1153.02	90.74	1158.01	90.64	1167.99	91.49	1187.96	91.95
1212.92	92.16	1222.9	91.96	1262.83	92.35	1272.81	92.57	1287.79	92.54
1302.76	93.16	1307.75	93.69	1312.75	94.01	1317.74	93.94	1322.73	93.19
1327.72	89.62	1328.95	88.4	1332.71	84.69	1337.7	81.15	1342.69	81.03
1347.69	81.32	1352.68	82.09	1357.67	83.65	1362.66	89.11	1367.65	89.81
1372.64	94.84	1377.63	97.71	1378.95	97.92	1382.63	98.49	1387.62	98.47
1392.61	98.03	1397.6	98.08	1402.59	97.38	1407.58	97.22	1412.57	94.51
1417.57	93.45	1427.55	93.19	1432.54	93.61	1437.53	93	1442.52	92.72
1452.51	92.63	1462.49	92.75	1467.48	92.35	1482.45	92.14	1492.44	92.16
1497.43	92.27	1507.41	92.88	1512.4	92.95	1517.39	92.83	1522.39	92.87
1527.38	93.06	1547.34	92.92	1552.33	92.99	1557.33	93.18	1567.31	93.02
1587.27	92.2	1597.26	91.98	1612.23	92.06	1622.21	92.51	1632.2	92.45
1637.19	92.52	1657.15	92.36	1662.15	92.2	1672.13	92.66	1682.11	92.68
1692.09	92.85	1702.08	92.71	1707.07	92.51	1712.06	92.52	1717.05	92.63
1722.04	92.1	1727.04	91.84	1732.03	91.88	1737.02	92.17	1742.01	91.96
1747	91.88	1751.99	91.92	1756.98	92.43	1761.97	92.1	1776.95	92.3
1781.94	92.29	1786.93	92.53	1821.87	92.43	1826.86	92.16	1841.84	92.09
1846.83	91.92	1856.81	91.93	1866.8	92.18	1876.78	92.16	1881.77	92.43
1886.76	92.55	1891.75	92.56	1901.74	92.3	1911.72	92.58	1931.68	92.28
1946.66	92.39	1951.65	92.34	1961.63	92.52	1966.62	92.44	1976.61	92.07
1981.6	91.97	1991.58	92.37	1996.57	92.86	2006.56	92.48	2021.53	92.24
2026.52	92.63	2031.51	92.74	2036.5	92.25	2041.5	92.1	2061.46	92.18
2066.45	92.08	2071.44	92.25	2076.44	92.28	2086.42	92.01	2096.4	92.06
2116.37	91.9	2121.36	92.02	2131.34	92.02	2136.33	92.1	2141.32	92.41
2146.32	92.31	2151.31	92.53	2156.3	92.39	2166.28	92.35	2171.27	92.46
2176.26	92.34	2181.26	92.43	2186.25	92.67	2191.24	92.71	2196.23	92.6
2201.22	92.59	2206.21	92.46	2211.2	92.54	2221.19	92.83	2231.17	92.57
2236.16	92.28	2241.15	92.09	2296.06	91.99	2301.05	92.05	2331	92.07
2335.99	92.17	2340.98	92.12	2355.95	92.52	2360.95	92.36	2370.93	92.41
2390.89	92.49	2395.89	92.69	2415.85	92.76	2420.84	92.67	2425.83	92.45
2430.83	92.42	2435.82	92.49	2440.81	92.15	2455.78	92.41	2465.76	92.24
2470.76	92.32	2480.74	92.23	2490.72	92.38	2495.71	92.35	2500.7	92.43
2515.68	92.31	2520.67	92.14	2525.66	92.14	2535.64	91.99	2540.64	92.12
2575.58	92.01	2585.56	91.92	2590.55	92.02	2600.53	91.98	2620.5	92.16
2625.49	92.28	2635.47	93.08	2650.45	93.88	2680.4	93.7		

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 1322.73 .04 1372.64 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 1322.73 1372.64 1228 1229 1230 .1 .3
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 1322.73 93.19 F
 1372.64 2680.4 94.84 F

CROSS SECTION OUTPUT Profile #EX 10Y

NM103 OUTPUT REPORT.TXT				
		Element	Left OB	Channel
E.G. Elev (ft)	84.93			
Right OB				
Vel Head (ft)	0.00	wt. n-Val.		0.040
W.S. Elev (ft)	84.93	Reach Len. (ft)	1228.00	1229.00
1230.00				
Crit w.s. (ft)	81.49	Flow Area (sq ft)		75.20
E.G. Slope (ft/ft)	0.000005	Area (sq ft)		75.20
Q Total (cfs)	12.00	Flow (cfs)		12.00
Top width (ft)	26.38	Top width (ft)		26.38
Vel Total (ft/s)	0.16	Avg. Vel. (ft/s)		0.16
Max Chl Dpth (ft)	3.90	Hydr. Depth (ft)		2.85
Conv. Total (cfs)	5336.6	Conv. (cfs)		5336.6
Length wtd. (ft)	1229.00	wetted Per. (ft)		28.48
Min Ch El (ft)	81.03	Shear (lb/sq ft)		0.00
Alpha	1.00	Stream Power (lb/ft s)	2680.40	0.00
0.00				
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)		17.97
C & E Loss (ft)	0.00	Cum SA (acres)		6.31

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

		Element	Left OB	Channel
E.G. Elev (ft)	85.60			
Right OB				
Vel Head (ft)	0.00	wt. n-Val.		0.040
W.S. Elev (ft)	85.60	Reach Len. (ft)	1228.00	1229.00
1230.00				
Crit w.s. (ft)	81.56	Flow Area (sq ft)		93.15
E.G. Slope (ft/ft)	0.000005	Area (sq ft)		93.15
Q Total (cfs)	16.00	Flow (cfs)		16.00
Top width (ft)	27.66	Top width (ft)		27.66
Vel Total (ft/s)	0.17	Avg. Vel. (ft/s)		0.17
Max Chl Dpth (ft)	4.57	Hydr. Depth (ft)		3.37
Conv. Total (cfs)	7312.4	Conv. (cfs)		7312.4
Length wtd. (ft)	1229.00	wetted Per. (ft)		30.33
Min Ch El (ft)	81.03	Shear (lb/sq ft)		0.00

NM103 OUTPUT REPORT.TXT

Alpha	1.00	Stream Power (lb/ft s)	2680.40	0.00
0.00				
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)		22.10
C & E Loss (ft)	0.00	Cum SA (acres)		6.76

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	86.98	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-Val.		0.040
W.S. Elev (ft)	86.98	Reach Len. (ft)	1228.00	1229.00
1230.00				
Crit w.s. (ft)	81.74	Flow Area (sq ft)		133.17
E.G. Slope (ft/ft)	0.000005	Area (sq ft)		133.17
Q Total (cfs)	28.00	Flow (cfs)		28.00
Top width (ft)	30.32	Top width (ft)		30.32
Vel Total (ft/s)	0.21	Avg. Vel. (ft/s)		0.21
Max Chl Dpth (ft)	5.95	Hydr. Depth (ft)		4.39
Conv. Total (cfs)	12253.8	Conv. (cfs)		12253.8
Length wtd. (ft)	1229.00	wetted Per. (ft)		34.16
Min Ch El (ft)	81.03	Shear (lb/sq ft)		0.00
Alpha	1.00	Stream Power (lb/ft s)	2680.40	0.00
0.00				
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)		32.07
C & E Loss (ft)	0.00	Cum SA (acres)		7.54

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	85.87	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-Val.		0.040
W.S. Elev (ft)	85.87	Reach Len. (ft)	1228.00	1229.00
1230.00				
Crit w.s. (ft)	81.61	Flow Area (sq ft)		100.83
E.G. slope (ft/ft)	0.000005	Area (sq ft)		100.83

NM103 OUTPUT REPORT.TXT

Q Total (cfs)	19.00	Flow (cfs)	19.00
Top width (ft)	28.19	Top width (ft)	28.19
Vel Total (ft/s)	0.19	Avg. Vel. (ft/s)	0.19
Max Chl Dpth (ft)	4.84	Hydr. Depth (ft)	3.58
Conv. Total (cfs)	8206.8	Conv. (cfs)	8206.8
Length wtd. (ft)	1229.00	wetted Per. (ft)	31.09
Min Ch El (ft)	81.03	Shear (lb/sq ft)	0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	2680.40
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	24.02
C & E Loss (ft)	0.00	Cum SA (acres)	6.95

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	86.53	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-val.		0.040
W.S. Elev (ft)	86.53	Reach Len. (ft)	1228.00	1229.00
1230.00 Crit w.s. (ft)	81.69	Flow Area (sq ft)		119.81
E.G. Slope (ft/ft)	0.000005	Area (sq ft)		119.81
Q Total (cfs)	24.00	Flow (cfs)		24.00
Top width (ft)	29.46	Top width (ft)		29.46
Vel Total (ft/s)	0.20	Avg. Vel. (ft/s)		0.20
Max Chl Dpth (ft)	5.50	Hydr. Depth (ft)		4.07
Conv. Total (cfs)	10530.7	Conv. (cfs)		10530.7
Length wtd. (ft)	1229.00	wetted Per. (ft)		32.92
Min Ch El (ft)	81.03	Shear (lb/sq ft)		0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	2680.40	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)		28.76
C & E Loss (ft)	0.00	Cum SA (acres)		7.31

NM103 OUTPUT REPORT.TXT

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	87.94	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-Val.		0.040
W.S. Elev (ft)	87.94	Reach Len. (ft)	1228.00	1229.00
1230.00 Crit w.s. (ft)	81.87	Flow Area (sq ft)		163.35
E.G. slope (ft/ft)	0.000005	Area (sq ft)		163.35
Q Total (cfs)	38.00	Flow (cfs)		38.00
Top width (ft)	32.18	Top width (ft)		32.18
Vel Total (ft/s)	0.23	Avg. Vel. (ft/s)		0.23
Max Chl Dpth (ft)	6.91	Hydr. Depth (ft)		5.08
Conv. Total (cfs)	16376.7	Conv. (cfs)		16376.7
Length wtd. (ft)	1229.00	wetted Per. (ft)		36.84
Min Ch El (ft)	81.03	Shear (lb/sq ft)		0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	2680.40	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)		39.87
C & E Loss (ft)	0.00	Cum SA (acres)		8.06

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-103
REACH: NM-103 RS: 9676

INPUT

Description:

Station	Elevation	Data	num=	262	Sta	Elev	Sta	Elev	Sta	Elev
0	93.13	4.99	92.99	9.99	92.7	14.98	92.54	19.98	92.51	
24.97	92.26	39.96	92.11	44.95	92.24	59.94	92.99	64.93	93.08	
74.92	92.53	94.9	92.5	104.89	92.29	114.88	92.49	124.87	92.52	
134.86	92.36	139.85	92.44	154.84	92.89	164.83	92.98	169.82	92.95	
184.81	92.49	189.8	92.19	219.77	92.34	229.76	92.22	239.75	92.32	
249.74	92.25	254.73	92.06	259.73	92.02	294.69	92.06	299.68	92.13	
339.64	91.77	344.64	92.03	349.63	92.17	364.62	92.09	379.6	92.14	
399.58	92.02	404.57	92.09	414.56	91.99	434.54	92.38	444.53	92.44	
454.52	92.72	469.51	92.68	474.5	92.41	489.49	92.07	499.47	91.75	
504.47	91.83	514.46	92.22	549.42	91.94	579.39	91.95	584.39	92.09	
604.36	92.19	624.34	92.02	634.33	92.13	649.32	92.5	659.31	92.57	

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664.3	92.24	669.3	92.09	674.29	92.09	679.29	91.97	699.26	92.04
714.25	92.26	724.24	92.32	729.23	92.53	734.23	92.41	744.22	92.42
754.21	92.67	764.2	92.58	779.18	92.17	789.17	92.21	794.16	92.78
799.16	92.92	804.15	92.88	814.14	92.54	834.12	92.75	839.12	92.97
844.11	93.08	859.1	92.98	879.07	93.09	894.06	93.04	904.05	93.06
939.01	92.91	944.01	92.98	963.98	92.79	973.97	92.95	983.96	92.94
988.96	93.09	998.95	93.13	1013.93	93.4	1028.92	93.49	1033.91	93.62
1048.9	93.54	1083.86	93.6	1088.85	93.35	1103.84	93.22	1108.83	92.84
1113.83	92.26	1118.82	92.41	1128.81	92.39	1133.81	92.5	1138.8	92.29
1143.8	92.53	1148.79	92.57	1153.79	93	1158.78	93.21	1178.76	93.52
1198.74	93.26	1208.73	93.27	1223.71	93.48	1248.69	92.93	1278.66	92.78
1288.64	93.07	1293.64	93.11	1303.63	92.91	1313.62	92.47	1318.59	91.69
1323.61	88.52	1328.6	84	1333.6	81.39	1338.59	81.07	1343.59	81.12
1348.58	81.69	1353.58	84.21	1358.57	87.94	1363.57	89.6	1368.56	94.23
1368.59	94.24	1373.56	95.77	1383.55	95.77	1388.54	95.46	1393.53	93.88
1398.53	92.04	1403.52	92.02	1408.52	91.67	1413.51	91.43	1418.51	91.38
1423.5	90.77	1433.49	90.82	1443.48	91.2	1453.47	91.25	1458.47	91.4
1463.46	91.21	1483.44	91.3	1488.44	91.23	1493.43	91.34	1498.42	91.19
1508.41	91.12	1513.41	91	1518.4	91.2	1523.4	91.21	1528.39	91.41
1533.39	91.24	1548.37	91.23	1558.36	91.74	1568.35	91.94	1578.34	91.8
1613.3	91.66	1628.29	91.77	1638.28	91.48	1648.27	91.5	1663.25	91.07
1678.24	91.04	1688.23	91.2	1708.21	91.07	1713.2	90.95	1723.19	91.23
1738.17	91.36	1748.16	91.13	1763.15	90.98	1768.14	90.82	1788.12	91.01
1793.12	90.92	1813.1	91.04	1828.08	91.02	1833.07	91.14	1848.06	91.15
1853.05	91.32	1868.04	91.21	1898.01	91.24	1908	91.43	1912.99	91.34
1927.98	91.39	1932.97	91.34	1937.97	91.43	1952.95	91.24	1957.94	91.36
1977.92	91.4	1982.92	91.28	1992.91	91.38	2007.89	91.35	2017.88	91.47
2047.85	91.61	2057.84	91.54	2067.83	91.65	2087.81	91.59	2092.8	91.72
2107.79	91.73	2112.78	91.82	2127.77	91.76	2132.76	91.87	2157.74	91.85
2162.73	91.76	2167.73	91.77	2172.72	91.88	2192.7	91.78	2197.69	91.93
2202.69	91.77	2217.67	91.83	2222.67	91.99	2232.66	91.92	2237.65	91.73
2252.64	91.7	2257.63	91.79	2282.61	91.74	2287.6	91.88	2297.59	91.93
2302.59	92.1	2317.57	91.99	2322.56	92.09	2332.55	91.56	2347.54	91.43
2352.53	91.87	2357.53	92.02	2367.52	92.14	2372.51	92.53	2377.51	92.72
2382.5	93.07	2387.5	93.23	2392.49	93.23	2402.48	92.79	2412.47	92.21
2422.46	92.1	2432.45	92.27	2442.44	92.15	2457.42	92.53	2472.41	92.52
2482.4	92.37	2487.39	92.37	2492.39	92.5	2497.38	92.84	2502.38	93.02
2517.36	93.11	2522.36	92.89	2537.34	92.84	2547.33	92.62	2552.33	92.63
2557.32	92.8	2567.31	92.95	2582.29	92.98	2587.29	92.8	2592.28	92.95
2607.27	93.08	2612.26	93.34	2617.26	93.34	2622.25	93.48	2627.25	94
2642.23	94.05	2647.23	93.77	2652.22	93.62	2657.22	93.6	2662.21	94.15
2682.19	93.92	2687.19	93.95						

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 1313.62 .04 1368.59 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 1313.62 1368.59 166 166 166 .1 .3
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 1313.62 92.47 F
 1368.59 2687.19 94.24 F

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft) 84.93 Element Left OB Channel
 Right OB
 Vel Head (ft) 0.00 wt. n-val. 0.040
 W.S. Elev (ft) 84.93 Reach Len. (ft) 166.00 166.00
 166.00

NM103 OUTPUT REPORT.TXT				
Crit w.s. (ft)	81.50	Flow Area (sq ft)		77.05
E.G. Slope (ft/ft)	0.000005	Area (sq ft)		77.05
Q Total (cfs)	12.00	Flow (cfs)		12.00
Top width (ft)	26.96	Top width (ft)		26.96
Vel Total (ft/s)	0.16	Avg. Vel. (ft/s)		0.16
Max Chl Dpth (ft)	3.86	Hydr. Depth (ft)		2.86
Conv. Total (cfs)	5510.8	Conv. (cfs)		5510.8
Length wtd. (ft)	166.00	wetted Per. (ft)		28.84
Min Ch El (ft)	81.07	Shear (lb/sq ft)		0.00
Alpha	1.00	Stream Power (lb/ft s)	2687.19	0.00
0.00				
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		15.82
C & E Loss (ft)	0.00	Cum SA (acres)		5.55

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	85.59	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-Val.		0.040
W.S. Elev (ft)	85.59	Reach Len. (ft)	166.00	166.00
166.00				
Crit w.s. (ft)	81.56	Flow Area (sq ft)		95.51
E.G. Slope (ft/ft)	0.000005	Area (sq ft)		95.51
Q Total (cfs)	16.00	Flow (cfs)		16.00
Top width (ft)	28.59	Top width (ft)		28.59
Vel Total (ft/s)	0.17	Avg. Vel. (ft/s)		0.17
Max Chl Dpth (ft)	4.52	Hydr. Depth (ft)		3.34
Conv. Total (cfs)	7522.3	Conv. (cfs)		7522.3
Length wtd. (ft)	166.00	wetted Per. (ft)		30.94
Min Ch El (ft)	81.07	Shear (lb/sq ft)		0.00
Alpha	1.00	Stream Power (lb/ft s)	2687.19	0.00
0.00				
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		19.44
C & E Loss (ft)	0.00	Cum SA (acres)		5.96

NM103 OUTPUT REPORT.TXT

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	86.97	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-val.		0.040
W.S. Elev (ft)	86.97	Reach Len. (ft)	166.00	166.00
166.00 Crit w.s. (ft)	81.72	Flow Area (sq ft)		137.29
E.G. Slope (ft/ft)	0.000005	Area (sq ft)		137.29
Q Total (cfs)	28.00	Flow (cfs)		28.00
Top width (ft)	31.96	Top width (ft)		31.96
Vel Total (ft/s)	0.20	Avg. Vel. (ft/s)		0.20
Max Chl Dpth (ft)	5.90	Hydr. Depth (ft)		4.30
Conv. Total (cfs)	12611.8	Conv. (cfs)		12611.8
Length wtd. (ft)	166.00	wetted Per. (ft)		35.30
Min Ch El (ft)	81.07	Shear (lb/sq ft)		0.00
Alpha	1.00	Stream Power (lb/ft s)	2687.19	0.00
0.00 Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		28.25
C & E Loss (ft)	0.00	Cum SA (acres)		6.66

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	85.87	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-val.		0.040
W.S. Elev (ft)	85.87	Reach Len. (ft)	166.00	166.00
166.00 Crit w.s. (ft)	81.60	Flow Area (sq ft)		103.44
E.G. Slope (ft/ft)	0.000005	Area (sq ft)		103.44
Q Total (cfs)	19.00	Flow (cfs)		19.00
Top width (ft)	29.26	Top width (ft)		29.26
Vel Total (ft/s)	0.18	Avg. Vel. (ft/s)		0.18

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Max Chl Dpth (ft)	4.80	Hydr. Depth (ft)		3.54
Conv. Total (cfs)	8435.0	Conv. (cfs)		8435.0
Length wtd. (ft)	166.00	Wetted Per. (ft)		31.81
Min Ch El (ft)	81.07	Shear (lb/sq ft)		0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	2687.19	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		21.14
C & E Loss (ft)	0.00	Cum SA (acres)		6.14

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	86.53	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-Val.		0.040
W.S. Elev (ft)	86.52	Reach Len. (ft)	166.00	166.00
166.00 Crit w.s. (ft)	81.67	Flow Area (sq ft)		123.24
E.G. Slope (ft/ft)	0.000005	Area (sq ft)		123.24
Q Total (cfs)	24.00	Flow (cfs)		24.00
Top width (ft)	30.86	Top width (ft)		30.86
Vel Total (ft/s)	0.19	Avg. Vel. (ft/s)		0.19
Max Chl Dpth (ft)	5.45	Hydr. Depth (ft)		3.99
Conv. Total (cfs)	10826.8	Conv. (cfs)		10826.8
Length wtd. (ft)	166.00	Wetted Per. (ft)		33.89
Min Ch El (ft)	81.07	Shear (lb/sq ft)		0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	2687.19	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		25.34
C & E Loss (ft)	0.00	Cum SA (acres)		6.46

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

NM103 OUTPUT REPORT.TXT				
E.G. Elev (ft)	87.94	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	Wt. n-Val.		0.040
W.S. Elev (ft)	87.94	Reach Len. (ft)	166.00	166.00
166.00				
Crit w.s. (ft)	81.82	Flow Area (sq ft)		169.28
E.G. slope (ft/ft)	0.000005	Area (sq ft)		169.28
Q Total (cfs)	38.00	Flow (cfs)		38.00
Top width (ft)	34.31	Top width (ft)		34.31
Vel Total (ft/s)	0.22	Avg. Vel. (ft/s)		0.22
Max Chl Dpth (ft)	6.87	Hydr. Depth (ft)		4.93
Conv. Total (cfs)	16920.2	Conv. (cfs)		16920.2
Length wtd. (ft)	166.00	Wetted Per. (ft)		38.35
Min Ch El (ft)	81.07	Shear (lb/sq ft)		0.00
Alpha	1.00	Stream Power (lb/ft s)	2687.19	0.00
0.00				
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		35.18
C & E Loss (ft)	0.00	Cum SA (acres)		7.12

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-103
 REACH: NM-103 RS: 9510

INPUT
 Description:

Station Elevation Data num= 248									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	92.37	9.99	92.45	19.98	92.82	24.97	92.68	29.97	92.65
34.96	92.34	39.96	92.14	44.95	91.79	54.94	91.66	64.93	91.94
69.93	92.32	74.92	92.32	79.92	92.55	84.91	92.97	94.9	92.98
99.9	93.07	114.88	93.06	119.87	92.37	124.87	92.26	129.86	92.4
134.86	92.42	139.85	92.23	149.84	92.18	159.83	92.24	164.83	92.57
179.81	92.62	189.8	92.41	199.79	92.45	214.77	92.85	224.76	92.9
239.75	92.52	254.73	92.49	269.72	92.3	289.7	91.64	294.69	91.31
304.68	91.03	334.65	91.1	354.63	91.66	359.62	91.95	374.61	91.94
419.56	92	424.55	91.88	434.54	92.06	469.51	92.02	474.5	91.92
499.47	91.89	504.47	91.4	509.46	91.36	514.46	91.64	524.45	91.45
529.44	91.48	539.43	91.9	554.42	92.14	564.41	92.13	574.4	92.37
594.37	92.38	609.36	92.58	619.35	92.52	649.32	92.78	654.31	92.76
664.3	92.61	674.29	92.68	679.29	92.84	684.28	93.28	689.27	93.22
694.27	92.65	699.26	92.4	704.26	92.01	729.23	91.73	749.21	91.91
754.21	92.23	764.2	92.19	769.19	92.02	779.18	91.87	784.17	91.9
789.17	92.07	799.16	92.22	804.15	92.2	809.15	92.53	814.14	92.46
819.14	92.22	829.13	92.18	834.12	92.06	844.11	92.1	849.11	92.43

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859.1	92.64	884.07	92.93	909.04	92.89	919.03	92.8	924.03	92.96
929.02	92.93	934.02	93.05	944.01	92.78	963.98	92.73	978.97	92.53
1003.94	92.51	1023.92	92.17	1038.91	92.24	1048.9	92.43	1053.89	92.45
1068.87	92.24	1088.85	92.07	1093.85	92.15	1103.84	92.16	1128.81	92.5
1138.8	92.49	1143.8	92.37	1153.79	92.38	1163.78	92.03	1173.76	91.9
1183.75	92.03	1188.75	92	1193.74	91.84	1208.73	91.97	1213.72	92.08
1218.72	92.06	1223.71	91.9	1243.69	91.93	1248.69	91.84	1263.67	91.84
1273.66	91.93	1288.64	91.72	1303.63	91.77	1308.62	91.58	1313.62	91.72
1328.6	91.63	1333.6	92.51	1338.59	94.18	1343.59	95.35	1348.58	95.61
1353.58	95.71	1354.86	95.37	1358.57	94.36	1363.57	90.23	1368.56	88.52
1378.55	81.67	1383.55	80.81	1388.54	80.87	1393.53	81.93	1398.53	84.94
1403.52	90.08	1404.86	91	1408.52	93.5	1413.51	94.11	1418.51	94.16
1423.5	94.5	1428.5	94.35	1433.49	93.94	1438.49	93.42	1443.48	92.41
1448.48	91.73	1463.46	91.28	1473.45	91.38	1483.44	91.37	1488.44	91.49
1523.4	91.49	1528.39	91.62	1543.38	91.61	1548.37	91.54	1583.34	91.75
1588.33	91.71	1598.32	91.85	1603.32	91.73	1613.3	91.71	1618.3	91.86
1633.28	91.75	1638.28	91.83	1643.27	91.7	1648.27	91.7	1658.26	91.87
1663.25	91.77	1693.22	91.67	1713.2	91.77	1718.2	91.73	1733.18	91.83
1758.15	91.75	1763.15	91.85	1798.11	91.77	1818.09	91.88	1848.06	91.9
1863.04	91.74	1878.03	91.96	1903	91.83	1932.97	91.82	1942.96	91.9
1947.95	92.06	1962.94	92.06	1977.92	91.97	2017.88	91.97	2027.87	92.12
2042.86	92.02	2047.85	92.07	2057.84	91.99	2087.81	92.03	2097.8	92.13
2107.79	92.04	2132.76	92.14	2142.75	92.08	2172.72	92.27	2182.71	92.16
2192.7	92.29	2202.69	92.21	2212.68	92.3	2217.67	92.22	2227.66	92.39
2237.65	92.32	2242.65	92.41	2262.63	92.27	2277.61	92.37	2287.6	92.26
2317.57	92.33	2322.56	92.26	2327.56	92.38	2342.54	92.34	2347.54	92.41
2377.51	92.29	2402.48	92.58	2407.48	92.5	2422.46	92.6	2427.46	92.48
2462.42	92.57	2467.41	92.5	2477.4	92.55	2487.39	92.42	2492.39	92.5
2507.37	92.39	2527.35	92.57	2547.33	92.44	2552.33	92.26	2557.32	92.32
2567.31	93.12	2572.3	93.39	2577.3	93.55	2582.29	93.46	2592.28	92.5
2597.28	92.35	2607.27	92.28	2612.26	92.32	2622.25	92.65	2627.25	92.73
2637.24	93.12	2647.23	93.38	2657.22	93.99	2662.21	93.98	2667.21	93.8
2672.2	93.73	2682.19	93.19	2687.19	93.05				

Manning's n Values	num=	3
Sta n Val Sta	n Val Sta n Val	
0 .06 1358.57	.04 1408.52	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.	Expan.
1358.57	1408.52	587	588	589		.1	.3
Ineffective Flow	num=	2					
Sta L Sta R Elev	Permanent						
0 1358.57 94.36	F						
1408.52 2687.19 93.5	F						

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	84.93	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-val.		0.040
W.S. Elev (ft)	84.93	Reach Len. (ft)	587.00	588.00
589.00				
Crit w.s. (ft)	81.31	Flow Area (sq ft)		71.61
E.G. Slope (ft/ft)	0.000005	Area (sq ft)		71.61
Q Total (cfs)	12.00	Flow (cfs)		12.00
Top width (ft)	24.71	Top width (ft)		24.71
Vel Total (ft/s)	0.17	Avg. Vel. (ft/s)		0.17

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Max Chl Dpth (ft)	4.12	Hydr. Depth (ft)	2.90
Conv. Total (cfs)	5130.4	Conv. (cfs)	5130.4
Length wtd. (ft)	588.00	wetted Per. (ft)	26.73
Min Ch El (ft)	80.81	Shear (lb/sq ft)	0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	2687.19
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	15.54
C & E Loss (ft)	0.00	Cum SA (acres)	5.46

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	85.59	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-Val.		0.040
W.S. Elev (ft)	85.59	Reach Len. (ft)	587.00	588.00
589.00 Crit w.s. (ft)	81.40	Flow Area (sq ft)		88.57
E.G. Slope (ft/ft)	0.000005	Area (sq ft)		88.57
Q Total (cfs)	16.00	Flow (cfs)		16.00
Top width (ft)	26.33	Top width (ft)		26.33
Vel Total (ft/s)	0.18	Avg. Vel. (ft/s)		0.18
Max Chl Dpth (ft)	4.78	Hydr. Depth (ft)		3.36
Conv. Total (cfs)	6951.7	Conv. (cfs)		6951.7
Length wtd. (ft)	588.00	wetted Per. (ft)		28.84
Min Ch El (ft)	80.81	Shear (lb/sq ft)		0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	2687.19	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		19.09
C & E Loss (ft)	0.00	Cum SA (acres)		5.86

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

NM103 OUTPUT REPORT.TXT				
		Element	Left OB	Channel
E.G. Elev (ft)	86.97			
Right OB				
Vel Head (ft)	0.00	wt. n-Val.		0.040
W.S. Elev (ft)	86.97	Reach Len. (ft)	587.00	588.00
589.00				
Crit w.s. (ft)	81.59	Flow Area (sq ft)		127.22
E.G. Slope (ft/ft)	0.000006	Area (sq ft)		127.22
Q Total (cfs)	28.00	Flow (cfs)		28.00
Top width (ft)	29.68	Top width (ft)		29.68
Vel Total (ft/s)	0.22	Avg. Vel. (ft/s)		0.22
Max Chl Dpth (ft)	6.16	Hydr. Depth (ft)		4.29
Conv. Total (cfs)	11571.0	Conv. (cfs)		11571.0
Length wtd. (ft)	588.00	wetted Per. (ft)		33.21
Min Ch El (ft)	80.81	Shear (lb/sq ft)		0.00
Alpha	1.00	Stream Power (lb/ft s)	2687.19	0.00
0.00				
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		27.75
C & E Loss (ft)	0.00	Cum SA (acres)		6.54

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

		Element	Left OB	Channel
E.G. Elev (ft)	85.87			
Right OB				
Vel Head (ft)	0.00	wt. n-Val.		0.040
W.S. Elev (ft)	85.87	Reach Len. (ft)	587.00	588.00
589.00				
Crit w.s. (ft)	81.45	Flow Area (sq ft)		95.88
E.G. Slope (ft/ft)	0.000006	Area (sq ft)		95.88
Q Total (cfs)	19.00	Flow (cfs)		19.00
Top width (ft)	27.00	Top width (ft)		27.00
Vel Total (ft/s)	0.20	Avg. Vel. (ft/s)		0.20
Max Chl Dpth (ft)	5.06	Hydr. Depth (ft)		3.55
Conv. Total (cfs)	7778.6	Conv. (cfs)		7778.6
Length wtd. (ft)	588.00	wetted Per. (ft)		29.71
Min Ch El (ft)	80.81	Shear (lb/sq ft)		0.00

NM103 OUTPUT REPORT.TXT				
Alpha	1.00	Stream Power (lb/ft s)	2687.19	0.00
0.00				
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		20.76
C & E Loss (ft)	0.00	Cum SA (acres)		6.03

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	86.52	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-Val.		0.040
W.S. Elev (ft)	86.52	Reach Len. (ft)	587.00	588.00
589.00				
Crit w.s. (ft)	81.53	Flow Area (sq ft)		114.19
E.G. Slope (ft/ft)	0.000006	Area (sq ft)		114.19
Q Total (cfs)	24.00	Flow (cfs)		24.00
Top width (ft)	28.60	Top width (ft)		28.60
Vel Total (ft/s)	0.21	Avg. Vel. (ft/s)		0.21
Max Chl Dpth (ft)	5.71	Hydr. Depth (ft)		3.99
Conv. Total (cfs)	9948.9	Conv. (cfs)		9948.9
Length wtd. (ft)	588.00	wetted Per. (ft)		31.79
Min Ch El (ft)	80.81	Shear (lb/sq ft)		0.00
Alpha	1.00	Stream Power (lb/ft s)	2687.19	0.00
0.00				
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		24.88
C & E Loss (ft)	0.00	Cum SA (acres)		6.34

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	87.94	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-Val.		0.040
W.S. Elev (ft)	87.94	Reach Len. (ft)	587.00	588.00
589.00				
Crit w.s. (ft)	81.73	Flow Area (sq ft)		157.01
E.G. slope (ft/ft)	0.000006	Area (sq ft)		157.01

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Q Total (cfs)	38.00	Flow (cfs)	38.00
Top width (ft)	32.03	Top width (ft)	32.03
Vel Total (ft/s)	0.24	Avg. Vel. (ft/s)	0.24
Max Chl Dpth (ft)	7.13	Hydr. Depth (ft)	4.90
Conv. Total (cfs)	15495.2	Conv. (cfs)	15495.2
Length wtd. (ft)	588.00	Wetted Per. (ft)	36.26
Min Ch El (ft)	80.81	Shear (lb/sq ft)	0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	2687.19
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	34.55
C & E Loss (ft)	0.00	Cum SA (acres)	7.00

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-103
 REACH: NM-103

RS: 8922

INPUT

Description:

Station Elevation Data	num=	255							
Sta Elev Sta Elev	Sta Elev	Sta Elev	Sta Elev	Sta Elev	Sta Elev	Sta Elev	Sta Elev	Sta Elev	Sta Elev
0 93.43 5 93.49	14.99	93.32	24.99	93.39	39.98	92.87			
44.98 92.78	54.97	92.81	74.96	92.75	79.96	92.82	89.95	93.22	
99.94 93.3	104.94	93.17	134.93	92.99	159.91	93.21	164.91	93.16	
174.9 92.72	184.9	92.69	194.89	92.49	199.89	92.53	209.88	92.79	
214.88 93.2	224.88	93.29	229.87	93.22	239.87	92.73	244.87	92.69	
274.85 92.71	279.85	92.84	284.84	92.7	319.82	93.07	324.82	92.8	
344.81 92.87	349.81	92.76	354.8	92.24	359.8	92.25	364.8	91.82	
369.8 91.8	374.79	91.93	379.79	91.96	394.78	92.71	414.77	92.81	
424.77 92.72	434.76	92.91	484.73	92.72	489.73	92.64	499.73	92.03	
519.71 91.64	529.71	91.69	534.71	91.81	544.7	92.39	559.69	92.79	
579.68 92.77	604.67	92.4	619.66	92.59	629.65	92.87	634.65	92.91	
639.65 92.81	649.64	92.33	659.64	92.03	664.63	91.53	669.63	91.51	
679.63 91.74	689.62	92.45	694.62	92.6	699.62	92.29	709.61	92.33	
719.6 92.49	724.6	92.47	729.6	92.33	744.59	92.43	749.59	92.55	
754.58 92.86	759.58	92.74	769.58	92.76	774.57	92.49	779.57	92.59	
789.57 92.55	794.56	92.78	809.55	92.72	814.55	92.6	819.55	92.8	
834.54 92.66	839.54	92.71	844.54	92.58	849.53	92.55	854.53	92.34	
874.52 92.16	879.52	92.18	884.51	92.06	919.49	92.08	934.49	92.31	
949.48 91.88	959.47	92	1004.45	91.85	1014.44	92.04	1029.43	92.16	
1039.43 92.06	1049.42	92.08	1059.42	92.3	1079.41	91.94	1089.4	91.99	
1094.4 92.12	1129.38	92.04	1139.37	92.3	1144.37	92.15	1149.37	91.86	
1159.36 91.75	1169.36	91.9	1174.35	91.9	1184.35	91.68	1189.35	91.85	
1199.34 91.93	1219.33	91.81	1224.33	91.9	1229.32	91.77	1234.32	91.89	
1264.31 91.99	1279.3	91.82	1284.29	91.89	1289.29	91.7	1304.28	91.98	
1309.28 91.88	1314.28	93.16	1319.28	92.29	1324.27	92.06	1329.27	92.06	
1334.27 94.36	1339.26	96.24	1344.26	96.65	1349.26	97.23	1354.26	96.77	

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1359.25	93.89	1360.7	93.52	1364.25	92.63	1369.25	88.76	1374.25	84.31
1379.24	81.11	1384.24	80.22	1389.24	80.21	1394.23	81.95	1399.23	86.26
1404.23	90.47	1409.23	91.84	1410.71	92.54	1414.22	94.21	1419.22	95.86
1424.22	96.18	1429.22	96.31	1434.21	95.61	1439.21	93.74	1444.21	92.33
1449.2	92.02	1504.17	91.88	1514.17	92.02	1529.16	92.01	1544.15	91.86
1554.15	92.08	1574.14	92.05	1589.13	91.84	1609.12	91.91	1619.11	91.86
1624.11	91.94	1634.1	91.92	1659.09	92.01	1664.09	91.86	1669.09	92.09
1699.07	91.86	1704.07	91.98	1709.06	91.86	1729.05	92.06	1734.05	91.91
1744.04	91.86	1759.04	91.98	1764.03	91.68	1769.03	92.01	1774.03	92.08
1779.03	91.94	1789.02	91.96	1794.02	91.84	1804.01	91.9	1809.01	91.82
1814.01	92	1829	91.99	1834	91.9	1838.99	92	1898.96	92.16
1908.95	91.87	1913.95	92.06	1938.94	92.22	1948.93	92.12	1973.92	92.31
1988.91	92.17	1993.91	92.29	1998.91	92.29	2008.9	92.14	2013.9	92.22
2023.89	92.09	2038.88	92.36	2043.88	92.34	2048.88	92.2	2058.87	92.13
2083.86	92.27	2088.86	92.37	2093.85	92.25	2108.84	92.22	2113.84	92.13
2118.84	92.38	2133.83	92.3	2138.83	92.38	2168.81	92.3	2188.8	92.45
2193.8	92.58	2203.79	92.39	2213.79	92.3	2223.78	92.51	2243.77	92.37
2263.76	92.42	2273.75	92.34	2278.75	92.48	2293.74	92.33	2298.74	92.47
2303.74	92.36	2343.71	92.35	2348.71	92.41	2358.71	92.26	2363.7	92.5
2368.7	92.61	2378.69	92.48	2393.69	92.4	2403.68	92.63	2423.67	92.46
2443.66	92.75	2453.65	92.56	2463.65	92.7	2473.64	92.53	2478.64	92.52
2488.63	92.68	2498.63	92.54	2503.62	92.66	2543.6	92.67	2553.6	92.63
2558.59	92.76	2578.58	92.65	2583.58	92.55	2588.58	92.73	2623.56	92.77
2628.55	92.64	2638.55	92.63	2648.54	93.41	2653.54	93.7	2658.54	93.86
2668.53	93.8	2673.53	93.45	2678.53	93.28	2683.52	93.27	2688.52	93.83

Manning's n Values
 Sta n Val Sta num= 3
 0 .06 1360.7 .04 1414.22 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 1360.7 1414.22 502 502 502 .1 .3
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 1360.7 93.52 F
 1414.22 2688.52 94.21 F

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	84.92	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-val.		0.040
W.S. Elev (ft)	84.92	Reach Len. (ft)	502.00	502.00
502.00				
Crit w.s. (ft)	80.70	Flow Area (sq ft)		80.40
E.G. Slope (ft/ft)	0.000004	Area (sq ft)		80.40
Q Total (cfs)	12.00	Flow (cfs)		12.00
Top width (ft)	24.12	Top width (ft)		24.12
Vel Total (ft/s)	0.15	Avg. vel. (ft/s)		0.15
Max Chl Dpth (ft)	4.71	Hydr. Depth (ft)		3.33
Conv. Total (cfs)	6217.9	Conv. (cfs)		6217.9
Length wtd. (ft)	502.00	wetted Per. (ft)		26.77
Min ch El (ft)	80.21	Shear (lb/sq ft)		0.00

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Alpha	1.00	Stream Power (lb/ft s)	2688.52	0.00
0.00				
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)		14.51
C & E Loss (ft)	0.00	Cum SA (acres)		5.13

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	85.59	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-val.		0.040
W.S. Elev (ft)	85.59	Reach Len. (ft)	502.00	502.00
502.00				
Crit w.s. (ft)	80.79	Flow Area (sq ft)		96.94
E.G. slope (ft/ft)	0.000004	Area (sq ft)		96.94
Q Total (cfs)	16.00	Flow (cfs)		16.00
Top width (ft)	25.64	Top width (ft)		25.64
vel Total (ft/s)	0.17	Avg. vel. (ft/s)		0.17
Max Chl Dpth (ft)	5.38	Hydr. Depth (ft)		3.78
Conv. Total (cfs)	8090.9	Conv. (cfs)		8090.9
Length Wtd. (ft)	502.00	wetted Per. (ft)		28.79
Min Ch El (ft)	80.21	Shear (lb/sq ft)		0.00
Alpha	1.00	Stream Power (lb/ft s)	2688.52	0.00
0.00				
Frctn Loss (ft)	0.02	Cum volume (acre-ft)		17.84
C & E Loss (ft)	0.00	Cum SA (acres)		5.51

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	86.97	Element	Left OB	Channel
Right OB				

NM103 OUTPUT REPORT.TXT				
Vel Head (ft)	0.00	wt. n-val.		0.040
W.S. Elev (ft)	86.97	Reach Len. (ft)	502.00	502.00
502.00 Crit w.s. (ft)	81.00	Flow Area (sq ft)		134.48
E.G. Slope (ft/ft)	0.000005	Area (sq ft)		134.48
Q Total (cfs)	28.00	Flow (cfs)		28.00
Top width (ft)	28.81	Top width (ft)		28.81
Vel Total (ft/s)	0.21	Avg. Vel. (ft/s)		0.21
Max Chl Dpth (ft)	6.76	Hydr. Depth (ft)		4.67
Conv. Total (cfs)	12748.9	Conv. (cfs)		12748.9
Length wtd. (ft)	502.00	wetted Per. (ft)		32.99
Min Ch El (ft)	80.21	Shear (lb/sq ft)		0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	2688.52	0.00
Frctn Loss (ft)	0.03	Cum volume (acre-ft)		25.98
C & E Loss (ft)	0.00	Cum SA (acres)		6.15

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	85.86	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-val.		0.040
W.S. Elev (ft)	85.86	Reach Len. (ft)	502.00	502.00
502.00 Crit w.s. (ft)	80.85	Flow Area (sq ft)		104.04
E.G. Slope (ft/ft)	0.000005	Area (sq ft)		104.04
Q Total (cfs)	19.00	Flow (cfs)		19.00
Top width (ft)	26.26	Top width (ft)		26.26
Vel Total (ft/s)	0.18	Avg. Vel. (ft/s)		0.18
Max Chl Dpth (ft)	5.65	Hydr. Depth (ft)		3.96
Conv. Total (cfs)	8931.7	Conv. (cfs)		8931.7
Length wtd. (ft)	502.00	wetted Per. (ft)		29.62
Min Ch El (ft)	80.21	Shear (lb/sq ft)		0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	2688.52	0.00

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Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	19.41
C & E Loss (ft)	0.00	Cum SA (acres)	5.67

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	86.52	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-val.		0.040
W.S. Elev (ft)	86.52	Reach Len. (ft)	502.00	502.00
502.00 Crit w.s. (ft)	80.94	Flow Area (sq ft)		121.84
E.G. slope (ft/ft)	0.000005	Area (sq ft)		121.84
Q Total (cfs)	24.00	Flow (cfs)		24.00
Top width (ft)	27.77	Top width (ft)		27.77
vel Total (ft/s)	0.20	Avg. vel. (ft/s)		0.20
Max chl Dpth (ft)	6.31	Hydr. Depth (ft)		4.39
Conv. Total (cfs)	11123.7	Conv. (cfs)		11123.7
Length wtd. (ft)	502.00	wetted Per. (ft)		31.62
Min Ch El (ft)	80.21	Shear (lb/sq ft)		0.00
Alpha	1.00	Stream Power (lb/ft s)	2688.52	0.00
0.00 Frctn Loss (ft)	0.03	Cum volume (acre-ft)		23.29
C & E Loss (ft)	0.00	Cum SA (acres)		5.96

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	87.93	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-val.		0.040
W.S. Elev (ft)	87.93	Reach Len. (ft)	502.00	502.00
502.00 Crit w.s. (ft)	81.15	Flow Area (sq ft)		163.37

NM103 OUTPUT REPORT.TXT

E.G. Slope (ft/ft)	0.000005	Area (sq ft)	163.37
Q Total (cfs)	38.00	Flow (cfs)	38.00
Top width (ft)	31.04	Top width (ft)	31.04
Vel Total (ft/s)	0.23	Avg. Vel. (ft/s)	0.23
Max Ch1 Dpth (ft)	7.72	Hydr. Depth (ft)	5.26
Conv. Total (cfs)	16653.4	Conv. (cfs)	16653.4
Length wtd. (ft)	502.00	wetted Per. (ft)	35.94
Min ch El (ft)	80.21	Shear (lb/sq ft)	0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	2688.52
Frctn Loss (ft)	0.03	cum volume (acre-ft)	32.39
C & E Loss (ft)	0.00	Cum SA (acres)	6.57

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-103
REACH: NM-103

RS: 8419

INPUT

Description:

Station Elevation Data		num= 291							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	92.75	9.99	92.79	19.99	92.63	29.98	92.72	34.98	93.19
39.98	93.55	49.97	93.6	59.97	93.51	69.96	93.36	74.96	93.05
84.95	92.86	94.95	92.95	124.93	92.73	154.91	93.01	164.91	93
184.9	92.37	189.9	92.42	209.88	93	219.88	93.07	229.87	92.9
244.87	93.09	264.85	93.08	274.85	92.97	304.83	92.98	314.83	92.84
349.81	93	359.8	93.26	369.8	93.38	374.79	93.33	384.79	92.83
389.79	92.66	399.78	92.65	404.78	92.93	409.77	93.07	419.77	93.02
454.75	93.21	464.74	93.09	469.74	93.2	479.74	93.09	484.73	93.16
489.73	93.02	504.72	93.16	519.71	93.06	524.71	92.93	529.71	93.06
539.7	92.93	549.7	93.19	564.69	93.31	569.69	93.14	574.68	93.33
584.68	93.27	594.67	93.07	624.66	93.05	629.65	93.22	639.65	93.3
649.64	93.2	654.64	93.28	659.64	93.26	669.63	92.98	679.63	92.85
684.62	92.63	689.62	92.52	709.61	92.66	719.6	93.21	724.6	93.04
729.6	92.57	734.6	92.24	744.59	92.53	754.58	92.21	759.58	92.25
769.58	92.46	774.57	92.48	784.57	92.39	794.56	92.58	799.56	92.58
804.56	92.41	814.55	92.54	824.55	92.45	839.54	92.61	849.53	92.59
854.53	92.69	859.53	92.98	864.52	92.74	879.52	92.58	884.51	92.38
904.5	92.24	914.5	92	919.49	91.99	934.49	92.2	949.48	92.1
954.47	92.19	969.47	92.01	974.46	92.24	989.46	92.26	999.45	92.1
1009.44	92.08	1014.44	92.2	1029.43	92.15	1034.43	92.3	1039.43	92.92
1049.42	93.25	1059.42	92.56	1074.41	92.36	1094.4	92.28	1109.39	92.55
1114.39	92.53	1119.38	92.39	1134.38	92.63	1154.37	92.43	1164.36	92.91
1169.36	92.89	1189.35	92.18	1194.34	92.09	1234.32	92.39	1244.32	92.23
1284.29	92.35	1304.28	92.46	1309.28	92.34	1319.28	92.57	1329.27	92.56
1334.27	92.72	1339.26	93.17	1344.26	93.11	1349.26	92.82	1354.26	92.14

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1359.25	93.61	1364.25	95.25	1369.25	95.43	1374.25	96.64	1379.24	96.97
1384.24	95.11	1389.24	94.77	1390.43	93.89	1394.23	91.13	1399.23	86.75
1404.23	81.5	1409.23	81.48	1414.22	81.34	1419.22	81.91	1424.22	85.28
1429.22	85.42	1434.21	89.93	1439.21	93.82	1440.45	94.24	1444.21	95.53
1449.2	95.83	1454.2	95.89	1459.2	95.61	1464.2	94.21	1469.19	92.92
1474.19	92.81	1479.19	91.93	1489.18	91.72	1499.18	91.6	1504.17	91.67
1514.17	91.54	1519.17	91.7	1524.16	91.63	1544.15	91.72	1554.15	91.6
1589.13	92	1609.12	91.81	1634.1	91.96	1644.1	91.81	1679.08	91.78
1694.07	91.87	1709.06	91.78	1719.06	91.93	1729.05	91.73	1744.04	91.88
1749.04	91.77	1759.04	91.98	1779.03	91.9	1784.02	91.72	1794.02	91.69
1804.01	92.11	1809.01	91.91	1814.01	91.83	1824	91.96	1829	91.78
1834	92.38	1838.99	92.32	1848.99	91.89	1853.98	92.04	1858.98	92
1863.98	91.8	1868.98	91.96	1873.97	92.34	1883.97	92.19	1888.97	92.03
1893.96	92.15	1898.96	91.82	1908.95	91.86	1913.95	91.77	1918.95	92.15
1923.95	92.16	1928.94	91.82	1933.94	92.29	1943.94	92.21	1953.93	91.86
1963.92	91.85	1973.92	92.18	1978.92	92.02	1993.91	92.01	1998.91	91.8
2003.9	92.07	2008.9	92.2	2013.9	92.44	2023.89	92.26	2028.89	92.04
2038.88	91.97	2043.88	92.03	2048.88	92.28	2058.87	92.32	2068.87	92.02
2083.86	91.96	2088.86	92.03	2093.85	91.95	2103.85	92.23	2113.84	92.09
2123.84	92.29	2128.83	92.18	2143.83	92.04	2153.82	92.23	2163.81	92.08
2178.81	92.1	2183.8	92.19	2188.8	92.42	2193.8	92.38	2198.79	92.17
2203.79	92.16	2208.79	92.55	2213.79	92.6	2218.78	92.55	2223.78	92.2
2228.78	92.06	2238.77	92.4	2243.77	92.32	2253.76	92.73	2258.76	92.7
2263.76	92.34	2273.75	92.43	2283.75	92.25	2288.74	92.41	2293.74	92.23
2303.74	92.37	2308.73	92.55	2323.72	92.43	2328.72	92.29	2338.72	92.21
2343.71	92.25	2348.71	92.55	2353.71	92.22	2358.71	92.44	2363.7	92.4
2368.7	92.46	2373.7	92.75	2378.69	92.36	2383.69	92.36	2388.69	92.13
2398.68	92.42	2403.68	92.41	2408.68	92.74	2413.67	92.52	2418.67	92.4
2423.67	92.41	2428.67	92.24	2433.66	92.62	2438.66	92.69	2443.66	92.41
2448.66	92.38	2453.65	92.54	2458.65	92.48	2468.64	92.64	2488.63	92.36
2508.62	92.52	2518.62	92.35	2563.59	92.56	2578.58	92.4	2593.57	92.65
2603.57	92.37	2608.57	92.54	2613.56	92.6	2618.56	92.52	2648.54	92.77
2658.54	92.72	2663.53	92.88	2668.53	93.23	2673.53	93.4	2683.52	93.45
2688.52	93.39								

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 1389.24 .04 1444.21 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 1389.24 1444.21 444 444 444 .1 .3
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 1389.24 94.77 F
 1444.21 2688.52 95.53 F

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	84.90	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	wt. n-val.		0.040
w.s. Elev (ft)	84.89	Reach Len. (ft)	444.00	444.00
444.00				
Crit w.s. (ft)	82.26	Flow Area (sq ft)		62.74
E.G. slope (ft/ft)	0.000170	Area (sq ft)		62.74
Q Total (cfs)	56.00	Flow (cfs)		56.00
Top width (ft)	22.64	Top width (ft)		22.64

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Vel Total (ft/s)	0.89	Avg. Vel. (ft/s)	0.89
Max Chl Dpth (ft)	3.55	Hydr. Depth (ft)	2.77
Conv. Total (cfs)	4299.9	Conv. (cfs)	4299.9
Length wtd. (ft)	444.00	wetted Per. (ft)	25.04
Min Ch El (ft)	81.34	Shear (lb/sq ft)	0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	2688.52
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	13.68
C & E Loss (ft)	0.00	Cum SA (acres)	4.86

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	85.56	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-val.		0.040
W.S. Elev (ft)	85.55	Reach Len. (ft)	444.00	444.00
444.00 Crit w.s. (ft)	82.45	Flow Area (sq ft)		79.09
E.G. slope (ft/ft)	0.000215	Area (sq ft)		79.09
Q Total (cfs)	79.00	Flow (cfs)		79.00
Top width (ft)	28.98	Top width (ft)		28.98
Vel Total (ft/s)	1.00	Avg. Vel. (ft/s)		1.00
Max Chl Dpth (ft)	4.21	Hydr. Depth (ft)		2.73
Conv. Total (cfs)	5389.6	Conv. (cfs)		5389.6
Length wtd. (ft)	444.00	wetted Per. (ft)		31.83
Min Ch El (ft)	81.34	Shear (lb/sq ft)		0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	2688.52	0.00
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)		16.82
C & E Loss (ft)	0.00	Cum SA (acres)		5.19

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

NM103 OUTPUT REPORT.TXT

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	86.94	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-val.		0.040
W.S. Elev (ft)	86.92	Reach Len. (ft)	444.00	444.00
444.00 Crit w.s. (ft)	82.86	Flow Area (sq ft)		120.85
E.G. slope (ft/ft)	0.000184	Area (sq ft)		120.85
Q Total (cfs)	137.00	Flow (cfs)		137.00
Top width (ft)	31.84	Top width (ft)		31.84
vel Total (ft/s)	1.13	Avg. vel. (ft/s)		1.13
Max Chl Dpth (ft)	5.58	Hydr. Depth (ft)		3.79
Conv. Total (cfs)	10101.3	Conv. (cfs)		10101.3
Length wtd. (ft)	444.00	wetted Per. (ft)		35.80
Min Ch El (ft)	81.34	Shear (lb/sq ft)		0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	2688.52	0.00
Frctn Loss (ft)	0.06	Cum volume (acre-ft)		24.51
C & E Loss (ft)	0.00	Cum SA (acres)		5.80

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	85.84	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-val.		0.040
W.S. Elev (ft)	85.82	Reach Len. (ft)	444.00	444.00
444.00 Crit w.s. (ft)	82.53	Flow Area (sq ft)		87.06
E.G. slope (ft/ft)	0.000204	Area (sq ft)		87.06
Q Total (cfs)	89.00	Flow (cfs)		89.00
Top width (ft)	29.55	Top width (ft)		29.55
vel Total (ft/s)	1.02	Avg. vel. (ft/s)		1.02
Max Chl Dpth (ft)	4.48	Hydr. Depth (ft)		2.95

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Conv. Total (cfs)	6223.7	Conv. (cfs)	6223.7
Length wtd. (ft)	444.00	wetted Per. (ft)	32.62
Min Ch El (ft)	81.34	Shear (lb/sq ft)	0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	2688.52
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)	18.31
C & E Loss (ft)	0.00	Cum SA (acres)	5.35

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	86.49	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-val.		0.040
W.S. Elev (ft)	86.48	Reach Len. (ft)	444.00	444.00
444.00 Crit w.s. (ft)	82.71	Flow Area (sq ft)		106.90
E.G. slope (ft/ft)	0.000189	Area (sq ft)		106.90
Q Total (cfs)	116.00	Flow (cfs)		116.00
Top width (ft)	30.90	Top width (ft)		30.90
Vel Total (ft/s)	1.09	Avg. vel. (ft/s)		1.09
Max Chl Dpth (ft)	5.14	Hydr. Depth (ft)		3.46
Conv. Total (cfs)	8439.7	Conv. (cfs)		8439.7
Length wtd. (ft)	444.00	wetted Per. (ft)		34.50
Min Ch El (ft)	81.34	Shear (lb/sq ft)		0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	2688.52	0.00
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)		21.97
C & E Loss (ft)	0.00	Cum SA (acres)		5.62

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

NM103 OUTPUT REPORT.TXT

E.G. Elev (ft)	87.91	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	wt. n-val.		0.040
W.S. Elev (ft)	87.88	Reach Len. (ft)	444.00	444.00
444.00				
Crit W.S. (ft)	83.14	Flow Area (sq ft)		152.54
E.G. slope (ft/ft)	0.000169	Area (sq ft)		152.54
Q Total (cfs)	184.00	Flow (cfs)		184.00
Top width (ft)	34.01	Top width (ft)		34.01
Vel Total (ft/s)	1.21	Avg. vel. (ft/s)		1.21
Max Chl Dpth (ft)	6.54	Hydr. Depth (ft)		4.49
Conv. Total (cfs)	14140.3	Conv. (cfs)		14140.3
Length wtd. (ft)	444.00	wetted Per. (ft)		38.70
Min Ch El (ft)	81.34	Shear (lb/sq ft)		0.04
Alpha	1.00	Stream Power (lb/ft s)	2688.52	0.00
0.00				
Frctn Loss (ft)	0.06	Cum volume (acre-ft)		30.57
C & E Loss (ft)	0.00	Cum SA (acres)		6.20

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-103
 REACH: NM-103

RS: 7975

INPUT

Description:

Station	Elevation	Data	num=	256	Sta	Elev	Sta	Elev	Sta	Elev
0	92.85	9.98	93.15	24.96	93.29	39.93	93.2	49.92	92.62	
54.91	92.52	59.9	92.28	64.89	91.91	69.88	91.66	84.86	91.42	
89.85	91.49	109.82	91.31	139.77	91.43	149.75	91.27	189.69	91.13	
194.68	91.25	204.66	91.01	219.64	91.2	224.63	91.04	234.61	91.12	
299.51	91.08	304.5	90.92	309.49	91.05	314.48	91.07	319.47	90.97	
324.47	90.98	329.46	90.88	354.42	90.8	359.41	90.7	369.39	90.75	
374.38	90.9	379.38	90.94	384.37	90.84	389.36	90.84	394.35	90.95	
409.33	90.9	414.32	90.73	444.27	90.81	454.25	91.04	464.24	91.01	
474.22	91.09	484.2	90.85	489.2	90.92	494.19	91.09	499.18	91.16	
514.15	91.11	549.1	91.26	559.08	91.14	574.06	91.18	579.05	91.27	
594.02	91.1	618.98	91.85	623.97	91.55	628.96	91.67	643.94	91.73	
653.92	91.41	663.91	91.3	668.9	91.17	678.88	91.28	683.87	91.49	
688.87	91.37	693.86	91.44	713.83	91.49	723.81	91.46	733.79	91.49	
738.78	91.37	743.78	91.37	748.77	91.27	753.76	91.53	758.75	91.38	
763.74	91.37	768.73	91.5	773.73	91.44	778.72	91.57	783.71	91.59	
788.7	91.36	793.69	91.27	798.69	91.71	803.68	91.76	808.67	92.16	

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813.66	92.39	818.65	92.32	823.64	92.45	838.62	92.52	853.59	92.48
863.58	92.27	878.55	92.2	888.54	92.39	893.53	92.59	903.51	92.58
913.5	92.36	918.49	92.46	928.47	93.18	943.45	93.62	953.43	93.7
963.41	93.6	1033.3	94.04	1068.24	93.68	1078.23	93.21	1083.22	93.12
1098.19	92.26	1118.16	92.5	1123.15	92.41	1128.14	92.44	1133.14	92.63
1138.13	92.95	1143.12	93.14	1148.11	93.19	1153.1	93.51	1163.09	93.74
1173.07	93.71	1178.06	93.82	1218	93.44	1232.97	93.44	1237.96	93.37
1242.96	93.1	1252.94	92.98	1257.93	92.79	1292.87	93.16	1297.86	93.74
1302.86	96.26	1307.85	97.08	1312.84	100.1	1317.83	101.89	1322.82	102.21
1327.82	102.25	1332.81	101.38	1334.45	100.48	1337.8	98.63	1342.79	93.2
1347.78	90.68	1352.77	86.27	1357.77	81.75	1362.76	80.24	1372.74	80.79
1377.73	82.75	1382.73	87.57	1384.46	89.55	1387.72	93.25	1392.71	95.85
1397.7	96.02	1402.69	95.71	1407.68	94.45	1412.68	93.58	1417.67	93.11
1422.66	92.49	1432.64	91.99	1447.62	91.78	1452.61	91.92	1457.6	92.16
1467.59	92.4	1487.55	91.91	1492.54	91.96	1512.51	91.9	1517.5	91.76
1527.49	91.78	1532.48	91.89	1542.46	91.64	1552.45	91.63	1557.44	91.74
1562.43	91.6	1577.41	91.54	1592.38	91.65	1612.35	91.58	1617.34	91.76
1622.33	91.67	1627.32	91.9	1632.32	91.9	1637.31	91.8	1652.28	91.72
1662.27	91.8	1672.25	91.71	1677.24	91.86	1697.21	91.79	1702.2	91.92
1707.19	91.75	1737.14	91.89	1742.14	91.85	1752.12	91.99	1762.1	91.99
1767.09	92.18	1777.08	92.09	1797.04	92.24	1822	92.09	1856.95	92.1
1881.91	92.13	1891.89	92.07	1896.88	92.17	1926.83	92	1946.8	92.24
1951.79	92.2	1956.78	92.06	1981.74	92.04	2001.71	92.37	2006.7	92.52
2021.68	92.35	2026.67	92.49	2041.64	92.51	2046.64	92.34	2061.61	92.41
2066.6	92.51	2071.59	92.22	2076.59	92.13	2081.58	92.16	2086.57	92.07
2091.56	92.08	2096.55	91.95	2106.54	91.96	2131.5	92.15	2136.49	92.27
2146.47	92.22	2151.46	92.28	2156.45	92.16	2171.43	92.31	2186.4	92.13
2191.4	92.22	2206.37	92.28	2211.36	92.16	2221.35	92.38	2236.32	92.51
2251.3	92.26	2256.29	92.37	2276.26	92.25	2281.25	92.31	2301.22	91.96
2316.19	91.89	2321.18	91.8	2336.16	92.09	2346.14	92.57	2356.12	92.82
2381.08	92.9	2401.05	92.86	2411.03	93.03	2421.02	92.92	2431	92.49
2435.99	92.37	2445.98	92.44	2450.97	92.55	2465.94	92.4	2470.94	92.24
2490.9	92.25	2520.85	92.15	2525.85	92.3	2535.83	92.23	2545.81	92.58
2550.8	92.56	2555.8	92.74	2590.74	93	2615.7	92.9	2620.69	92.75
2630.67	92.62	2650.64	92.64	2660.62	92.87	2675.6	92.98	2685.58	92.56
2690.57	92.52								

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 1337.8 .04 1392.71 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 1337.8 1392.71 951 950 949 .1 .3
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 1337.8 98.63 F
 1392.71 2690.57 95.85 F

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	84.85	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-val.		0.040
W.S. Elev (ft)	84.85	Reach Len. (ft)	951.00	950.00
949.00 Crit w.s. (ft)	81.39	Flow Area (sq ft)		85.39
E.G. slope (ft/ft)	0.000071	Area (sq ft)		85.39
Q Total (cfs)	56.00	Flow (cfs)		56.00

NM103 OUTPUT REPORT.TXT				
Top width (ft)	25.56	Top width (ft)		25.56
Vel Total (ft/s)	0.66	Avg. Vel. (ft/s)		0.66
Max Chl Dpth (ft)	4.61	Hydr. Depth (ft)		3.34
Conv. Total (cfs)	6638.1	Conv. (cfs)		6638.1
Length wtd. (ft)	950.00	wetted Per. (ft)		28.21
Min Ch El (ft)	80.24	Shear (lb/sq ft)		0.01
Alpha 0.00	1.00	Stream Power (lb/ft s)	2690.57	0.00
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)		12.93
C & E Loss (ft)	0.00	Cum SA (acres)		4.61

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	85.50	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.040
W.S. Elev (ft)	85.49	Reach Len. (ft)	951.00	950.00
949.00 Crit w.s. (ft)	81.60	Flow Area (sq ft)		102.40
E.G. Slope (ft/ft)	0.000084	Area (sq ft)		102.40
Q Total (cfs)	79.00	Flow (cfs)		79.00
Top width (ft)	26.95	Top width (ft)		26.95
Vel Total (ft/s)	0.77	Avg. Vel. (ft/s)		0.77
Max Chl Dpth (ft)	5.25	Hydr. Depth (ft)		3.80
Conv. Total (cfs)	8603.1	Conv. (cfs)		8603.1
Length wtd. (ft)	950.00	wetted Per. (ft)		30.11
Min Ch El (ft)	80.24	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	2690.57	0.00
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)		15.90
C & E Loss (ft)	0.00	Cum SA (acres)		4.91

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	86.88	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.		0.040
W.S. Elev (ft)	86.86	Reach Len. (ft)	951.00	950.00
949.00 Crit w.s. (ft)	82.02	Flow Area (sq ft)		141.33
E.G. Slope (ft/ft)	0.000102	Area (sq ft)		141.33
Q Total (cfs)	137.00	Flow (cfs)		137.00
Top width (ft)	29.90	Top width (ft)		29.90
Vel Total (ft/s)	0.97	Avg. Vel. (ft/s)		0.97
Max Chl Dpth (ft)	6.62	Hydr. Depth (ft)		4.73
Conv. Total (cfs)	13537.2	Conv. (cfs)		13537.2
Length wtd. (ft)	950.00	wetted Per. (ft)		34.14
Min Ch El (ft)	80.24	Shear (lb/sq ft)		0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	2690.57	0.00
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)		23.18
C & E Loss (ft)	0.00	Cum SA (acres)		5.48

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	85.78	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.		0.040
W.S. Elev (ft)	85.77	Reach Len. (ft)	951.00	950.00
949.00 Crit w.s. (ft)	81.69	Flow Area (sq ft)		109.81
E.G. Slope (ft/ft)	0.000088	Area (sq ft)		109.81
Q Total (cfs)	89.00	Flow (cfs)		89.00
Top width (ft)	27.53	Top width (ft)		27.53
Vel Total (ft/s)	0.81	Avg. Vel. (ft/s)		0.81
Max Chl Dpth (ft)	5.53	Hydr. Depth (ft)		3.99
Conv. Total (cfs)	9498.4	Conv. (cfs)		9498.4
Length wtd. (ft)	950.00	wetted Per. (ft)		30.91

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Min Ch El (ft)	80.24	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	2690.57	0.00
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)		17.31
C & E Loss (ft)	0.00	Cum SA (acres)		5.06

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	86.43	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.040
W.S. Elev (ft)	86.42	Reach Len. (ft)	951.00	950.00
949.00 Crit w.s. (ft)	81.88	Flow Area (sq ft)		128.30
E.G. Slope (ft/ft)	0.000096	Area (sq ft)		128.30
Q Total (cfs)	116.00	Flow (cfs)		116.00
Top width (ft)	28.94	Top width (ft)		28.94
Vel Total (ft/s)	0.90	Avg. Vel. (ft/s)		0.90
Max Chl Dpth (ft)	6.18	Hydr. Depth (ft)		4.43
Conv. Total (cfs)	11824.7	Conv. (cfs)		11824.7
Length wtd. (ft)	950.00	wetted Per. (ft)		32.83
Min Ch El (ft)	80.24	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	2690.57	0.00
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)		20.77
C & E Loss (ft)	0.00	Cum SA (acres)		5.32

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	87.84	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-Val.		0.040
W.S. Elev (ft)	87.83	Reach Len. (ft)	951.00	950.00
949.00				

NM103 OUTPUT REPORT.TXT			
Crit w.s. (ft)	82.30	Flow Area (sq ft)	171.11
E.G. slope (ft/ft)	0.000109	Area (sq ft)	171.11
Q Total (cfs)	184.00	Flow (cfs)	184.00
Top width (ft)	31.95	Top width (ft)	31.95
Vel Total (ft/s)	1.08	Avg. Vel. (ft/s)	1.08
Max Chl Dpth (ft)	7.59	Hydr. Depth (ft)	5.36
Conv. Total (cfs)	17660.2	Conv. (cfs)	17660.2
Length wtd. (ft)	950.00	Wetted Per. (ft)	36.95
Min Ch El (ft)	80.24	Shear (lb/sq ft)	0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	2690.57
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)	28.92
C & E Loss (ft)	0.00	Cum SA (acres)	5.86

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-103
 REACH: NM-103 RS: 7025

INPUT
 Description:

Station Elevation Data num= 254									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	92.8	9.99	93.25	19.98	93.29	29.97	93.46	34.96	93.35
39.96	93.07	44.95	93	49.95	92.75	54.94	92.71	59.93	92.83
64.93	92.83	74.92	93.07	89.9	93.04	94.9	93.11	109.88	93.04
154.83	93.27	159.83	93.21	174.81	93.27	194.79	92.98	214.77	92.86
224.76	92.59	234.75	92.55	239.74	92.44	259.72	92.5	279.7	92.26
294.68	92.35	304.67	92.61	319.65	92.48	339.63	92.52	384.58	92.2
394.57	92.35	409.56	92.25	414.55	92.14	439.52	92.21	444.52	92.36
464.5	92.24	479.48	92.31	484.48	92.25	489.47	92.45	494.46	92.48
504.45	93.03	514.44	93.05	529.43	92.54	534.42	92.55	539.42	92.17
544.41	92.06	554.4	92.04	559.39	91.92	599.35	92	619.33	91.93
629.32	92.09	634.31	91.92	644.3	91.83	649.3	91.91	654.29	92.1
674.27	91.99	689.25	92.06	694.25	91.94	699.24	91.92	709.23	92.09
714.23	92.08	724.21	91.8	744.19	92.02	774.16	91.96	779.16	92.15
784.15	92.23	789.14	91.96	804.13	91.89	829.1	92.17	834.1	92.12
839.09	91.81	854.07	91.62	869.06	91.63	874.05	91.78	889.04	91.64
899.03	91.7	904.02	91.65	909.01	91.9	919	91.99	924	91.8
928.99	91.86	938.98	91.79	943.98	91.83	948.97	91.67	963.95	91.75
983.93	91.64	998.92	91.67	1003.91	91.85	1023.89	91.73	1033.88	91.92
1053.86	91.93	1063.85	92.01	1068.84	92.14	1078.83	91.67	1088.82	91.57
1093.81	91.41	1103.8	91.29	1108.8	91.33	1118.79	91.66	1138.77	91.74
1163.74	91.35	1168.73	91.45	1173.73	91.73	1178.72	91.84	1193.71	91.54
1213.68	91.66	1233.66	91.54	1243.65	91.33	1263.63	91.52	1268.62	91.73
1273.62	91.78	1278.61	91.99	1283.61	91.99	1288.6	92.48	1293.6	93.34

NM103 OUTPUT REPORT.TXT

1298.59	93.56	1303.59	94.8	1313.58	95.19	1318.57	95.05	1321.04	93.54
1323.57	92	1328.56	86.73	1333.55	81.18	1338.55	81.25	1343.54	81.02
1353.53	82.41	1358.53	82.36	1363.52	85.04	1368.52	89.26	1371.04	90.76
1373.51	92.22	1378.51	91.92	1383.5	91.84	1393.49	90.24	1398.48	89.93
1403.48	89.86	1408.47	89.59	1413.47	89.43	1423.46	89.37	1428.45	89.52
1448.43	89.38	1453.43	89.22	1468.41	89.27	1483.39	89.41	1538.33	89.45
1548.32	89.24	1558.31	89.31	1573.3	89.2	1598.27	89.18	1618.25	88.96
1633.23	88.63	1638.23	88.66	1648.21	88.88	1668.19	88.79	1678.18	88.98
1693.17	88.91	1698.16	89.14	1703.16	89.12	1713.14	88.78	1718.14	88.9
1728.13	88.9	1733.12	89.07	1758.1	89.11	1763.09	88.98	1768.08	88.98
1773.08	89.22	1788.06	89.16	1808.04	89.21	1818.03	89.07	1823.03	89.13
1828.02	89.33	1833.01	89.37	1838.01	89.22	1843	89.38	1857.99	89.2
1862.98	89.34	1867.98	89.8	1887.96	90.5	1897.94	90.68	1902.94	90.55
1912.93	90.66	1917.92	90.59	1927.91	90.84	1937.9	90.56	1942.9	90.58
1947.89	90.73	1952.88	90.78	1962.87	90.64	1967.87	90.77	1972.86	90.64
1977.86	90.35	1987.85	90.69	2002.83	90.72	2007.83	90.65	2012.82	90.8
2017.81	91.12	2022.81	91.25	2027.8	91.15	2032.8	90.92	2037.79	91.05
2047.78	91.05	2052.78	90.92	2057.77	90.63	2062.77	90.19	2072.76	90.1
2092.73	90.19	2102.72	90.75	2122.7	90.67	2127.7	90.44	2137.68	90.43
2147.67	90.72	2152.67	90.77	2157.66	90.99	2162.66	91.04	2167.65	90.76
2182.64	90.77	2187.63	90.69	2197.62	90.78	2202.61	90.72	2237.58	90.94
2247.57	90.81	2262.55	90.95	2312.49	91.11	2332.47	91.01	2372.43	91.54
2432.36	91.66	2437.36	91.73	2467.33	91.78	2477.32	91.55	2482.31	91.68
2487.3	91.67	2492.3	91.55	2497.29	91.65	2512.28	91.61	2522.27	91.7
2532.26	91.54	2537.25	91.6	2547.24	91.37	2552.23	91.37	2557.23	91.66
2562.22	91.79	2572.21	91.76	2582.2	92.12	2592.19	92.16	2597.18	91.89
2607.17	91.67	2622.16	91.53	2647.13	91.85	2652.12	92.36	2657.12	92.56
2667.11	92.72	2677.1	92.62	2687.09	92.35	2692.08	92.39		

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 1321.04 .04 1373.51 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 1321.04 1373.51 132 132 132 .1 .3
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 1321.04 93.54 F
 1373.51 2692.08 92.22 F

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	84.78	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	wt. n-val.		0.040
w.s. Elev (ft)	84.78	Reach Len. (ft)	132.00	132.00
132.00				
Crit w.s. (ft)	82.00	Flow Area (sq ft)		89.75
E.G. slope (ft/ft)	0.000080	Area (sq ft)		89.75
Q Total (cfs)	56.00	Flow (cfs)		56.00
Top width (ft)	32.71	Top width (ft)		32.71
Vel Total (ft/s)	0.62	Avg. Vel. (ft/s)		0.62
Max chl Dpth (ft)	3.76	Hydr. Depth (ft)		2.74
Conv. Total (cfs)	6243.0	Conv. (cfs)		6243.0

NM103 OUTPUT REPORT.TXT				
Length wtd. (ft)	132.00	Wetted Per. (ft)		35.02
Min Ch El (ft)	81.02	Shear (lb/sq ft)		0.01
Alpha 0.00	1.00	Stream Power (lb/ft s)	2692.08	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)		11.02
C & E Loss (ft)	0.00	Cum SA (acres)		3.98

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	85.42	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-val.		0.040
w.s. Elev (ft)	85.42	Reach Len. (ft)	132.00	132.00
132.00 Crit w.s. (ft)	82.19	Flow Area (sq ft)		111.20
E.G. slope (ft/ft)	0.000084	Area (sq ft)		111.20
Q Total (cfs)	79.00	Flow (cfs)		79.00
Top width (ft)	34.22	Top width (ft)		34.22
vel Total (ft/s)	0.71	Avg. vel. (ft/s)		0.71
Max Chl Dpth (ft)	4.40	Hydr. Depth (ft)		3.25
Conv. Total (cfs)	8598.8	Conv. (cfs)		8598.8
Length wtd. (ft)	132.00	Wetted Per. (ft)		37.02
Min Ch El (ft)	81.02	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	2692.08	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)		13.57
C & E Loss (ft)	0.00	Cum SA (acres)		4.24

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	86.79	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-val.		0.040
w.s. Elev (ft)	86.78	Reach Len. (ft)	132.00	132.00

NM103 OUTPUT REPORT.TXT

132.00			
Crit w.s. (ft)	82.59	Flow Area (sq ft)	159.74
E.G. slope (ft/ft)	0.000087	Area (sq ft)	159.74
Q Total (cfs)	137.00	Flow (cfs)	137.00
Top width (ft)	37.06	Top width (ft)	37.06
Vel Total (ft/s)	0.86	Avg. Vel. (ft/s)	0.86
Max Chl Dpth (ft)	5.76	Hydr. Depth (ft)	4.31
Conv. Total (cfs)	14699.5	Conv. (cfs)	14699.5
Length wtd. (ft)	132.00	wetted Per. (ft)	40.97
Min Ch El (ft)	81.02	Shear (lb/sq ft)	0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	2692.08
Frctn Loss (ft)	0.01	Cum volume (acre-ft)	19.89
C & E Loss (ft)	0.00	Cum SA (acres)	4.75

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	85.69	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-val.		0.040
w.s. Elev (ft)	85.69	Reach Len. (ft)	132.00	132.00
132.00 Crit w.s. (ft)	82.26	Flow Area (sq ft)		120.54
E.G. slope (ft/ft)	0.000084	Area (sq ft)		120.54
Q Total (cfs)	89.00	Flow (cfs)		89.00
Top width (ft)	34.79	Top width (ft)		34.79
Vel Total (ft/s)	0.74	Avg. Vel. (ft/s)		0.74
Max Chl Dpth (ft)	4.67	Hydr. Depth (ft)		3.46
Conv. Total (cfs)	9699.5	Conv. (cfs)		9699.5
Length wtd. (ft)	132.00	wetted Per. (ft)		37.81
Min Ch El (ft)	81.02	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	2692.08	0.00
Frctn Loss (ft)	0.01	Cum volume (acre-ft)		14.79
C & E Loss (ft)	0.00	Cum SA (acres)		4.38

NM103 OUTPUT REPORT.TXT

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	86.35	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-val.		0.040
W.S. Elev (ft)	86.34	Reach Len. (ft)	132.00	132.00
132.00 Crit w.s. (ft)	82.49	Flow Area (sq ft)		143.63
E.G. slope (ft/ft)	0.000085	Area (sq ft)		143.63
Q Total (cfs)	116.00	Flow (cfs)		116.00
Top width (ft)	36.14	Top width (ft)		36.14
vel Total (ft/s)	0.81	Avg. vel. (ft/s)		0.81
Max Chl Dpth (ft)	5.32	Hydr. Depth (ft)		3.97
Conv. Total (cfs)	12575.3	Conv. (cfs)		12575.3
Length wtd. (ft)	132.00	wetted Per. (ft)		39.69
Min Ch El (ft)	81.02	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	2692.08	0.00
Frctn Loss (ft)	0.01	Cum volume (acre-ft)		17.81
C & E Loss (ft)	0.00	Cum SA (acres)		4.61

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	87.75	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-val.		0.040
W.S. Elev (ft)	87.74	Reach Len. (ft)	132.00	132.00
132.00 Crit w.s. (ft)	82.80	Flow Area (sq ft)		196.34
E.G. slope (ft/ft)	0.000086	Area (sq ft)		196.34
Q Total (cfs)	184.00	Flow (cfs)		184.00
Top width (ft)	39.11	Top width (ft)		39.11

	NM103 OUTPUT REPORT.TXT		
Vel Total (ft/s)	0.94	Avg. Vel. (ft/s)	0.94
Max Chl Dpth (ft)	6.72	Hydr. Depth (ft)	5.02
Conv. Total (cfs)	19834.0	Conv. (cfs)	19834.0
Length wtd. (ft)	132.00	wetted Per. (ft)	43.78
Min Ch El (ft)	81.02	Shear (lb/sq ft)	0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	2692.08
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	24.91
C & E Loss (ft)	0.00	Cum SA (acres)	5.08

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-103
REACH: NM-103

RS: 6894

INPUT

Description:

Station	Elevation Data		num=	264					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	93.31	4.99	93.2	9.99	92.98	14.98	93.33	19.98	93.47
29.97	93.38	34.96	93.25	39.96	92.79	44.95	92.76	49.95	92.54
59.93	93.04	64.93	93.08	69.92	92.86	89.9	92.81	104.89	92.5
129.86	92.57	134.85	92.66	139.85	92.65	144.84	92.44	154.83	92.33
159.83	92.45	169.82	92.42	179.81	92.17	194.79	92	199.78	92.13
204.78	92.37	214.77	92.02	219.76	92.07	229.75	92.4	239.74	92.35
249.73	92.06	274.7	92.05	294.68	91.93	299.67	91.99	319.65	91.89
329.64	91.99	374.59	91.74	389.58	91.83	399.57	92.26	414.55	92.13
429.53	92.13	434.53	92.01	444.52	92.12	464.5	92.21	484.48	92.12
504.45	92.37	519.44	92.2	524.43	92.03	539.42	92.01	549.4	92.3
559.39	92.37	564.39	92.21	569.38	91.82	574.38	91.62	599.35	91.67
609.34	91.56	619.33	91.73	649.3	91.82	674.27	91.64	684.26	92.09
694.25	91.92	699.24	91.69	719.22	91.55	724.21	91.37	744.19	91.3
754.18	91.48	774.16	91.49	789.14	91.37	814.12	91.38	819.11	91.29
834.1	91.42	839.09	91.31	854.07	91.36	869.06	91.34	874.05	91.45
889.04	91.53	899.03	91.3	933.99	91.34	973.94	91.7	978.94	91.64
988.93	91.24	993.92	91.15	1043.87	91.31	1073.84	91.14	1083.82	91.28
1088.82	91.46	1128.78	91.2	1133.77	91.28	1143.76	91.14	1148.75	91.16
1158.74	91.37	1178.72	91.23	1203.7	91.28	1213.68	91.19	1218.68	91.28
1223.67	91.17	1243.65	91.16	1263.63	91.27	1268.62	91.37	1283.61	91.28
1288.6	91.35	1293.6	91.56	1298.59	91.6	1303.59	91.99	1308.58	92.98
1313.58	93	1318.57	92.9	1321.04	92.8	1323.57	92.7	1328.56	89.92
1333.55	84.82	1338.55	82.95	1343.54	81.27	1348.54	80.42	1353.53	80.62
1358.53	83.32	1363.52	84.74	1368.52	87.56	1371.04	89.29	1373.51	90.99
1378.51	92.05	1383.5	92	1388.5	91.55	1393.49	90.92	1398.48	90.43
1408.47	90.15	1423.46	90.19	1428.45	90.05	1433.45	89.7	1438.44	89.56
1443.44	89.66	1463.41	89.38	1473.4	89.44	1488.39	89.1	1493.38	89.07
1503.37	88.74	1508.37	88.69	1513.36	88.76	1523.35	89.1	1538.33	89.15
1548.32	88.65	1558.31	88.66	1568.3	88.32	1578.29	88.39	1588.28	88.71
1598.27	88.77	1608.26	88.45	1613.25	88.56	1618.25	88.56	1623.24	88.43
1633.23	88.48	1643.22	88.39	1648.21	88.26	1663.2	88.32	1668.19	88.42

NM103 OUTPUT REPORT.TXT

1673.19	88.71	1678.18	89.17	1683.18	89.27	1688.17	90.42	1693.17	90.92
1703.16	90.92	1713.14	91.07	1718.14	90.88	1723.13	90.49	1728.13	90.39
1738.12	89.34	1743.11	89.14	1753.1	89.16	1763.09	89.35	1778.07	89.5
1793.06	89.48	1803.05	89.7	1818.03	89.75	1823.03	89.84	1828.02	90.04
1848	90.34	1852.99	90.5	1862.98	90.48	1872.97	90.58	1882.96	90.4
1887.96	90.39	1902.94	90.08	1927.91	90.31	1942.9	89.98	1947.89	89.48
1957.88	89.6	1962.87	89.52	1967.87	89.05	1972.86	89.02	1977.86	89.35
1992.84	89.32	2002.83	89.51	2017.81	89.49	2022.81	89.68	2042.79	89.93
2047.78	89.93	2057.77	90.27	2067.76	90.26	2072.76	90.17	2082.74	90.21
2087.74	90.34	2092.73	90.64	2097.73	90.81	2102.72	90.86	2122.7	90.75
2127.7	91.01	2132.69	91.06	2142.68	90.97	2152.67	91.14	2162.66	90.84
2172.65	91.19	2182.64	91.1	2192.62	91.23	2197.62	91.19	2207.61	90.94
2227.59	90.94	2267.54	91.42	2272.54	91.34	2282.53	91.53	2287.52	91.36
2312.49	91.65	2317.49	91.61	2322.48	91.46	2337.47	91.59	2342.46	91.83
2352.45	92.1	2362.44	91.97	2367.43	91.83	2392.41	91.9	2407.39	92.12
2412.39	92.01	2422.38	92.09	2432.36	91.94	2437.36	91.77	2447.35	91.96
2452.34	92.16	2467.33	92.18	2472.32	92.33	2477.32	92.3	2482.31	92.46
2487.3	92.49	2492.3	92.35	2507.28	92.52	2517.27	92.53	2522.27	92.69
2532.26	92.6	2537.25	92.35	2542.24	92.33	2547.24	92.47	2552.23	92.49
2572.21	92.26	2582.2	92.41	2592.19	92.32	2602.18	92.71	2612.17	92.57
2622.16	92.58	2632.15	92.34	2642.14	92.38	2652.12	92.55	2657.12	92.5
2667.11	92.69	2677.1	92.49	2687.09	92.41	2692.08	92.47		

Manning's n Values num= 3
 Sta n Val Sta n Val
 0 .06 1323.57 .04 1378.51 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 1323.57 1378.51 876 876 877 .1 .3
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 1323.57 92.7 F
 1378.51 2692.08 92.05 F

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	84.77	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	wt. n-val.		0.040
w.s. Elev (ft)	84.76	Reach Len. (ft)	876.00	876.00
877.00				
Crit w.s. (ft)	81.65	Flow Area (sq ft)		75.93
E.G. slope (ft/ft)	0.000121	Area (sq ft)		75.93
Q Total (cfs)	56.00	Flow (cfs)		56.00
Top width (ft)	29.85	Top width (ft)		29.85
vel Total (ft/s)	0.74	Avg. vel. (ft/s)		0.74
Max chl Dpth (ft)	4.34	Hydr. Depth (ft)		2.54
Conv. Total (cfs)	5081.1	Conv. (cfs)		5081.1
Length wtd. (ft)	876.00	wetted Per. (ft)		31.41
Min ch El (ft)	80.42	shear (lb/sq ft)		0.02
Alpha	1.00	Stream Power (lb/ft s)	2692.08	0.00
0.00				

Frctn Loss (ft)	0.12	NM103 OUTPUT REPORT.TXT Cum Volume (acre-ft)	10.77
C & E Loss (ft)	0.00	Cum SA (acres)	3.88

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	85.41	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-val.		0.040
W.S. Elev (ft)	85.40	Reach Len. (ft)	876.00	876.00
877.00 Crit w.s. (ft)	81.89	Flow Area (sq ft)		95.63
E.G. slope (ft/ft)	0.000123	Area (sq ft)		95.63
Q Total (cfs)	79.00	Flow (cfs)		79.00
Top width (ft)	31.71	Top width (ft)		31.71
vel Total (ft/s)	0.83	Avg. vel. (ft/s)		0.83
Max chl Dpth (ft)	4.98	Hydr. Depth (ft)		3.02
Conv. Total (cfs)	7122.1	Conv. (cfs)		7122.1
Length wtd. (ft)	876.00	wetted Per. (ft)		33.69
Min Ch El (ft)	80.42	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	2692.08	0.00
Frctn Loss (ft)	0.14	Cum volume (acre-ft)		13.25
C & E Loss (ft)	0.00	Cum SA (acres)		4.14

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	86.78	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-val.		0.040
W.S. Elev (ft)	86.76	Reach Len. (ft)	876.00	876.00
877.00 Crit w.s. (ft)	82.35	Flow Area (sq ft)		141.35

NM103 OUTPUT REPORT.TXT			
E.G. Slope (ft/ft)	0.000120	Area (sq ft)	141.35
Q Total (cfs)	137.00	Flow (cfs)	137.00
Top Width (ft)	35.45	Top Width (ft)	35.45
Vel Total (ft/s)	0.97	Avg. Vel. (ft/s)	0.97
Max Chl Dpth (ft)	6.34	Hydr. Depth (ft)	3.99
Conv. Total (cfs)	12524.4	Conv. (cfs)	12524.4
Length wtd. (ft)	876.00	wetted Per. (ft)	38.37
Min Ch El (ft)	80.42	Shear (lb/sq ft)	0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	2692.08
Frctn Loss (ft)	0.16	Cum Volume (acre-ft)	19.44
C & E Loss (ft)	0.00	Cum SA (acres)	4.64

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	85.68	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-val.		0.040
W.S. Elev (ft)	85.67	Reach Len. (ft)	876.00	876.00
877.00 Crit w.s. (ft)	81.97	Flow Area (sq ft)		104.32
E.G. slope (ft/ft)	0.000121	Area (sq ft)		104.32
Q Total (cfs)	89.00	Flow (cfs)		89.00
Top Width (ft)	32.45	Top Width (ft)		32.45
Vel Total (ft/s)	0.85	Avg. Vel. (ft/s)		0.85
Max Chl Dpth (ft)	5.25	Hydr. Depth (ft)		3.21
Conv. Total (cfs)	8084.1	Conv. (cfs)		8084.1
Length wtd. (ft)	876.00	wetted Per. (ft)		34.62
Min Ch El (ft)	80.42	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	2692.08	0.00
Frctn Loss (ft)	0.15	Cum Volume (acre-ft)		14.45
C & E Loss (ft)	0.00	Cum SA (acres)		4.28

NM103 OUTPUT REPORT.TXT

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	86.33	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-val.		0.040
W.S. Elev (ft)	86.32	Reach Len. (ft)	876.00	876.00
877.00 Crit w.s. (ft)	82.20	Flow Area (sq ft)		126.02
E.G. slope (ft/ft)	0.000119	Area (sq ft)		126.02
Q Total (cfs)	116.00	Flow (cfs)		116.00
Top width (ft)	34.24	Top width (ft)		34.24
vel Total (ft/s)	0.92	Avg. vel. (ft/s)		0.92
Max Chl Dpth (ft)	5.90	Hydr. Depth (ft)		3.68
Conv. Total (cfs)	10624.9	Conv. (cfs)		10624.9
Length wtd. (ft)	876.00	wetted Per. (ft)		36.86
Min Ch El (ft)	80.42	Shear (lb/sq ft)		0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	2692.08	0.00
Frctn Loss (ft)	0.15	Cum volume (acre-ft)		17.40
C & E Loss (ft)	0.00	Cum SA (acres)		4.50

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	87.74	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-val.		0.040
W.S. Elev (ft)	87.72	Reach Len. (ft)	876.00	876.00
877.00 Crit w.s. (ft)	82.67	Flow Area (sq ft)		176.69
E.G. slope (ft/ft)	0.000114	Area (sq ft)		176.69
Q Total (cfs)	184.00	Flow (cfs)		184.00
Top width (ft)	38.05	Top width (ft)		38.05
vel Total (ft/s)	1.04	Avg. vel. (ft/s)		1.04
Max Chl Dpth (ft)	7.30	Hydr. Depth (ft)		4.64

NM103 OUTPUT REPORT.TXT

Conv. Total (cfs)	17207.5	Conv. (cfs)	17207.5
Length wtd. (ft)	876.00	wetted Per. (ft)	41.63
Min Ch El (ft)	80.42	Shear (lb/sq ft)	0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	2692.08
Frctn Loss (ft)	0.15	Cum Volume (acre-ft)	24.35
C & E Loss (ft)	0.00	Cum SA (acres)	4.97

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-103
 REACH: NM-103 RS: 6017

INPUT

Description:

Station Elevation Data	num=	221							
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev									
0 90.77 5 90.98 10 91.64 14.99 92.01 19.99 92.21									
29.98 92.13 39.98 91.58 44.98 91.53 49.98 91.29 54.97 91.24									
59.97 91.01 74.96 91.04 79.96 90.8 84.96 91 94.95 91.13									
99.95 91.01 104.95 91.11 114.94 91.17 119.94 91.01 134.93 91.14									
139.93 90.96 159.92 91.01 179.91 90.93 184.91 90.83 194.9 90.88									
199.9 91.02 209.9 90.9 224.89 90.81 244.88 90.87 259.87 90.78									
269.87 90.97 324.84 90.71 329.84 90.78 339.83 90.73 344.83 90.81									
364.82 90.84 379.81 90.67 414.79 90.51 424.79 90.56 439.78 90.5									
444.78 90.55 474.76 90.39 484.76 90.53 499.75 90.43 504.75 90.27									
539.73 90.32 549.73 90.26 559.72 90.42 564.72 90.2 579.71 90.11									
594.7 90.2 599.7 90.06 619.69 90.27 629.69 90.1 634.68 90.09									
639.68 90.19 654.67 90.16 674.66 89.99 689.66 90.06 699.65 90.19									
709.65 90.04 719.64 90.12 729.64 90.02 739.63 90.12 759.62 89.89									
774.61 90.03 794.6 89.85 839.58 90.02 859.57 89.78 869.57 89.89									
894.55 89.94 909.55 89.7 919.54 89.69 924.54 89.86 934.53 89.84									
939.53 89.92 949.53 89.8 959.52 89.86 969.52 89.75 979.51 89.83									
989.51 89.7 999.5 89.82 1004.5 89.65 1024.49 89.75 1029.49 89.85									
1039.48 89.76 1044.48 89.91 1049.48 89.73 1064.47 89.8 1074.46 89.7									
1084.46 89.82 1129.44 89.71 1149.43 89.84 1179.41 89.89 1189.41 89.76									
1229.39 89.94 1234.38 89.86 1254.37 90.29 1264.37 90.33 1269.37 90.07									
1274.36 89.7 1279.36 89.76 1284.36 90.08 1289.36 91.13 1294.35 92.54									
1299.35 93.06 1304.35 94.41 1309.35 94.62 1314.34 93.55 1319.34 91.08									
1321.83 90.53 1324.34 89.99 1329.34 85.06 1334.33 81.18 1339.33 80.28									
1349.33 80.26 1354.32 81.26 1359.32 84.93 1364.32 85.57 1369.32 90.23									
1371.83 92.48 1374.31 94.69 1379.31 97.48 1384.31 97.52 1389.31 97.87									
1394.3 96.8 1399.3 93.27 1404.3 91.65 1409.3 91.62 1414.3 90.66									
1419.29 90.27 1424.29 90.37 1429.29 90.37 1439.28 90.22 1444.28 90.04									
1464.27 89.83 1474.27 89.83 1489.26 89.76 1494.26 89.63 1504.25 89.69									
1514.25 89.58 1524.24 89.76 1534.24 89.62 1544.23 89.75 1554.23 89.6									
1574.22 89.73 1584.21 89.65 1599.2 89.77 1619.19 89.67 1629.19 89.76									
1654.18 89.69 1659.17 89.76 1669.17 89.74 1749.13 89.82 1754.13 89.7									
1794.11 89.89 1819.09 89.82 1824.09 89.73 1849.08 89.86 1899.05 89.88									
1909.05 89.78 1914.05 89.95 1919.04 89.8 1959.02 89.98 1964.02 89.87									
1984.01 89.97 2004 89.91 2028.99 90.02 2043.98 89.96 2058.98 90.21									

NM103 OUTPUT REPORT.TXT

2068.97	90.04	2108.95	89.96	2118.95	89.85	2143.93	89.96	2153.93	90.22
2158.93	90.03	2163.92	90	2173.92	90.1	2178.92	89.91	2188.91	90.09
2198.91	90.89	2208.9	90.8	2218.9	90.82	2223.89	90.67	2233.89	90.83
2238.89	90.76	2243.88	91.03	2253.88	91.09	2258.88	90.89	2263.87	91.01
2273.87	90.95	2278.87	91.11	2293.86	90.98	2298.86	91.1	2303.85	90.87
2308.85	90.14	2323.84	89.99	2348.83	90.05	2358.83	90.14	2368.82	90.03
2378.82	90.07	2383.81	89.99	2403.8	89.95	2408.8	90.04	2443.78	90.11
2448.78	89.99	2458.78	90.05	2488.76	89.96	2498.76	90.08	2508.75	89.91
2568.72	89.83	2583.72	89.7	2603.71	89.69	2638.69	89.86	2648.68	90.17
2653.68	90.43	2668.67	90.56	2678.67	90.17	2683.67	90.16	2688.66	89.95
2693.66	89.95								

Manning's n Values num= 3
 Sta n Val Sta n Val
 0 .06 1314.34 .04 1374.31 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 1314.34 1374.31 1277 1477 1258 .1 .3

Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 1314.34 93.55 F
 1374.31 2693.66 94.69 F

Blocked Obstructions num= 2
 Sta L Sta R Elev Sta L Sta R Elev
 0 22.84 92.02 2286.39 2693.66 90.95

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	84.64	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-Val.		0.040
w.s. Elev (ft)	84.63	Reach Len. (ft)	1277.00	1477.00
1258.00 Crit w.s. (ft)	81.42	Flow Area (sq ft)		97.74
E.G. Slope (ft/ft)	0.000158	Area (sq ft)		97.74
Q Total (cfs)	97.00	Flow (cfs)		97.00
Top width (ft)	29.01	Top width (ft)		29.01
Vel Total (ft/s)	0.99	Avg. Vel. (ft/s)		0.99
Max Chl Dpth (ft)	4.37	Hydr. Depth (ft)		3.37
Conv. Total (cfs)	7728.2	Conv. (cfs)		7728.2
Length wtd. (ft)	1477.00	wetted Per. (ft)		31.48
Min Ch El (ft)	80.26	Shear (lb/sq ft)		0.03
Alpha	1.00	Stream Power (lb/ft s)	2693.66	0.00
0.00 Frctn Loss (ft)	0.26	Cum Volume (acre-ft)		9.02
C & E Loss (ft)	0.00	Cum SA (acres)		3.29

Note: Multiple critical depths were found at this location. The critical depth
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with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	85.27	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	Wt. n-Val.		0.040
W.S. Elev (ft)	85.24	Reach Len. (ft)	1277.00	1477.00
1258.00 Crit w.s. (ft)	81.64	Flow Area (sq ft)		116.44
E.G. Slope (ft/ft)	0.000199	Area (sq ft)		116.44
Q Total (cfs)	135.00	Flow (cfs)		135.00
Top width (ft)	32.62	Top width (ft)		32.62
Vel Total (ft/s)	1.16	Avg. Vel. (ft/s)		1.16
Max chl Dpth (ft)	4.98	Hydr. Depth (ft)		3.57
Conv. Total (cfs)	9561.5	Conv. (cfs)		9561.5
Length wtd. (ft)	1477.00	wetted Per. (ft)		35.43
Min Ch El (ft)	80.26	Shear (lb/sq ft)		0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	2693.66	0.00
Frctn Loss (ft)	0.31	Cum Volume (acre-ft)		11.12
C & E Loss (ft)	0.00	Cum SA (acres)		3.49

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	86.62	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	Wt. n-Val.		0.040
W.S. Elev (ft)	86.59	Reach Len. (ft)	1277.00	1477.00
1258.00 Crit w.s. (ft)	82.13	Flow Area (sq ft)		164.72
E.G. Slope (ft/ft)	0.000232	Area (sq ft)		164.72
Q Total (cfs)	234.00	Flow (cfs)		234.00
Top width (ft)	37.62	Top width (ft)		37.62
Vel Total (ft/s)	1.42	Avg. Vel. (ft/s)		1.42
Max chl Dpth (ft)	6.33	Hydr. Depth (ft)		4.38
Conv. Total (cfs)	15364.4	Conv. (cfs)		15364.4

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Length Wtd. (ft)	1477.00	Wetted Per. (ft)	41.40
Min Ch El (ft)	80.26	Shear (lb/sq ft)	0.06
Alpha 0.00	1.00	Stream Power (lb/ft s)	2693.66
Frctn Loss (ft)	0.35	Cum Volume (acre-ft)	16.36
C & E Loss (ft)	0.00	Cum SA (acres)	3.91

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	85.53	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-Val.		0.040
W.S. Elev (ft)	85.51	Reach Len. (ft)	1277.00	1477.00
1258.00 Crit w.s. (ft)	81.73	Flow Area (sq ft)		125.35
E.G. Slope (ft/ft)	0.000216	Area (sq ft)		125.35
Q Total (cfs)	152.00	Flow (cfs)		152.00
Top width (ft)	34.95	Top width (ft)		34.95
Vel Total (ft/s)	1.21	Avg. Vel. (ft/s)		1.21
Max Chl Dpth (ft)	5.25	Hydr. Depth (ft)		3.59
Conv. Total (cfs)	10339.5	Conv. (cfs)		10339.5
Length Wtd. (ft)	1477.00	Wetted Per. (ft)		37.88
Min Ch El (ft)	80.26	Shear (lb/sq ft)		0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	2693.66	0.00
Frctn Loss (ft)	0.33	Cum Volume (acre-ft)		12.14
C & E Loss (ft)	0.00	Cum SA (acres)		3.60

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	86.18	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	wt. n-Val.		0.040

NM103 OUTPUT REPORT.TXT				
W.S. Elev (ft)	86.15	Reach Len. (ft)	1277.00	1477.00
1258.00 Crit W.S. (ft)	81.97	Flow Area (sq ft)		148.55
E.G. Slope (ft/ft)	0.000227	Area (sq ft)		148.55
Q Total (cfs)	199.00	Flow (cfs)		199.00
Top width (ft)	36.71	Top width (ft)		36.71
Vel Total (ft/s)	1.34	Avg. Vel. (ft/s)		1.34
Max Chl Dpth (ft)	5.89	Hydr. Depth (ft)		4.05
Conv. Total (cfs)	13202.1	Conv. (cfs)		13202.1
Length wtd. (ft)	1477.00	wetted Per. (ft)		40.14
Min ch El (ft)	80.26	Shear (lb/sq ft)		0.05
Alpha 0.00	1.00	Stream Power (lb/ft s)	2693.66	0.00
Frctn Loss (ft)	0.34	Cum Volume (acre-ft)		14.64
C & E Loss (ft)	0.00	Cum SA (acres)		3.79

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

Profile #ULT 100Y				
E.G. Elev (ft)	87.59	Element	Left OB	Channel
Right OB Vel Head (ft)	0.04	wt. n-Val.		0.040
W.S. Elev (ft)	87.55	Reach Len. (ft)	1277.00	1477.00
1258.00 Crit W.S. (ft)	82.48	Flow Area (sq ft)		201.82
E.G. Slope (ft/ft)	0.000231	Area (sq ft)		201.82
Q Total (cfs)	314.00	Flow (cfs)		314.00
Top width (ft)	39.63	Top width (ft)		39.63
Vel Total (ft/s)	1.56	Avg. Vel. (ft/s)		1.56
Max Chl Dpth (ft)	7.29	Hydr. Depth (ft)		5.09
Conv. Total (cfs)	20642.0	Conv. (cfs)		20642.0
Length wtd. (ft)	1477.00	wetted Per. (ft)		44.18
Min ch El (ft)	80.26	Shear (lb/sq ft)		0.07
Alpha 0.00	1.00	Stream Power (lb/ft s)	2693.66	0.00
Frctn Loss (ft)	0.35	Cum Volume (acre-ft)		20.54

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-103
REACH: NM-103

RS: 4540

INPUT

Description:

Station Elevation Data

num= 331

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	89.9	9.99	89.85	14.98	90.06	29.97	90.02	34.96	89.93
54.94	90.08	64.93	89.98	69.93	90.04	79.92	89.9	94.9	90.01
99.9	89.83	104.89	89.94	134.86	90.04	139.86	89.97	154.84	89.97
184.81	89.81	224.77	90.02	239.76	89.83	254.74	89.81	259.74	89.9
269.73	89.78	284.71	89.83	294.7	89.72	334.66	89.96	339.65	89.92
344.65	89.73	369.62	89.53	374.62	89.39	384.61	89.61	434.56	89.45
439.55	89.53	499.49	89.65	514.48	89.95	524.47	89.88	539.45	90.02
544.45	90.16	554.44	89.95	559.43	89.96	564.43	90.09	574.42	90.68
584.41	90.95	589.4	90.97	594.4	90.56	599.39	90.26	609.38	89.99
619.37	90.14	649.34	89.86	654.33	89.69	674.31	89.76	694.29	89.57
704.28	89.38	709.28	89.67	719.27	89.71	724.26	89.64	739.25	89.77
749.24	89.53	774.21	89.47	779.21	89.52	809.18	89.42	819.17	89.29
829.16	89.44	914.07	89.51	924.06	89.6	929.05	89.54	939.04	89.65
954.03	89.43	959.02	87.2	961.42	85.1	964.02	82.82	969.01	80.59
974.01	80.61	984	81.05	988.99	81.17	993.99	83.59	998.98	88.95
1003.98	93.06	1008.97	94.42	1011.43	94.44	1013.97	94.46	1018.96	94.06
1028.95	90.37	1033.95	90.03	1038.94	89.38	1043.94	89.29	1053.93	89.27
1063.92	89.03	1068.91	89.02	1073.91	89.14	1078.9	89.12	1088.89	88.78
1108.87	88.93	1123.86	88.9	1128.85	89.1	1133.85	88.91	1138.84	88.92
1148.83	89.57	1158.82	89.01	1163.82	89.03	1168.81	89.21	1173.81	88.93
1183.8	88.91	1188.79	89.06	1213.77	89.01	1223.76	89.09	1228.75	89.22
1238.74	89.23	1243.73	88.89	1248.73	88.8	1253.72	89.06	1258.72	88.99
1263.71	88.81	1273.7	88.8	1283.69	89.01	1288.69	89.04	1293.68	89.19
1308.67	89.13	1318.66	88.92	1333.64	88.86	1353.62	89.11	1378.6	88.77
1408.57	88.89	1418.56	89.1	1423.55	88.95	1438.54	89.07	1443.53	89.19
1448.53	89.02	1458.52	89.12	1468.51	88.85	1483.49	88.84	1488.49	89.01
1493.48	89.05	1498.48	89.42	1503.47	89.53	1508.47	89.29	1513.46	89.2
1518.46	89.22	1523.45	89.07	1528.45	88.79	1543.43	88.96	1548.43	88.92
1553.42	89.25	1558.42	89.29	1563.41	89.09	1583.39	89.05	1588.39	89.22
1593.38	88.99	1598.38	89.16	1603.37	89.21	1608.37	89.39	1618.36	89.15
1628.35	89.17	1633.34	89.35	1643.33	89.28	1648.33	89.35	1653.32	89.01
1658.32	88.94	1663.31	89.01	1668.31	88.95	1673.3	89.03	1678.3	89.27
1688.29	89.01	1693.28	88.72	1703.27	88.87	1713.26	88.83	1738.23	89.21
1748.22	89.53	1753.22	89.31	1758.21	88.85	1768.2	88.76	1783.19	88.91
1793.18	89.21	1798.17	89.18	1813.16	88.78	1823.15	88.76	1833.14	88.99
1843.13	88.98	1848.12	89.14	1853.12	88.99	1868.1	88.74	1878.09	89.08
1893.08	89.06	1898.07	89.27	1903.07	89.28	1908.06	89.42	1913.06	89.01
1928.04	88.85	1933.04	88.88	1938.03	89.17	1948.02	89.11	1953.02	88.93
1958.01	88.91	1963.01	89.08	1968	89.11	1973	89.03	1977.99	89.16
1987.98	89.11	1992.98	89.27	2007.96	89.17	2012.96	89.22	2017.95	89.16
2027.94	89.26	2032.94	89.09	2042.93	89.35	2052.92	89.13	2062.91	89.04
2072.9	88.72	2077.89	88.95	2092.88	89.24	2102.86	89.09	2112.85	89.13
2122.84	88.97	2127.84	88.99	2132.83	89.15	2137.83	89.2	2157.81	88.88
2167.8	88.99	2177.79	89.38	2187.78	89.02	2192.77	88.92	2207.76	88.96
2212.75	88.88	2247.72	88.92	2257.71	89.18	2262.7	89.44	2272.69	89.35

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2277.68	88.99	2287.67	88.96	2292.67	89.21	2297.66	88.98	2302.66	89.29
2312.65	89.14	2317.64	88.95	2322.64	89.07	2332.63	89.01	2337.62	89.07
2342.62	88.88	2352.61	88.98	2357.6	89.11	2362.6	89.4	2372.59	89.3
2382.58	89.03	2392.57	89.07	2402.56	88.85	2407.55	89.02	2437.52	89.21
2457.5	88.98	2482.47	89.18	2487.47	89.32	2492.46	89.33	2502.45	89.03
2517.44	89.22	2522.43	89.43	2547.41	89.12	2552.4	88.98	2557.4	88.94
2572.38	89.05	2587.37	89.47	2592.36	89.36	2602.35	88.85	2612.34	88.89
2617.33	89	2622.33	88.96	2632.32	89.05	2642.31	89.27	2647.3	89.59
2652.3	89.53	2657.29	89.19	2662.29	89.05	2667.28	89.03	2672.28	88.84
2687.26	88.82	2692.26	88.99	2697.25	89.01	2707.24	89.26	2717.23	89.09
2722.23	89.14	2737.21	88.89	2742.21	89.25	2752.2	89.44	2757.19	89.24
2767.18	89.33	2797.15	89.07	2812.13	89.27	2817.13	89.48	2822.12	89.45
2827.12	89.2	2832.11	89.11	2852.09	89.1	2862.08	89.19	2867.08	89.13
2877.07	89.24	2887.06	88.97	2902.04	89.06	2922.02	89	2932.01	89.18
2942	89.09	2946.99	88.97	2951.99	89.02	2956.98	88.96	2976.96	89.12
2986.95	89.09	2991.95	89.25	2996.94	89.1	3001.94	89.23	3006.93	89.2
3011.93	89.03	3026.91	89.04	3031.91	89.37	3041.9	89.28	3046.89	89.38
3051.89	89.35	3056.88	89.17	3061.88	89.13	3066.87	89.25	3071.87	89.25
3076.86	89.03	3091.85	89.02	3101.84	89.24	3116.82	89.15	3121.81	89.22
3126.81	89.09	3146.79	88.99	3166.77	89.2	3171.76	89.35	3176.76	89.37
3186.75	88.91	3196.74	89.25	3201.73	89.32	3206.73	89.29	3211.72	89.41
3216.72	89.75								

Manning's n Values	num=	3
Sta n Val Sta	n Val Sta n Val	
0 .06 954.03	.04 1003.98	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.	Expan.
954.03	1003.98	1030	990	1039	.1	.3	

Ineffective Flow	num=	2
Sta L Sta R Elev	Permanent	
0 954.03 89.43	F	
1003.98 3216.72 93.06	F	

Blocked obstructions	num=	2
Sta L Sta R Elev	Sta L Sta R Elev	
0 572.79 90.67	1015.7 3216.72 90.89	

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	84.39	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	wt. n-val.		0.040
W.S. Elev (ft)	84.37	Reach Len. (ft)	1030.00	990.00
1039.00				
Crit w.s. (ft)	81.71	Flow Area (sq ft)		95.40
E.G. slope (ft/ft)	0.000192	Area (sq ft)		95.40
Q Total (cfs)	97.00	Flow (cfs)		97.00
Top width (ft)	32.47	Top width (ft)		32.47
Vel Total (ft/s)	1.02	Avg. vel. (ft/s)		1.02
Max chl Dpth (ft)	3.78	Hydr. Depth (ft)		2.94
Conv. Total (cfs)	6991.8	Conv. (cfs)		6991.8
Length wtd. (ft)	990.00	wetted Per. (ft)		34.43
Min ch El (ft)	80.59	Shear (lb/sq ft)		0.03

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Alpha	1.00	Stream Power (lb/ft s)	3216.72	0.00
0.00				
Frctn Loss (ft)	0.25	Cum Volume (acre-ft)		5.75
C & E Loss (ft)	0.00	Cum SA (acres)		2.25

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	84.96	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	wt. n-val.		0.040
W.S. Elev (ft)	84.94	Reach Len. (ft)	1030.00	990.00
1039.00				
Crit w.s. (ft)	81.92	Flow Area (sq ft)		114.06
E.G. slope (ft/ft)	0.000219	Area (sq ft)		114.06
Q Total (cfs)	135.00	Flow (cfs)		135.00
Top width (ft)	33.63	Top width (ft)		33.63
vel Total (ft/s)	1.18	Avg. vel. (ft/s)		1.18
Max Chl Dpth (ft)	4.35	Hydr. Depth (ft)		3.39
Conv. Total (cfs)	9130.8	Conv. (cfs)		9130.8
Length wtd. (ft)	990.00	wetted Per. (ft)		36.06
Min Ch El (ft)	80.59	Shear (lb/sq ft)		0.04
Alpha	1.00	Stream Power (lb/ft s)	3216.72	0.00
0.00				
Frctn Loss (ft)	0.28	Cum volume (acre-ft)		7.21
C & E Loss (ft)	0.00	Cum SA (acres)		2.37

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	86.27	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.03	wt. n-val.		0.040
W.S. Elev (ft)	86.23	Reach Len. (ft)	1030.00	990.00
1039.00				
Crit w.s. (ft)	82.37	Flow Area (sq ft)		159.45

NM103 OUTPUT REPORT.TXT			
E.G. Slope (ft/ft)	0.000245	Area (sq ft)	159.45
Q Total (cfs)	234.00	Flow (cfs)	234.00
Top Width (ft)	36.32	Top Width (ft)	36.32
Vel Total (ft/s)	1.47	Avg. Vel. (ft/s)	1.47
Max Chl Dpth (ft)	5.64	Hydr. Depth (ft)	4.39
Conv. Total (cfs)	14940.5	Conv. (cfs)	14940.5
Length wtd. (ft)	990.00	wetted Per. (ft)	39.80
Min Ch El (ft)	80.59	Shear (lb/sq ft)	0.06
Alpha 0.00	1.00	Stream Power (lb/ft s)	3216.72
Frctn Loss (ft)	0.31	Cum Volume (acre-ft)	10.86
C & E Loss (ft)	0.00	Cum SA (acres)	2.65

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	85.21	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-val.		0.040
W.S. Elev (ft)	85.18	Reach Len. (ft)	1030.00	990.00
1039.00 Crit w.s. (ft)	82.00	Flow Area (sq ft)		122.40
E.G. slope (ft/ft)	0.000225	Area (sq ft)		122.40
Q Total (cfs)	152.00	Flow (cfs)		152.00
Top Width (ft)	34.14	Top Width (ft)		34.14
Vel Total (ft/s)	1.24	Avg. Vel. (ft/s)		1.24
Max Chl Dpth (ft)	4.59	Hydr. Depth (ft)		3.58
Conv. Total (cfs)	10137.4	Conv. (cfs)		10137.4
Length wtd. (ft)	990.00	wetted Per. (ft)		36.77
Min Ch El (ft)	80.59	Shear (lb/sq ft)		0.05
Alpha 0.00	1.00	Stream Power (lb/ft s)	3216.72	0.00
Frctn Loss (ft)	0.29	Cum Volume (acre-ft)		7.94
C & E Loss (ft)	0.00	Cum SA (acres)		2.43

NM103 OUTPUT REPORT.TXT

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	85.84	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	wt. n-val.		0.040
W.S. Elev (ft)	85.81	Reach Len. (ft)	1030.00	990.00
1039.00 Crit w.s. (ft)	82.22	Flow Area (sq ft)		144.16
E.G. slope (ft/ft)	0.000238	Area (sq ft)		144.16
Q Total (cfs)	199.00	Flow (cfs)		199.00
Top width (ft)	35.44	Top width (ft)		35.44
vel Total (ft/s)	1.38	Avg. vel. (ft/s)		1.38
Max Chl Dpth (ft)	5.22	Hydr. Depth (ft)		4.07
Conv. Total (cfs)	12897.5	Conv. (cfs)		12897.5
Length wtd. (ft)	990.00	wetted Per. (ft)		38.57
Min Ch El (ft)	80.59	Shear (lb/sq ft)		0.06
Alpha 0.00	1.00	Stream Power (lb/ft s)	3216.72	0.00
Frctn Loss (ft)	0.30	Cum volume (acre-ft)		9.68
C & E Loss (ft)	0.00	Cum SA (acres)		2.57

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	87.23	Element	Left OB	Channel
Right OB Vel Head (ft)	0.04	wt. n-val.		0.040
W.S. Elev (ft)	87.19	Reach Len. (ft)	1030.00	990.00
1039.00 Crit w.s. (ft)	82.68	Flow Area (sq ft)		195.28
E.G. slope (ft/ft)	0.000246	Area (sq ft)		195.28
Q Total (cfs)	314.00	Flow (cfs)		314.00
Top width (ft)	38.32	Top width (ft)		38.32
vel Total (ft/s)	1.61	Avg. vel. (ft/s)		1.61
Max Chl Dpth (ft)	6.60	Hydr. Depth (ft)		5.10

NM103 OUTPUT REPORT.TXT

Conv. Total (cfs)	20027.7	Conv. (cfs)	20027.7
Length wtd. (ft)	990.00	wetted Per. (ft)	42.57
Min Ch El (ft)	80.59	Shear (lb/sq ft)	0.07
Alpha 0.00	1.00	Stream Power (lb/ft s)	3216.72
Frctn Loss (ft)	0.30	Cum Volume (acre-ft)	13.81
C & E Loss (ft)	0.00	Cum SA (acres)	2.87

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-103
 REACH: NM-103 RS: 3550

INPUT

Description:

Station Elevation Data	num=	257							
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev									
0 89.08 5 89.19 10 89.14 14.99 88.93 19.99 89.03									
29.99 88.82 44.98 88.99 49.98 89.18 64.97 89.34 74.96 89.18									
79.96 89.3 84.96 89.3 89.96 89.56 94.95 89.25 99.95 89.58									
114.94 89.77 119.94 89.72 139.93 89.84 149.93 89.78 159.92 89.98									
174.91 89.96 179.91 89.88 214.89 90.07 219.89 90.25 224.89 90.32									
234.88 90.12 254.88 90.32 264.87 89.88 289.86 89.85 304.85 90.15									
309.85 90.18 314.85 90.1 334.84 90.31 344.83 90.25 354.83 90.08									
379.81 89.91 389.81 89.99 399.8 89.92 414.8 90 419.79 90.13									
434.79 89.96 444.78 89.7 459.77 89.69 464.77 89.59 479.76 89.7									
484.76 89.58 494.76 89.57 504.75 89.91 524.74 89.7 534.74 89.9									
539.74 90.12 559.73 90.26 564.72 90.44 574.72 90.23 584.71 90.21									
589.71 90.09 624.69 90.31 639.69 90.17 654.68 90.31 664.67 90.06									
684.66 90.42 689.66 90.29 694.66 90.03 744.64 90.1 759.63 89.93									
769.62 89.63 779.62 89.6 784.62 89.72 789.61 89.53 804.61 89.57									
809.6 89.93 814.6 89.96 824.6 89.7 834.59 89.32 839.59 89.3									
854.58 89.71 859.58 89.71 864.58 89.59 869.57 90.31 874.57 90.47									
877.67 90.51 879.57 90.53 884.57 86.43 889.56 82.5 894.56 80.76									
899.56 80.57 909.55 81.3 914.55 82.32 919.55 86.92 924.55 90.69									
927.67 92.03 929.55 92.84 934.54 93.54 939.54 93.92 944.54 93.69									
949.54 91.79 954.53 90.78 959.53 89.65 964.53 88.8 974.52 88.65									
979.52 88.88 984.52 88.93 989.52 88.56 994.51 88.33 1009.51 88.23									
1024.5 88.36 1029.5 88.57 1034.49 88.66 1049.49 88.41 1054.48 88.5									
1069.48 88.29 1084.47 88.47 1089.47 88.74 1094.46 88.78 1109.46 88.71									
1114.45 88.84 1124.45 88.68 1129.45 88.75 1139.44 88.61 1144.44 88.82									
1154.43 88.77 1159.43 88.49 1169.43 88.52 1174.42 88.61 1184.42 88.42									
1189.42 88.54 1204.41 88.74 1209.41 88.6 1219.4 88.53 1234.39 88.54									
1239.39 88.75 1244.39 88.71 1249.39 88.54 1254.38 88.49 1274.37 88.52									
1289.37 88.44 1299.36 88.69 1339.34 88.45 1349.34 89.08 1359.33 88.73									
1369.33 88.59 1384.32 88.8 1394.31 88.75 1409.31 88.8 1419.3 88.59									
1444.29 88.97 1449.29 88.94 1454.29 88.65 1469.28 88.6 1474.27 88.67									
1479.27 88.94 1484.27 88.95 1489.27 88.71 1504.26 88.75 1509.26 88.6									
1519.25 88.62 1529.25 88.78 1539.24 88.78 1549.24 88.62 1554.24 88.35									
1569.23 88.31 1574.23 88.45 1589.22 88.65 1604.21 88.48 1609.21 88.5									
1614.21 88.33 1644.19 88.42 1654.19 88.26 1669.18 88.33 1674.18 88.46									

NM103 OUTPUT REPORT.TXT

1694.17	88.36	1704.16	88.42	1714.16	88.3	1729.15	88.38	1734.15	88.62
1739.14	88.73	1744.14	88.52	1749.14	88.43	1754.14	88.49	1759.13	88.45
1764.13	88.22	1794.12	88.39	1804.11	88.55	1809.11	88.71	1819.1	88.7
1824.1	88.9	1829.1	88.56	1834.1	88.37	1844.09	88.51	1864.08	88.23
1884.07	88.25	1899.06	88.29	1909.06	88.46	1919.05	88.02	1924.05	87.99
1929.05	88.24	1954.04	88.45	1964.03	88.58	1969.03	88.54	1974.03	88.91
1984.02	88.9	1989.02	88.74	1999.01	88.13	2014.01	88.16	2019	88.24
2024	88.43	2029	88.46	2038.99	88.11	2053.99	88.2	2063.98	88.35
2078.97	88.36	2088.97	88.5	2113.96	88.32	2123.95	88.65	2128.95	88.61
2133.95	88.39	2158.93	88.5	2163.93	88.6	2188.92	88.41	2193.92	88.46
2198.91	88.65	2208.91	88.57	2213.91	88.62	2218.91	88.48	2223.9	88.44
2228.9	88.3	2238.9	88.48	2243.89	88.49	2253.89	88.71	2268.88	88.52
2273.88	88.26	2278.88	88.51	2288.87	88.51	2293.87	88.73	2298.87	88.55
2308.86	88.58	2318.86	88.48	2323.85	88.32	2338.85	88.28	2343.84	88.39
2363.83	88.31	2383.82	88.45	2403.81	88.35	2413.81	88.66	2423.8	88.69
2428.8	88.56	2438.8	88.59	2448.79	88.46	2473.78	88.51	2483.77	88.64
2498.77	88.42	2523.75	88.6	2533.75	88.57	2543.74	88.62	2548.74	88.51
2558.74	88.6	2568.73	88.48						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	879.57	.04	924.55	.06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

879.57	924.55	428	531	428	.1	.3
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Ineffective Flow num= 2 Permanent

Sta L	Sta R	Elev	Sta L	Sta R	Elev
0	879.57	90.53			
924.55	2568.73	90.69			

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
0	254.04	90.25	933.4	2568.73	90.82

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	84.13	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	wt. n-val.		0.040
W.S. Elev (ft)	84.11	Reach Len. (ft)	428.00	531.00
428.00 Crit W.S. (ft)	81.89	Flow Area (sq ft)		76.22
E.G. Slope (ft/ft)	0.000349	Area (sq ft)		76.22
Q Total (cfs)	97.00	Flow (cfs)		97.00
Top width (ft)	28.98	Top width (ft)		28.98
Vel Total (ft/s)	1.27	Avg. vel. (ft/s)		1.27
Max Chl Dpth (ft)	3.54	Hydr. Depth (ft)		2.63
Conv. Total (cfs)	5195.6	Conv. (cfs)		5195.6
Length wtd. (ft)	531.00	wetted Per. (ft)		30.66
Min Ch El (ft)	80.57	shear (lb/sq ft)		0.05
Alpha 0.00 Frctn Loss (ft)	1.00	Stream Power (lb/ft s)	2568.73	0.00
	0.36	Cum volume (acre-ft)		3.80

NM103 OUTPUT REPORT.TXT

C & E Loss (ft) 0.01 Cum SA (acres) 1.55

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	84.67	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.03	wt. n-val.		0.040
W.S. Elev (ft)	84.64	Reach Len. (ft)	428.00	531.00
428.00				
Crit w.s. (ft)	82.13	Flow Area (sq ft)		91.91
E.G. Slope (ft/ft)	0.000388	Area (sq ft)		91.91
Q Total (cfs)	135.00	Flow (cfs)		135.00
Top width (ft)	30.23	Top width (ft)		30.23
Vel Total (ft/s)	1.47	Avg. Vel. (ft/s)		1.47
Max Chl Dpth (ft)	4.07	Hydr. Depth (ft)		3.04
Conv. Total (cfs)	6856.0	Conv. (cfs)		6856.0
Length wtd. (ft)	531.00	wetted Per. (ft)		32.30
Min Ch El (ft)	80.57	Shear (lb/sq ft)		0.07
Alpha	1.00	Stream Power (lb/ft s)	2568.73	0.00
0.00				
Frctn Loss (ft)	0.39	Cum Volume (acre-ft)		4.87
C & E Loss (ft)	0.01	Cum SA (acres)		1.65

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	85.96	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.05	wt. n-val.		0.040
W.S. Elev (ft)	85.91	Reach Len. (ft)	428.00	531.00
428.00				

NM103 OUTPUT REPORT.TXT				
Crit w.s. (ft)	82.59	Flow Area (sq ft)		132.17
E.G. Slope (ft/ft)	0.000404	Area (sq ft)		132.17
Q Total (cfs)	234.00	Flow (cfs)		234.00
Top width (ft)	33.22	Top width (ft)		33.22
Vel Total (ft/s)	1.77	Avg. Vel. (ft/s)		1.77
Max Chl Dpth (ft)	5.34	Hydr. Depth (ft)		3.98
Conv. Total (cfs)	11636.3	Conv. (cfs)		11636.3
Length wtd. (ft)	531.00	wetted Per. (ft)		36.23
Min Ch El (ft)	80.57	Shear (lb/sq ft)		0.09
Alpha	1.00	Stream Power (lb/ft s)	2568.73	0.00
0.00				
Frctn Loss (ft)	0.37	Cum Volume (acre-ft)		7.55
C & E Loss (ft)	0.01	Cum SA (acres)		1.86

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	84.92	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.04	wt. n-val.		0.040
W.S. Elev (ft)	84.88	Reach Len. (ft)	428.00	531.00
428.00				
Crit w.s. (ft)	82.22	Flow Area (sq ft)		99.21
E.G. Slope (ft/ft)	0.000393	Area (sq ft)		99.21
Q Total (cfs)	152.00	Flow (cfs)		152.00
Top width (ft)	30.79	Top width (ft)		30.79
Vel Total (ft/s)	1.53	Avg. Vel. (ft/s)		1.53
Max Chl Dpth (ft)	4.31	Hydr. Depth (ft)		3.22
Conv. Total (cfs)	7669.9	Conv. (cfs)		7669.9
Length wtd. (ft)	531.00	wetted Per. (ft)		33.04
Min Ch El (ft)	80.57	Shear (lb/sq ft)		0.07
Alpha	1.00	Stream Power (lb/ft s)	2568.73	0.00
0.00				
Frctn Loss (ft)	0.39	Cum Volume (acre-ft)		5.43

NM103 OUTPUT REPORT.TXT

C & E Loss (ft) 0.01 Cum SA (acres) 1.69

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	85.53	Element	Left OB	Channel
Right OB Vel Head (ft)	0.04	wt. n-Val.		0.040
W.S. Elev (ft)	85.49	Reach Len. (ft)	428.00	531.00
428.00 Crit w.s. (ft)	82.44	Flow Area (sq ft)		118.47
E.G. Slope (ft/ft)	0.000401	Area (sq ft)		118.47
Q Total (cfs)	199.00	Flow (cfs)		199.00
Top width (ft)	32.23	Top width (ft)		32.23
Vel Total (ft/s)	1.68	Avg. Vel. (ft/s)		1.68
Max Chl Dpth (ft)	4.92	Hydr. Depth (ft)		3.68
Conv. Total (cfs)	9934.2	Conv. (cfs)		9934.2
Length wtd. (ft)	531.00	wetted Per. (ft)		34.93
Min Ch El (ft)	80.57	Shear (lb/sq ft)		0.08
Alpha	1.00	Stream Power (lb/ft s)	2568.73	0.00
0.00 Frctn Loss (ft)	0.38	Cum Volume (acre-ft)		6.69
C & E Loss (ft)	0.01	Cum SA (acres)		1.80

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	86.93	Element	Left OB	Channel
Right OB Vel Head (ft)	0.06	wt. n-Val.		0.040
W.S. Elev (ft)	86.88	Reach Len. (ft)	428.00	531.00
428.00				

NM103 OUTPUT REPORT.TXT

Crit w.s. (ft)	82.91	Flow Area (sq ft)	165.37
E.G. slope (ft/ft)	0.000383	Area (sq ft)	165.37
Q Total (cfs)	314.00	Flow (cfs)	314.00
Top width (ft)	35.47	Top width (ft)	35.47
Vel Total (ft/s)	1.90	Avg. Vel. (ft/s)	1.90
Max Chl Dpth (ft)	6.31	Hydr. Depth (ft)	4.66
Conv. Total (cfs)	16039.4	Conv. (cfs)	16039.4
Length wtd. (ft)	531.00	Wetted Per. (ft)	39.20
Min Ch El (ft)	80.57	Shear (lb/sq ft)	0.10
Alpha 0.00	1.00	Stream Power (lb/ft s)	2568.73
Frctn Loss (ft)	0.33	Cum Volume (acre-ft)	9.71
C & E Loss (ft)	0.01	Cum SA (acres)	2.03

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-103
 REACH: NM-103

RS: 3019

INPUT

Description:

Station Elevation Data		num= 244	
Sta	Elev	Sta	Elev
0	87.89	19.96	87.75
49.91	87.68	54.9	87.63
89.84	88.61	94.83	88.35
134.76	88.56	149.73	88.26
189.66	88.5	194.65	88.19
214.62	88.84	219.61	88.52
249.55	88.85	254.54	88.94
289.48	88.92	304.45	88.91
349.37	89.12	359.36	88.88
424.24	89.05	439.21	89.19
514.08	88.98	524.06	89.07
549.02	88.57	593.94	88.59
648.84	88.71	658.82	88.49
723.7	88.46	738.68	88.6
813.54	88.69	843.49	88.89
868.44	88.91	878.43	88.98
923.35	89.47	928.34	89.54
943.31	83.28	948.3	81.28
968.26	87.46	973.26	89.9
1003.2	89.95	1008.19	90.14
			1013.18
			90.48
			1018.18
			90.53
			1023.17
			90.84

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1028.16	90.84	1033.15	90.56	1038.14	90.52	1053.11	89.61	1058.1	89.4
1068.09	89.53	1073.08	89.68	1083.06	89.63	1108.01	89.35	1118	89.59
1122.99	89.6	1127.98	89.46	1157.92	89.45	1177.89	89.72	1187.87	89.7
1192.86	89.52	1197.85	89.52	1202.84	89.7	1217.82	90.04	1237.78	89.77
1247.76	89.33	1262.74	89.34	1272.72	89.06	1282.7	89.3	1292.68	88.61
1297.67	88.65	1302.67	89.04	1307.66	89.32	1312.65	89.11	1317.64	89.12
1327.62	89.4	1352.58	89.31	1362.56	89.15	1367.55	89.21	1377.53	88.99
1412.47	88.81	1417.46	89.36	1422.45	89.79	1432.43	89.86	1437.42	89.39
1442.42	89.24	1452.4	89.22	1472.36	89.54	1482.34	89.28	1487.33	89.27
1497.32	89.06	1502.31	89.15	1527.26	88.78	1542.24	88.71	1552.22	89.11
1557.21	88.99	1562.2	88.7	1567.19	88.77	1572.18	89	1582.16	89.08
1587.16	89	1592.15	88.59	1597.14	88.83	1612.11	88.63	1642.06	88.81
1657.03	88.58	1667.01	88.61	1681.99	88.48	1686.98	88.82	1691.97	89.02
1696.96	89.01	1701.95	88.84	1721.91	88.54	1736.89	88.5	1751.86	89.02
1756.85	88.89	1786.8	89.02	1791.79	88.98	1801.77	88.68	1816.74	88.97
1821.74	88.88	1826.73	88.68	1851.68	88.5	1861.66	88.55	1876.64	88.4
1881.63	88.49	1886.62	88.77	1891.61	88.82	1901.59	88.67	1906.58	88.42
1911.58	88.45	1916.57	88.68	1921.56	88.65	1926.55	88.38	1931.54	88.36
1936.53	88.6	1946.51	88.6	1956.49	88.26	1966.48	88.19	1986.44	88.5
1991.43	88.91	2001.41	88.68	2016.39	88.58	2026.37	88.63	2031.36	88.49
2036.35	88.46	2041.34	88.61	2051.32	88.62	2061.31	88.45	2081.27	88.62
2091.25	88.22	2101.24	88.25	2111.22	88.12	2121.2	88.29	2126.19	88.18
2151.15	88.32	2156.14	88.25	2161.13	88.37	2166.12	88.75	2181.09	89.04
2201.06	88.78	2206.05	88.55	2221.02	88.64	2231	88.5	2275.92	88.58
2305.87	88.88	2325.83	88.65	2330.82	88.48	2370.75	88.24	2380.73	88.45
2390.72	88.22	2415.67	88.42	2435.63	88.34	2440.63	88.21	2470.57	88.44
2500.52	88.32	2505.51	88.54	2510.5	88.41	2535.46	88.46	2545.44	88.32
2560.41	88.26	2565.4	88.11	2570.39	88.4	2590.36	88.46	2615.31	88.35
2625.29	88.41	2635.28	88.26	2670.21	88.04	2680.2	88.08		

Manning's n Values num= 3
 Sta n Val Sta n Val
 0 .06 933.33 .04 973.26 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 933.33 973.26 696 697 722 .1 .3

Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 933.33 89.38 F
 973.26 2680.2 89.9 F

Blocked Obstructions num= 2
 Sta L Sta R Elev Sta L Sta R Elev
 0 405.33 89.28 1430.07 2680.2 89.56

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	83.76	Element	Left OB	Channel
Right OB Vel Head (ft)	0.09	wt. n-Val.		0.040
w.s. Elev (ft)	83.67	Reach Len. (ft)	696.00	697.00
722.00 Crit w.s. (ft)	82.38	Flow Area (sq ft)		39.63
E.G. slope (ft/ft)	0.001925	Area (sq ft)		39.63
Q Total (cfs)	97.00	Flow (cfs)		97.00
Top width (ft)	20.33	Top width (ft)		20.33
Vel Total (ft/s)	2.45	Avg. Vel. (ft/s)		2.45

	NM103 OUTPUT REPORT.TXT		
Max Chl Dpth (ft)	2.74	Hydr. Depth (ft)	1.95
Conv. Total (cfs)	2211.1	Conv. (cfs)	2211.1
Length Wtd. (ft)	697.00	wetted Per. (ft)	21.53
Min Ch El (ft)	80.93	Shear (lb/sq ft)	0.22
Alpha 0.00	1.00	Stream Power (lb/ft s)	2680.20
Frctn Loss (ft)	1.11	Cum Volume (acre-ft)	3.09
C & E Loss (ft)	0.01	Cum SA (acres)	1.25

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	84.27	Element	Left OB	Channel
Right OB Vel Head (ft)	0.11	wt. n-Val.		0.040
w.s. Elev (ft)	84.16	Reach Len. (ft)	696.00	697.00
722.00 Crit w.s. (ft)	82.66	Flow Area (sq ft)		49.95
E.G. Slope (ft/ft)	0.001907	Area (sq ft)		49.95
Q Total (cfs)	135.00	Flow (cfs)		135.00
Top width (ft)	21.71	Top width (ft)		21.71
Vel Total (ft/s)	2.70	Avg. Vel. (ft/s)		2.70
Max Chl Dpth (ft)	3.23	Hydr. Depth (ft)		2.30
Conv. Total (cfs)	3091.7	Conv. (cfs)		3091.7
Length Wtd. (ft)	697.00	wetted Per. (ft)		23.23
Min Ch El (ft)	80.93	Shear (lb/sq ft)		0.26
Alpha 0.00	1.00	Stream Power (lb/ft s)	2680.20	0.00
Frctn Loss (ft)	0.92	Cum Volume (acre-ft)		4.01
C & E Loss (ft)	0.02	Cum SA (acres)		1.33

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

NM103 OUTPUT REPORT.TXT

E.G. Elev (ft)	85.58	Element	Left OB	Channel
Right OB Vel Head (ft)	0.13	wt. n-Val.		0.040
W.S. Elev (ft)	85.45	Reach Len. (ft)	696.00	697.00
722.00 Crit w.s. (ft)	83.28	Flow Area (sq ft)		80.12
E.G. Slope (ft/ft)	0.001491	Area (sq ft)		80.12
Q Total (cfs)	234.00	Flow (cfs)		234.00
Top width (ft)	25.21	Top width (ft)		25.21
Vel Total (ft/s)	2.92	Avg. Vel. (ft/s)		2.92
Max chl Dpth (ft)	4.52	Hydr. Depth (ft)		3.18
Conv. Total (cfs)	6060.8	Conv. (cfs)		6060.8
Length wtd. (ft)	697.00	wetted Per. (ft)		27.57
Min ch El (ft)	80.93	Shear (lb/sq ft)		0.27
Alpha 0.00	1.00	Stream Power (lb/ft s)	2680.20	0.00
Frctn Loss (ft)	0.65	Cum Volume (acre-ft)		6.26
C & E Loss (ft)	0.02	Cum SA (acres)		1.51

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	84.52	Element	Left OB	Channel
Right OB Vel Head (ft)	0.12	wt. n-Val.		0.040
W.S. Elev (ft)	84.40	Reach Len. (ft)	696.00	697.00
722.00 Crit w.s. (ft)	82.78	Flow Area (sq ft)		55.27
E.G. Slope (ft/ft)	0.001807	Area (sq ft)		55.27
Q Total (cfs)	152.00	Flow (cfs)		152.00
Top width (ft)	22.37	Top width (ft)		22.37
Vel Total (ft/s)	2.75	Avg. Vel. (ft/s)		2.75
Max chl Dpth (ft)	3.47	Hydr. Depth (ft)		2.47
Conv. Total (cfs)	3576.0	Conv. (cfs)		3576.0

NM103 OUTPUT REPORT.TXT

Length Wtd. (ft)	697.00	Wetted Per. (ft)	24.04
Min Ch El (ft)	80.93	Shear (lb/sq ft)	0.26
Alpha 0.00	1.00	Stream Power (lb/ft s)	2680.20
Frctn Loss (ft)	0.82	Cum Volume (acre-ft)	4.48
C & E Loss (ft)	0.02	Cum SA (acres)	1.37

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	85.15	Element	Left OB	Channel
Right OB Vel Head (ft)	0.13	wt. n-Val.		0.040
W.S. Elev (ft)	85.02	Reach Len. (ft)	696.00	697.00
722.00 Crit W.S. (ft)	83.08	Flow Area (sq ft)		69.62
E.G. Slope (ft/ft)	0.001603	Area (sq ft)		69.62
Q Total (cfs)	199.00	Flow (cfs)		199.00
Top width (ft)	24.05	Top width (ft)		24.05
Vel Total (ft/s)	2.86	Avg. Vel. (ft/s)		2.86
Max Chl Dpth (ft)	4.09	Hydr. Depth (ft)		2.89
Conv. Total (cfs)	4970.6	Conv. (cfs)		4970.6
Length Wtd. (ft)	697.00	Wetted Per. (ft)		26.13
Min Ch El (ft)	80.93	Shear (lb/sq ft)		0.27
Alpha 0.00	1.00	Stream Power (lb/ft s)	2680.20	0.00
Frctn Loss (ft)	0.70	Cum Volume (acre-ft)		5.55
C & E Loss (ft)	0.02	Cum SA (acres)		1.45

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

NM103 OUTPUT REPORT.TXT

E.G. Elev (ft)	86.59	Element	Left OB	Channel
Right OB Vel Head (ft)	0.13	wt. n-val.		0.040
W.S. Elev (ft)	86.46	Reach Len. (ft)	696.00	697.00
722.00 Crit W.S. (ft)	83.67	Flow Area (sq ft)		107.00
E.G. Slope (ft/ft)	0.001196	Area (sq ft)		107.00
Q Total (cfs)	314.00	Flow (cfs)		314.00
Top width (ft)	27.97	Top width (ft)		27.97
Vel Total (ft/s)	2.93	Avg. Vel. (ft/s)		2.93
Max chl Dpth (ft)	5.53	Hydr. Depth (ft)		3.83
Conv. Total (cfs)	9081.1	Conv. (cfs)		9081.1
Length wtd. (ft)	697.00	wetted Per. (ft)		30.99
Min ch El (ft)	80.93	shear (lb/sq ft)		0.26
Alpha 0.00	1.00	Stream Power (lb/ft s)	2680.20	0.00
Frctn Loss (ft)	0.52	Cum Volume (acre-ft)		8.05
C & E Loss (ft)	0.02	Cum SA (acres)		1.64

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-103
REACH: NM-103

RS: 2322

INPUT

Description:

Station	Elevation	Data	num=	286	Station	Elevation	Station	Elevation	Station	Elevation
0	88.06	5	88.19	10	87.99	15	88.08	24.99	87.98	
29.99	88.19	39.99	87.91	54.98	88.31	59.98	88.55	64.98	88.54	
79.98	88.28	84.98	88.31	89.97	88.48	94.97	88.5	104.97	88.72	
109.97	88.55	129.96	88.44	134.96	88.87	139.96	88.94	154.95	88.45	
159.95	88.43	164.95	88.27	174.95	88.19	179.95	88.26	184.95	88.63	
189.94	88.62	194.94	88.5	209.94	88.44	214.94	88.22	224.93	88.22	
229.93	88.42	249.93	88.42	254.93	88.51	259.92	88.4	274.92	88.28	
284.92	88.32	289.92	88.43	314.91	88.25	334.9	88.44	344.9	88.79	
354.9	88.94	359.89	88.53	364.89	88.49	369.89	88.62	384.89	88.54	
394.88	88.79	404.88	88.77	414.88	88.94	424.88	88.61	434.87	88.76	
439.87	88.75	449.87	88.5	459.87	88.53	469.86	88.7	474.86	88.61	
489.86	88.86	494.86	88.68	509.85	88.55	514.85	88.62	519.85	88.51	

NM103 OUTPUT REPORT.TXT

529.84	88.47	534.84	88.56	539.84	88.75	544.84	88.74	549.84	88.58
589.83	88.74	599.82	88.43	609.82	88.42	619.82	88.64	624.82	88.54
634.81	88.49	639.81	88.81	644.81	88.64	659.81	88.46	679.8	88.64
684.8	88.81	694.8	88.55	714.79	88.52	719.79	88.44	729.79	88.62
749.78	88.61	759.78	88.48	784.77	88.56	799.77	88.35	809.76	88.5
819.76	88.39	834.76	88.55	844.75	88.33	849.75	88.35	854.75	88.51
864.75	89.01	874.75	89.17	879.74	88.95	884.74	88.59	899.74	88.77
909.74	88.75	914.73	89.2	919.2	89.8	919.73	89.87	924.73	87.74
929.73	82.4	934.73	82.23	939.73	79.37	944.73	78.42	949.72	81.25
954.72	81.39	959.72	87	964.72	90.09	969.2	90.37	969.72	90.4
974.72	90.59	984.71	90.49	989.71	90.63	994.71	90.2	999.71	90.34
1009.71	90.25	1014.7	89.52	1019.7	89.08	1024.7	88.91	1029.7	88.88
1034.7	88.68	1054.69	88.49	1094.68	88.61	1104.68	88.83	1119.67	88.75
1129.67	88.83	1139.67	88.84	1159.66	88.97	1174.66	88.75	1189.65	88.8
1199.65	88.64	1209.65	88.7	1219.65	88.88	1224.64	88.89	1239.64	88.68
1254.64	88.64	1259.63	88.48	1264.63	88.49	1269.63	88.66	1284.63	88.66
1289.62	88.84	1299.62	88.65	1304.62	88.81	1314.62	88.84	1319.62	88.73
1349.61	88.88	1354.61	88.78	1369.6	88.8	1374.6	88.91	1384.6	88.87
1394.59	88.96	1399.59	89.09	1404.59	89.9	1409.59	90.01	1419.59	89.79
1429.58	88.99	1434.58	88.85	1444.58	88.9	1449.58	89.09	1454.58	89.17
1469.57	89.06	1479.57	88.83	1489.57	88.79	1499.56	89.14	1509.56	88.81
1514.56	88.73	1529.56	88.89	1544.55	88.75	1554.55	88.92	1574.54	88.88
1579.54	89.02	1594.54	88.77	1599.54	88.8	1604.53	89.07	1614.53	89.07
1619.53	88.99	1624.53	88.78	1634.53	88.9	1639.52	89.13	1644.52	89.1
1649.52	88.81	1654.52	88.79	1659.52	88.91	1684.51	89.03	1689.51	88.85
1694.51	88.83	1699.51	88.65	1714.5	88.55	1724.5	88.71	1749.49	88.64
1759.49	88.78	1764.49	88.71	1769.49	88.51	1799.48	88.81	1809.47	88.85
1814.47	89.01	1819.47	89.07	1824.47	88.87	1854.46	88.68	1874.46	88.59
1884.45	88.81	1894.45	88.62	1914.44	88.88	1919.44	88.88	1929.44	89.13
1944.44	89.27	1959.43	89.2	1974.43	89.37	1999.42	89.51	2004.42	89.67
2029.41	89.73	2034.41	89.83	2069.4	90.03	2079.4	90.13	2084.39	90.06
2099.39	90.26	2104.39	90.26	2109.39	90.42	2114.39	90.46	2124.38	90.35
2144.38	90.52	2169.37	90.34	2179.37	90.12	2189.36	90.61	2199.36	91.01
2209.36	90.62	2214.35	90.67	2224.35	91.03	2229.35	91.08	2234.35	90.98
2249.34	90.26	2254.34	90.19	2264.34	89.8	2274.34	89.75	2279.33	89.65
2284.33	89.81	2294.33	89.52	2309.33	89.62	2314.32	89.95	2319.32	89.98
2324.32	90.15	2339.32	90.26	2344.31	90.13	2374.31	90.41	2404.3	90.46
2409.29	90.6	2419.29	90.64	2424.29	90.56	2434.29	90.65	2439.29	90.8
2449.28	90.59	2464.28	90.61	2469.28	90.73	2479.27	90.57	2484.27	90.64
2499.27	90.5	2509.26	90.56	2529.26	90.33	2539.26	90.34	2559.25	90.17
2574.24	90.04	2584.24	90.32	2604.24	89.9	2614.23	89.92	2619.23	89.8
2624.23	89.89	2629.23	89.86	2634.23	89.68	2654.22	89.54	2664.22	89.38
2674.21	89.33	2684.21	88.56	2689.21	88.09	2699.21	88.04	2704.21	88.23
2709.2	88.52	2719.2	88.52	2724.2	88.66	2734.2	88.48	2759.19	88.39
2764.19	88.29	2789.18	88.49	2799.18	88.39	2804.17	88.55	2829.17	88.53
2834.17	88.59								

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 919.73 .04 964.72 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 919.73 964.72 743 743 743 .1 .3

Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 919.73 89.87 F
 964.72 2834.17 90.09 F

Blocked Obstructions num= 2
 Sta L Sta R Elev Sta L Sta R Elev
 0 134.16 88.74 2229.31 2834.17 90.66

CROSS SECTION OUTPUT Profile #EX 10Y

NM103 OUTPUT REPORT.TXT

E.G. Elev (ft)	82.65	Element	Left OB	Channel
Right OB Vel Head (ft)	0.06	wt. n-val.		0.040
W.S. Elev (ft)	82.59	Reach Len. (ft)	743.00	743.00
743.00 Crit W.S. (ft)	80.67	Flow Area (sq ft)		49.48
E.G. slope (ft/ft)	0.001332	Area (sq ft)		49.48
Q Total (cfs)	97.00	Flow (cfs)		97.00
Top width (ft)	26.23	Top width (ft)		26.23
Vel Total (ft/s)	1.96	Avg. Vel. (ft/s)		1.96
Max Chl Dpth (ft)	4.17	Hydr. Depth (ft)		1.89
Conv. Total (cfs)	2658.0	Conv. (cfs)		2658.0
Length wtd. (ft)	743.00	wetted Per. (ft)		28.45
Min Ch El (ft)	78.42	Shear (lb/sq ft)		0.14
Alpha 0.00	1.00	Stream Power (lb/ft s)	2834.17	0.00
Frctn Loss (ft)	0.66	Cum volume (acre-ft)		2.38
C & E Loss (ft)	0.00	Cum SA (acres)		0.88

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	83.34	Element	Left OB	Channel
Right OB Vel Head (ft)	0.06	wt. n-val.		0.040
W.S. Elev (ft)	83.28	Reach Len. (ft)	743.00	743.00
743.00 Crit W.S. (ft)	81.04	Flow Area (sq ft)		68.06
E.G. slope (ft/ft)	0.000970	Area (sq ft)		68.06
Q Total (cfs)	135.00	Flow (cfs)		135.00
Top width (ft)	27.50	Top width (ft)		27.50
Vel Total (ft/s)	1.98	Avg. Vel. (ft/s)		1.98
Max Chl Dpth (ft)	4.86	Hydr. Depth (ft)		2.48
Conv. Total (cfs)	4334.3	Conv. (cfs)		4334.3

NM103 OUTPUT REPORT.TXT				
Length wtd. (ft)	743.00	Wetted Per. (ft)		30.33
Min Ch El (ft)	78.42	Shear (lb/sq ft)		0.14
Alpha 0.00	1.00	Stream Power (lb/ft s)	2834.17	0.00
Frctn Loss (ft)	0.57	Cum Volume (acre-ft)		3.06
C & E Loss (ft)	0.00	Cum SA (acres)		0.93

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	84.91	Element	Left OB	Channel
Right OB Vel Head (ft)	0.07	wt. n-val.		0.040
W.S. Elev (ft)	84.85	Reach Len. (ft)	743.00	743.00
743.00 Crit w.s. (ft)	81.81	Flow Area (sq ft)		113.39
E.G. slope (ft/ft)	0.000633	Area (sq ft)		113.39
Q Total (cfs)	234.00	Flow (cfs)		234.00
Top width (ft)	30.36	Top width (ft)		30.36
vel Total (ft/s)	2.06	Avg. vel. (ft/s)		2.06
Max Chl Dpth (ft)	6.43	Hydr. Depth (ft)		3.73
Conv. Total (cfs)	9298.9	Conv. (cfs)		9298.9
Length wtd. (ft)	743.00	wetted Per. (ft)		34.57
Min Ch El (ft)	78.42	Shear (lb/sq ft)		0.13
Alpha 0.00	1.00	Stream Power (lb/ft s)	2834.17	0.00
Frctn Loss (ft)	0.46	Cum volume (acre-ft)		4.71
C & E Loss (ft)	0.00	Cum SA (acres)		1.06

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	83.68	Element	Left OB	Channel
Right OB Vel Head (ft)	0.06	wt. n-val.		0.040
W.S. Elev (ft)	83.62	Reach Len. (ft)	743.00	743.00

NM103 OUTPUT REPORT.TXT

743.00			
Crit w.s. (ft)	81.19	Flow Area (sq ft)	77.69
E.G. slope (ft/ft)	0.000824	Area (sq ft)	77.69
Q Total (cfs)	152.00	Flow (cfs)	152.00
Top width (ft)	28.13	Top width (ft)	28.13
Vel Total (ft/s)	1.96	Avg. vel. (ft/s)	1.96
Max Chl Dpth (ft)	5.20	Hydr. Depth (ft)	2.76
Conv. Total (cfs)	5294.8	Conv. (cfs)	5294.8
Length wtd. (ft)	743.00	wetted Per. (ft)	31.26
Min Ch El (ft)	78.42	Shear (lb/sq ft)	0.13
Alpha 0.00	1.00	Stream Power (lb/ft s)	2834.17
Frctn Loss (ft)	0.53	Cum volume (acre-ft)	3.42
C & E Loss (ft)	0.00	Cum SA (acres)	0.96

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	84.43	Element	Left OB	Channel
Right OB Vel Head (ft)	0.06	wt. n-val.		0.040
w.s. Elev (ft)	84.37	Reach Len. (ft)	743.00	743.00
743.00 Crit w.s. (ft)	81.63	Flow Area (sq ft)		99.14
E.G. slope (ft/ft)	0.000681	Area (sq ft)		99.14
Q Total (cfs)	199.00	Flow (cfs)		199.00
Top width (ft)	29.49	Top width (ft)		29.49
Vel Total (ft/s)	2.01	Avg. vel. (ft/s)		2.01
Max Chl Dpth (ft)	5.95	Hydr. Depth (ft)		3.36
Conv. Total (cfs)	7624.2	Conv. (cfs)		7624.2
Length wtd. (ft)	743.00	wetted Per. (ft)		33.28
Min Ch El (ft)	78.42	Shear (lb/sq ft)		0.13
Alpha 0.00	1.00	Stream Power (lb/ft s)	2834.17	0.00
Frctn Loss (ft)	0.48	Cum volume (acre-ft)		4.20
C & E Loss (ft)	0.00	Cum SA (acres)		1.03

NM103 OUTPUT REPORT.TXT

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	86.05	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.07	wt. n-val.		0.040
W.S. Elev (ft)	85.98	Reach Len. (ft)	743.00	743.00
743.00				
Crit w.s. (ft)	82.19	Flow Area (sq ft)		149.00
E.G. slope (ft/ft)	0.000514	Area (sq ft)		149.00
Q Total (cfs)	314.00	Flow (cfs)		314.00
Top width (ft)	32.43	Top width (ft)		32.43
vel Total (ft/s)	2.11	Avg. vel. (ft/s)		2.11
Max Chl Dpth (ft)	7.56	Hydr. Depth (ft)		4.59
Conv. Total (cfs)	13850.2	Conv. (cfs)		13850.2
Length wtd. (ft)	743.00	wetted Per. (ft)		37.64
Min Ch El (ft)	78.42	Shear (lb/sq ft)		0.13
Alpha	1.00	Stream Power (lb/ft s)	2834.17	0.00
0.00				
Frctn Loss (ft)	0.41	Cum volume (acre-ft)		6.00
C & E Loss (ft)	0.00	Cum SA (acres)		1.16

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-103
 REACH: NM-103 RS: 1579

INPUT

Description:

Station	Elevation	Data	num=	297	Sta	Elev	Sta	Elev	Sta	Elev
0	87.29	10	87.46	15	87.73	19.99	88.15	34.99	88.09	
39.99	88.47	44.99	88.64	59.98	88.69	84.98	88.47	94.97	88.53	
99.97	88.28	104.97	88.19	124.96	88.42	134.96	88.64	149.96	88.54	
159.95	88.21	169.95	88.51	179.95	88.31	189.94	88.59	194.94	88.57	
209.94	88.3	219.94	88.52	239.93	88.63	244.93	88.52	249.93	88.31	
254.93	88.62	259.92	88.59	264.92	88.35	274.92	88.5	279.92	88.67	
289.92	88.63	294.91	88.48	299.91	88.58	309.91	88.48	324.91	88.71	

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329.9	88.71	334.9	88.81	339.9	88.36	344.9	88.61	354.9	88.68
359.89	88.84	369.89	88.66	394.88	88.6	404.88	88.33	409.88	88.5
419.88	88.57	429.87	88.41	449.87	88.5	464.86	88.45	469.86	88.5
479.86	88.37	489.86	88.45	539.84	88.53	549.84	88.42	589.83	88.45
599.82	88.64	614.82	88.45	624.82	88.66	639.81	88.41	649.81	88.62
664.81	88.53	669.8	88.61	674.8	88.57	679.8	88.68	684.8	88.68
689.8	88.44	699.8	88.4	704.79	88.66	709.79	88.53	729.79	88.61
744.78	88.48	749.78	88.61	759.78	88.73	779.77	88.48	789.77	88.53
794.77	88.47	804.77	88.62	824.76	88.45	854.75	88.67	864.75	88.58
879.74	88.74	889.74	89.32	899.74	89.46	904.74	88.55	905.5	88.36
909.74	87.3	914.73	85.86	919.73	81.61	924.73	78.15	929.73	77.58
934.73	78.34	939.73	81.79	944.73	87.06	949.72	90.14	954.72	90.47
955.5	90.61	959.72	91.35	964.72	91.37	969.72	90.66	974.72	89.68
979.72	89.6	994.71	88.89	999.71	88.88	1004.71	89.02	1014.7	88.82
1019.7	88.86	1024.7	88.62	1054.69	88.74	1059.69	88.9	1064.69	88.75
1074.69	88.87	1079.69	88.81	1084.68	88.91	1094.68	88.88	1099.68	88.74
1109.68	88.87	1119.67	88.81	1134.67	88.9	1149.67	88.61	1154.66	88.81
1164.66	89	1174.66	88.77	1179.66	88.78	1184.66	88.93	1194.65	88.83
1209.65	88.94	1249.64	88.8	1254.64	88.7	1259.63	88.75	1264.63	88.93
1274.63	88.68	1289.62	88.69	1299.62	89.01	1309.62	88.9	1319.62	89.06
1329.61	88.78	1339.61	88.8	1344.61	88.92	1349.61	88.81	1359.6	88.83
1369.6	89.04	1394.59	89.06	1414.59	89.24	1424.59	89.97	1434.58	90.2
1439.58	90.19	1444.58	89.87	1449.58	89.08	1454.58	88.86	1464.57	88.83
1469.57	88.45	1474.57	88.3	1479.57	88.29	1484.57	89.13	1489.57	89.18
1494.57	88.75	1499.56	88.62	1504.56	88.69	1509.56	88.89	1514.56	89.35
1519.56	89.34	1524.56	89.13	1529.56	88.71	1549.55	88.51	1554.55	88.58
1559.55	89.17	1564.55	89.56	1569.54	89.56	1579.54	88.66	1584.54	88.56
1589.54	88.58	1599.54	88.44	1609.53	89.07	1619.53	89.23	1624.53	88.97
1629.53	88.59	1649.52	88.45	1654.52	88.54	1664.52	89.13	1674.51	88.72
1679.51	88.42	1689.51	88.68	1709.5	88.63	1714.5	88.78	1724.5	88.9
1729.5	88.76	1734.5	88.48	1749.49	88.49	1754.49	88.65	1769.49	88.61
1774.48	88.79	1779.48	88.7	1784.48	88.71	1789.48	88.58	1794.48	88.58
1809.47	88.72	1814.47	88.56	1824.47	88.69	1829.47	88.53	1839.47	88.71
1859.46	88.74	1879.45	88.67	1889.45	88.45	1909.45	88.68	1919.44	88.53
1929.44	88.67	1934.44	88.66	1944.44	88.46	1964.43	88.79	1969.43	88.69
1974.43	88.35	1994.42	88.69	2039.41	88.43	2064.4	88.74	2069.4	88.91
2074.4	88.67	2084.39	88.64	2099.39	88.97	2104.39	88.97	2109.39	88.69
2124.38	88.72	2129.38	88.56	2134.38	88.79	2154.37	88.91	2164.37	88.65
2174.37	88.57	2179.37	88.42	2184.36	88.64	2189.36	88.71	2199.36	87.84
2204.36	87.61	2209.36	87.58	2214.35	87.69	2224.35	87.47	2234.35	87.63
2244.35	87.48	2254.34	87.63	2274.34	87.36	2284.33	87.38	2289.33	87.28
2309.33	87.35	2319.32	87.57	2334.32	87.51	2339.32	87.63	2354.31	87.56
2369.31	87.63	2389.3	87.43	2399.3	87.61	2409.29	87.44	2419.29	87.44
2424.29	87.6	2429.29	87.6	2434.29	87.47	2439.29	87.49	2444.28	87.72
2449.28	87.61	2454.28	87.83	2459.28	87.82	2464.28	87.43	2469.28	87.56
2479.27	87.52	2489.27	87.68	2499.27	87.43	2509.26	87.52	2514.26	87.49
2524.26	87.71	2539.26	87.56	2549.25	87.66	2554.25	87.52	2569.25	87.57
2574.24	87.38	2589.24	87.63	2594.24	87.5	2614.23	87.36	2619.23	87.43
2624.23	87.61	2659.22	87.74	2669.22	87.46	2679.21	87.65	2689.21	87.65
2694.21	87.73	2704.21	87.58	2709.2	87.63	2714.2	87.84	2724.2	87.67
2729.2	87.79	2744.19	87.76	2749.19	87.84	2754.19	87.63	2764.19	87.65
2769.19	87.75	2774.18	87.67	2789.18	87.72	2814.17	87.48	2819.17	87.68
2829.17	87.76	2834.17	87.72						

Manning's n Values num= 3
 Sta n Val Sta n Val
 0 .06 899.74 .04 949.72 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 899.74 949.72 942 951 901 .1 .3
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 899.74 89.46 F

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949.72 2834.17 90.14
 Blocked Obstructions num= 2
 Sta L Sta R Elev Sta L Sta R Elev
 0 59.94 88.57 2152.24 2834.17 88.64

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	81.98	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.05	wt. n-Val.		0.040
W.S. Elev (ft)	81.93	Reach Len. (ft)	942.00	951.00
901.00				
Crit w.s. (ft)	79.41	Flow Area (sq ft)		59.87
E.G. Slope (ft/ft)	0.000656	Area (sq ft)		59.87
Q Total (cfs)	108.00	Flow (cfs)		108.00
Top width (ft)	20.51	Top width (ft)		20.51
Vel Total (ft/s)	1.80	Avg. Vel. (ft/s)		1.80
Max chl Dpth (ft)	4.35	Hydr. Depth (ft)		2.92
Conv. Total (cfs)	4216.2	Conv. (cfs)		4216.2
Length wtd. (ft)	951.00	wetted Per. (ft)		22.94
Min ch El (ft)	77.58	shear (lb/sq ft)		0.11
Alpha	1.00	Stream Power (lb/ft s)	2834.17	0.00
0.00				
Frctn Loss (ft)	0.48	Cum Volume (acre-ft)		1.45
C & E Loss (ft)	0.00	Cum SA (acres)		0.48

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	82.77	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.06	wt. n-Val.		0.040
W.S. Elev (ft)	82.71	Reach Len. (ft)	942.00	951.00
901.00				
Crit w.s. (ft)	79.74	Flow Area (sq ft)		76.43
E.G. Slope (ft/ft)	0.000636	Area (sq ft)		76.43
Q Total (cfs)	150.00	Flow (cfs)		150.00
Top width (ft)	22.16	Top width (ft)		22.16
Vel Total (ft/s)	1.96	Avg. Vel. (ft/s)		1.96

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Max Chl Dpth (ft)	5.13	Hydr. Depth (ft)		3.45
Conv. Total (cfs)	5948.2	Conv. (cfs)		5948.2
Length Wtd. (ft)	951.00	Wetted Per. (ft)		25.21
Min Ch El (ft)	77.58	Shear (lb/sq ft)		0.12
Alpha 0.00	1.00	Stream Power (lb/ft s)	2834.17	0.00
Frctn Loss (ft)	0.47	Cum Volume (acre-ft)		1.83
C & E Loss (ft)	0.01	Cum SA (acres)		0.51

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	84.45	Element	Left OB	Channel
Right OB Vel Head (ft)	0.08	wt. n-Val.		0.040
W.S. Elev (ft)	84.37	Reach Len. (ft)	942.00	951.00
901.00 Crit w.s. (ft)	80.46	Flow Area (sq ft)		116.31
E.G. Slope (ft/ft)	0.000601	Area (sq ft)		116.31
Q Total (cfs)	261.00	Flow (cfs)		261.00
Top width (ft)	25.70	Top width (ft)		25.70
Vel Total (ft/s)	2.24	Avg. Vel. (ft/s)		2.24
Max Chl Dpth (ft)	6.79	Hydr. Depth (ft)		4.52
Conv. Total (cfs)	10644.9	Conv. (cfs)		10644.9
Length Wtd. (ft)	951.00	Wetted Per. (ft)		30.08
Min Ch El (ft)	77.58	Shear (lb/sq ft)		0.15
Alpha 0.00	1.00	Stream Power (lb/ft s)	2834.17	0.00
Frctn Loss (ft)	0.46	Cum Volume (acre-ft)		2.75
C & E Loss (ft)	0.01	Cum SA (acres)		0.59

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	83.16	Element	Left OB	Channel
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NM103 OUTPUT REPORT.TXT

Right OB				
Vel Head (ft)	0.06	wt. n-val.		0.040
W.S. Elev (ft)	83.09	Reach Len. (ft)	942.00	951.00
901.00				
Crit W.S. (ft)	79.91	Flow Area (sq ft)		85.11
E.G. Slope (ft/ft)	0.000627	Area (sq ft)		85.11
Q Total (cfs)	173.00	Flow (cfs)		173.00
Top width (ft)	22.98	Top width (ft)		22.98
Vel Total (ft/s)	2.03	Avg. Vel. (ft/s)		2.03
Max Chl Dpth (ft)	5.51	Hydr. Depth (ft)		3.70
Conv. Total (cfs)	6911.4	Conv. (cfs)		6911.4
Length wtd. (ft)	951.00	wetted Per. (ft)		26.33
Min ch El (ft)	77.58	Shear (lb/sq ft)		0.13
Alpha	1.00	Stream Power (lb/ft s)	2834.17	0.00
0.00				
Frctn Loss (ft)	0.47	Cum Volume (acre-ft)		2.03
C & E Loss (ft)	0.01	Cum SA (acres)		0.53

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	83.95	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.07	wt. n-val.		0.040
W.S. Elev (ft)	83.88	Reach Len. (ft)	942.00	951.00
901.00				
Crit W.S. (ft)	80.25	Flow Area (sq ft)		103.88
E.G. Slope (ft/ft)	0.000610	Area (sq ft)		103.88
Q Total (cfs)	225.00	Flow (cfs)		225.00
Top width (ft)	24.66	Top width (ft)		24.66
Vel Total (ft/s)	2.17	Avg. Vel. (ft/s)		2.17
Max Chl Dpth (ft)	6.30	Hydr. Depth (ft)		4.21
Conv. Total (cfs)	9110.9	Conv. (cfs)		9110.9
Length wtd. (ft)	951.00	wetted Per. (ft)		28.63
Min ch El (ft)	77.58	Shear (lb/sq ft)		0.14
Alpha	1.00	Stream Power (lb/ft s)	2834.17	0.00

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0.00			
Frctn Loss (ft)	0.46	Cum Volume (acre-ft)	2.46
C & E Loss (ft)	0.01	Cum SA (acres)	0.56

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	85.64	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.09	wt. n-val.		0.040
w.s. Elev (ft)	85.55	Reach Len. (ft)	942.00	951.00
901.00				
Crit w.s. (ft)	80.96	Flow Area (sq ft)		148.01
E.G. Slope (ft/ft)	0.000579	Area (sq ft)		148.01
Q Total (cfs)	356.00	Flow (cfs)		356.00
Top width (ft)	28.20	Top width (ft)		28.20
Vel Total (ft/s)	2.41	Avg. Vel. (ft/s)		2.41
Max chl Dpth (ft)	7.97	Hydr. Depth (ft)		5.25
Conv. Total (cfs)	14799.7	Conv. (cfs)		14799.7
Length wtd. (ft)	951.00	wetted Per. (ft)		33.51
Min ch El (ft)	77.58	shear (lb/sq ft)		0.16
Alpha	1.00	Stream Power (lb/ft s)	2834.17	0.00
0.00				
Frctn Loss (ft)	0.45	Cum Volume (acre-ft)		3.47
C & E Loss (ft)	0.01	Cum SA (acres)		0.64

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-103
 REACH: NM-103 RS: 628

INPUT

Description:

Station	Elevation	Data	num=	290					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	88.3	9.98	88.12	14.97	88.18	24.95	88.55	29.94	88.66
49.91	88.68	54.9	88.6	59.89	88.34	64.88	88.32	84.84	88.58
94.82	88.25	104.81	88.16	114.79	88.62	119.78	88.64	124.77	88.78

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129.76	88.5	134.75	88.36	139.74	88.36	149.72	88.01	154.71	88.03
159.7	88.4	174.68	88.51	179.67	88.64	189.65	88.65	199.63	88.22
204.62	88.22	209.61	88.4	214.6	88.39	219.59	88.76	224.59	88.78
229.58	88.9	239.56	88.63	244.55	88.62	249.54	88.35	269.5	88.47
284.47	88.26	294.46	88.4	304.44	88.8	309.43	88.86	314.42	88.74
319.41	88.42	339.37	88.47	349.35	88.65	379.3	88.65	389.28	88.4
394.27	88.39	404.25	88.69	414.23	88.71	419.23	88.64	424.22	88.42
429.21	88.35	434.2	88.47	449.17	88.57	459.15	88.48	469.13	88.9
479.12	88.52	489.1	88.55	499.08	88.71	509.06	88.49	519.04	88.46
524.03	88.3	534.01	88.39	539	88.67	553.98	89	563.96	88.52
573.94	88.3	593.9	88.59	613.87	88.43	618.86	88.21	623.85	88.29
628.84	88.19	638.82	88.37	643.81	88.55	648.8	88.62	658.78	88.4
663.77	88.39	673.76	88.54	683.74	88.87	688.73	88.63	693.72	88.27
703.7	88.22	713.68	88.39	728.65	88.35	748.62	88.08	758.6	88.14
763.59	88.41	768.58	88.54	783.55	88.41	788.54	88.57	793.53	88.33
813.5	88.46	823.48	88.35	853.42	88.68	863.41	88.23	868.4	88.19
873.39	88.32	883.37	88.43	903.33	88.36	918.3	88.19	978.19	88.4
983.18	88.32	993.17	88.43	1003.15	88.22	1033.09	88.55	1043.07	88.31
1053.05	88.56	1063.04	88.26	1083	88.34	1087.99	88.59	1102.96	88.39
1112.94	88.44	1122.93	88.68	1127.92	88.72	1137.9	88.52	1142.89	88.73
1157.86	88.76	1162.85	88.86	1172.83	89.27	1177.82	89.36	1181.82	89.69
1182.81	89.78	1187.72	88.15	1192.63	84.23	1197.53	79.42	1202.44	77.66
1207.35	77.03	1212.26	77.39	1217.16	79.88	1222.07	85.26	1226.98	91.79
1231.88	95.1	1232.21	95.13	1236.79	95.51	1246.6	95.13	1251.51	94.51
1256.42	93.02	1261.32	91.82	1266.32	91.17	1271.31	91.15	1276.31	89.89
1281.31	88.95	1286.3	88.56	1291.3	88.55	1296.29	88.33	1321.27	88.62
1326.27	88.82	1331.26	88.85	1336.26	89.02	1356.24	88.94	1361.23	89.21
1366.23	89.19	1376.22	89.03	1381.22	88.77	1386.21	88.25	1391.21	87.95
1396.2	87.89	1401.2	88.02	1411.19	87.52	1416.18	87.47	1421.18	87.58
1451.15	87.29	1461.14	87.33	1471.14	87.43	1476.13	87.33	1491.12	87.43
1501.11	87.59	1511.1	87.38	1521.09	87.47	1531.08	87.47	1536.08	87.72
1546.07	87.31	1556.06	87.4	1601.02	87.4	1611.01	87.53	1616.01	87.35
1626	87.5	1635.99	87.45	1640.98	87.55	1645.98	87.47	1650.97	87.65
1655.97	87.69	1660.97	87.29	1665.96	87.5	1675.95	87.56	1680.95	87.39
1700.93	87.5	1710.92	87.34	1720.91	87.5	1740.89	87.37	1750.88	87.44
1760.88	87.71	1765.87	87.6	1775.86	87.76	1795.84	87.47	1805.84	87.43
1815.83	87.6	1830.81	87.62	1840.8	87.51	1845.8	87.7	1855.79	87.52
1860.79	87.61	1915.74	87.47	1930.72	87.7	1935.72	87.64	1945.71	87.39
1950.71	87.47	1955.7	87.45	1960.7	87.6	1965.69	87.28	1985.67	87.53
1990.67	87.32	2000.66	87.37	2005.66	87.52	2020.64	87.44	2025.64	87.53
2030.63	87.32	2045.62	87.4	2050.62	87.59	2060.61	87.54	2065.6	87.61
2070.6	87.47	2080.59	87.48	2085.58	87.4	2095.58	87.63	2110.56	87.6
2135.54	88.18	2150.53	88.15	2155.52	88.06	2220.46	87.99	2225.46	88.08
2230.45	88.28	2240.45	88.17	2245.44	88.22	2255.43	88.02	2280.41	88.13
2290.4	87.86	2295.4	88.02	2310.38	88.08	2320.37	87.91	2335.36	88.08
2340.36	88.27	2345.35	88.27	2350.35	88.05	2355.34	87.99	2375.33	88.29
2385.32	88.16	2390.31	88.02	2405.3	87.98	2415.29	88.25	2425.28	88.13
2440.27	88.22	2460.25	88.06	2470.24	88.22	2480.23	87.95	2490.22	88.16
2500.21	88.11	2510.2	88.22	2520.2	87.99	2550.17	88.19	2555.16	88.3
2560.16	88.2	2565.16	88.32	2580.14	88.1	2595.13	88.16	2600.12	87.99
2615.11	88.15	2620.11	88.13	2625.1	88.22	2645.08	88.17	2650.08	88.37
2655.08	88.43	2660.07	88.14	2665.07	88.25	2670.06	88.13	2685.05	88.09
2690.04	87.94	2710.03	88.17	2730.01	88.16	2740	88.08	2749.99	88.17
2759.98	88.14	2764.98	88.04	2779.96	87.95	2789.96	88.18	2799.95	88.15
2804.94	88.22	2814.93	88.02	2819.93	88.16	2834.91	88.12	2854.9	88.12

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 1182.81 .04 1226.98 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 1182.81 1226.98 597 628 665 .1 .3
 Ineffective Flow num= 2

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Sta L	Sta R	Elev	Permanent
0	1182.81	89.78	F
1226.98	2854.9	91.79	F

CROSS SECTION OUTPUT Profile #EX 10Y

		Element	Left OB	Channel
E.G. Elev (ft)	81.50			
Right OB				
Vel Head (ft)	0.03	wt. n-val.		0.040
W.S. Elev (ft)	81.46	Reach Len. (ft)		
Crit w.s. (ft)	78.74	Flow Area (sq ft)		72.60
E.G. slope (ft/ft)	0.000401	Area (sq ft)		72.60
Q Total (cfs)	108.00	Flow (cfs)		108.00
Top width (ft)	23.16	Top width (ft)		23.16
Vel Total (ft/s)	1.49	Avg. vel. (ft/s)		1.49
Max Chl Dpth (ft)	4.43	Hydr. Depth (ft)		3.13
Conv. Total (cfs)	5396.3	Conv. (cfs)		5396.3
Length wtd. (ft)		wetted Per. (ft)		25.65
Min Ch El (ft)	77.03	Shear (lb/sq ft)		0.07
Alpha	1.00	Stream Power (lb/ft s)	2854.90	0.00
0.00		Cum volume (acre-ft)		
Frctn Loss (ft)		Cum SA (acres)		
C & E Loss (ft)				

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

		Element	Left OB	Channel
E.G. Elev (ft)	82.29			
Right OB				
Vel Head (ft)	0.04	wt. n-val.		0.040
W.S. Elev (ft)	82.25	Reach Len. (ft)		
Crit w.s. (ft)	79.05	Flow Area (sq ft)		91.34
E.G. slope (ft/ft)	0.000401	Area (sq ft)		91.34
Q Total (cfs)	150.00	Flow (cfs)		150.00
Top width (ft)	24.67	Top width (ft)		24.67
Vel Total (ft/s)	1.64	Avg. vel. (ft/s)		1.64
Max Chl Dpth (ft)	5.22	Hydr. Depth (ft)		3.70

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Conv. Total (cfs)	7494.4	Conv. (cfs)	7494.4
Length wtd. (ft)		wetted Per. (ft)	27.83
Min Ch El (ft)	77.03	Shear (lb/sq ft)	0.08
Alpha	1.00	Stream Power (lb/ft s)	2854.90
0.00		Cum Volume (acre-ft)	0.00
Frctn Loss (ft)		Cum SA (acres)	
C & E Loss (ft)			

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	83.98	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.06	wt. n-val.		0.040
w.s. Elev (ft)	83.93	Reach Len. (ft)		
Crit w.s. (ft)	79.69	Flow Area (sq ft)		135.50
E.G. slope (ft/ft)	0.000401	Area (sq ft)		135.50
Q Total (cfs)	261.00	Flow (cfs)		261.00
Top width (ft)	27.92	Top width (ft)		27.92
vel Total (ft/s)	1.93	Avg. vel. (ft/s)		1.93
Max Chl Dpth (ft)	6.90	Hydr. Depth (ft)		4.85
Conv. Total (cfs)	13040.1	Conv. (cfs)		13040.1
Length wtd. (ft)		wetted Per. (ft)		32.50
Min Ch El (ft)	77.03	Shear (lb/sq ft)		0.10
Alpha	1.00	Stream Power (lb/ft s)	2854.90	0.00
0.00		Cum Volume (acre-ft)		
Frctn Loss (ft)		Cum SA (acres)		
C & E Loss (ft)				

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	82.68	Element	Left OB	Channel
Right OB				

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Vel Head (ft)	0.05	wt. n-Val.	0.040
W.S. Elev (ft)	82.64	Reach Len. (ft)	
Crit W.S. (ft)	79.20	Flow Area (sq ft)	101.06
E.G. Slope (ft/ft)	0.000400	Area (sq ft)	101.06
Q Total (cfs)	173.00	Flow (cfs)	173.00
Top Width (ft)	25.42	Top Width (ft)	25.42
Vel Total (ft/s)	1.71	Avg. Vel. (ft/s)	1.71
Max Chl Dpth (ft)	5.61	Hydr. Depth (ft)	3.98
Conv. Total (cfs)	8648.0	Conv. (cfs)	8648.0
Length Wtd. (ft)		wetted Per. (ft)	28.91
Min Ch El (ft)	77.03	Shear (lb/sq ft)	0.09
Alpha 0.00	1.00	Stream Power (lb/ft s)	2854.90
Frctn Loss (ft)		Cum Volume (acre-ft)	0.00
C & E Loss (ft)		Cum SA (acres)	

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

CROSS SECTION OUTPUT Profile #ULT 25Y				
E.G. Elev (ft)	83.48	Element	Left OB	Channel
Right OB Vel Head (ft)	0.05	wt. n-Val.		0.040
W.S. Elev (ft)	83.43	Reach Len. (ft)		
Crit W.S. (ft)	79.50	Flow Area (sq ft)		121.88
E.G. Slope (ft/ft)	0.000400	Area (sq ft)		121.88
Q Total (cfs)	225.00	Flow (cfs)		225.00
Top Width (ft)	26.96	Top Width (ft)		26.96
Vel Total (ft/s)	1.85	Avg. Vel. (ft/s)		1.85
Max Chl Dpth (ft)	6.40	Hydr. Depth (ft)		4.52
Conv. Total (cfs)	11249.4	Conv. (cfs)		11249.4
Length Wtd. (ft)		wetted Per. (ft)		31.12
Min Ch El (ft)	77.03	Shear (lb/sq ft)		0.10
Alpha 0.00	1.00	Stream Power (lb/ft s)	2854.90	0.00

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 Cum Volume (acre-ft)

Frctn Loss (ft)
 C & E Loss (ft)

Cum SA (acres)

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

		Element	Left OB	Channel
E.G. Elev (ft)	85.18			
Right OB				
Vel Head (ft)	0.07	wt. n-val.		0.040
w.s. Elev (ft)	85.11	Reach Len. (ft)		
Crit w.s. (ft)	80.12	Flow Area (sq ft)		170.03
E.G. slope (ft/ft)	0.000400	Area (sq ft)		170.03
Q Total (cfs)	356.00	Flow (cfs)		356.00
Top width (ft)	30.41	Top width (ft)		30.41
vel Total (ft/s)	2.09	Avg. vel. (ft/s)		2.09
Max Chl Dpth (ft)	8.08	Hydr. Depth (ft)		5.59
Conv. Total (cfs)	17797.1	Conv. (cfs)		17797.1
Length wtd. (ft)		wetted Per. (ft)		35.95
Min Ch El (ft)	77.03	Shear (lb/sq ft)		0.12
Alpha	1.00	Stream Power (lb/ft s)	2854.90	0.00
0.00				
Frctn Loss (ft)		Cum volume (acre-ft)		
C & E Loss (ft)		Cum SA (acres)		

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

SUMMARY OF MANNING'S N VALUES

River:N-NM-103

Reach	River Sta.	n1	n2	n3
NM-103	12134	.06	.04	.06
NM-103	10905	.06	.04	.06
NM-103	9676	.06	.04	.06
NM-103	9510	.06	.04	.06
NM-103	8922	.06	.04	.06
NM-103	8419	.06	.04	.06

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NM-103	7975	.06	.04	.06
NM-103	7025	.06	.04	.06
NM-103	6894	.06	.04	.06
NM-103	6017	.06	.04	.06
NM-103	4540	.06	.04	.06
NM-103	3550	.06	.04	.06
NM-103	3019	.06	.04	.06
NM-103	2322	.06	.04	.06
NM-103	1579	.06	.04	.06
NM-103	628	.06	.04	.06

SUMMARY OF REACH LENGTHS

River: N-NM-103

Reach	River Sta.	Left	Channel	Right
NM-103	12134	1229	1229	1229
NM-103	10905	1228	1229	1230
NM-103	9676	166	166	166
NM-103	9510	587	588	589
NM-103	8922	502	502	502
NM-103	8419	444	444	444
NM-103	7975	951	950	949
NM-103	7025	132	132	132
NM-103	6894	876	876	877
NM-103	6017	1277	1477	1258
NM-103	4540	1030	990	1039
NM-103	3550	428	531	428
NM-103	3019	696	697	722
NM-103	2322	743	743	743
NM-103	1579	942	951	901
NM-103	628	597	628	665

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS

River: N-NM-103

Reach	River Sta.	Contr.	Expan.
NM-103	12134	.1	.3
NM-103	10905	.1	.3
NM-103	9676	.1	.3
NM-103	9510	.1	.3
NM-103	8922	.1	.3
NM-103	8419	.1	.3
NM-103	7975	.1	.3
NM-103	7025	.1	.3
NM-103	6894	.1	.3
NM-103	6017	.1	.3
NM-103	4540	.1	.3
NM-103	3550	.1	.3
NM-103	3019	.1	.3
NM-103	2322	.1	.3
NM-103	1579	.1	.3
NM-103	628	.1	.3

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Profile Output Table - Table 1

Reach Vel Chnl (ft/s)	River Sta Flow Area (sq ft)	Profile Top Width (ft)	Q Total Volume (cfs) (acre-ft)	W.S. Elev (ft)	E.G. Elev (ft)	Min Ch El (ft)
NM-103 1.49	628 72.60	EX 10Y 23.16	108.00	81.46	81.50	77.03
NM-103 1.64	628 91.34	EX 25Y 24.67	150.00	82.25	82.29	77.03
NM-103 1.93	628 135.50	EX 100Y 27.92	261.00	83.93	83.98	77.03
NM-103 1.71	628 101.06	ULT 10Y 25.42	173.00	82.64	82.68	77.03
NM-103 1.85	628 121.88	ULT 25Y 26.96	225.00	83.43	83.48	77.03
NM-103 2.09	628 170.03	ULT 100Y 30.41	356.00	85.11	85.18	77.03
NM-103 1.80	1579 59.87	EX 10Y 20.51	108.00 1.45	81.93	81.98	77.58
NM-103 1.96	1579 76.43	EX 25Y 22.16	150.00 1.83	82.71	82.77	77.58
NM-103 2.24	1579 116.31	EX 100Y 25.70	261.00 2.75	84.37	84.45	77.58
NM-103 2.03	1579 85.11	ULT 10Y 22.98	173.00 2.03	83.09	83.16	77.58
NM-103 2.17	1579 103.88	ULT 25Y 24.66	225.00 2.46	83.88	83.95	77.58
NM-103 2.41	1579 148.01	ULT 100Y 28.20	356.00 3.47	85.55	85.64	77.58
NM-103 1.96	2322 49.48	EX 10Y 26.23	97.00 2.38	82.59	82.65	78.42
NM-103 1.98	2322 68.06	EX 25Y 27.50	135.00 3.06	83.28	83.34	78.42
NM-103 2.06	2322 113.39	EX 100Y 30.36	234.00 4.71	84.85	84.91	78.42
NM-103 1.96	2322 77.69	ULT 10Y 28.13	152.00 3.42	83.62	83.68	78.42
NM-103 2.01	2322 99.14	ULT 25Y 29.49	199.00 4.20	84.37	84.43	78.42
NM-103 2.11	2322 149.00	ULT 100Y 32.43	314.00 6.00	85.98	86.05	78.42
NM-103 2.45	3019 39.63	EX 10Y 20.33	97.00 3.09	83.67	83.76	80.93
NM-103 2.70	3019 49.95	EX 25Y 21.71	135.00 4.01	84.16	84.27	80.93
NM-103 2.92	3019 80.12	EX 100Y 25.21	234.00 6.26	85.45	85.58	80.93
NM-103 2.75	3019 55.27	ULT 10Y 22.37	152.00 4.48	84.40	84.52	80.93
NM-103 2.86	3019 69.62	ULT 25Y 24.05	199.00 5.55	85.02	85.15	80.93
NM-103	3019	ULT 100Y	314.00	86.46	86.59	80.93

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27.97 8.05

2.93	107.00					
NM-103	3550	EX 10Y	97.00	84.11	84.13	80.57
1.27	76.22	28.98	3.80			
NM-103	3550	EX 25Y	135.00	84.64	84.67	80.57
1.47	91.91	30.23	4.87			
NM-103	3550	EX 100Y	234.00	85.91	85.96	80.57
1.77	132.17	33.22	7.55			
NM-103	3550	ULT 10Y	152.00	84.88	84.92	80.57
1.53	99.21	30.79	5.43			
NM-103	3550	ULT 25Y	199.00	85.49	85.53	80.57
1.68	118.47	32.23	6.69			
NM-103	3550	ULT 100Y	314.00	86.88	86.93	80.57
1.90	165.37	35.47	9.71			
NM-103	4540	EX 10Y	97.00	84.37	84.39	80.59
1.02	95.40	32.47	5.75			
NM-103	4540	EX 25Y	135.00	84.94	84.96	80.59
1.18	114.06	33.63	7.21			
NM-103	4540	EX 100Y	234.00	86.23	86.27	80.59
1.47	159.45	36.32	10.86			
NM-103	4540	ULT 10Y	152.00	85.18	85.21	80.59
1.24	122.40	34.14	7.94			
NM-103	4540	ULT 25Y	199.00	85.81	85.84	80.59
1.38	144.16	35.44	9.68			
NM-103	4540	ULT 100Y	314.00	87.19	87.23	80.59
1.61	195.28	38.32	13.81			
NM-103	6017	EX 10Y	97.00	84.63	84.64	80.26
0.99	97.74	29.01	9.02			
NM-103	6017	EX 25Y	135.00	85.24	85.27	80.26
1.16	116.44	32.62	11.12			
NM-103	6017	EX 100Y	234.00	86.59	86.62	80.26
1.42	164.72	37.62	16.36			
NM-103	6017	ULT 10Y	152.00	85.51	85.53	80.26
1.21	125.35	34.95	12.14			
NM-103	6017	ULT 25Y	199.00	86.15	86.18	80.26
1.34	148.55	36.71	14.64			
NM-103	6017	ULT 100Y	314.00	87.55	87.59	80.26
1.56	201.82	39.63	20.54			
NM-103	6894	EX 10Y	56.00	84.76	84.77	80.42
0.74	75.93	29.85	10.77			
NM-103	6894	EX 25Y	79.00	85.40	85.41	80.42
0.83	95.63	31.71	13.25			
NM-103	6894	EX 100Y	137.00	86.76	86.78	80.42
0.97	141.35	35.45	19.44			
NM-103	6894	ULT 10Y	89.00	85.67	85.68	80.42
0.85	104.32	32.45	14.45			
NM-103	6894	ULT 25Y	116.00	86.32	86.33	80.42
0.92	126.02	34.24	17.40			
NM-103	6894	ULT 100Y	184.00	87.72	87.74	80.42
1.04	176.69	38.05	24.35			
NM-103	7025	EX 10Y	56.00	84.78	84.78	81.02
0.62	89.75	32.71	11.02			
NM-103	7025	EX 25Y	79.00	85.42	85.42	81.02
0.71	111.20	34.22	13.57			

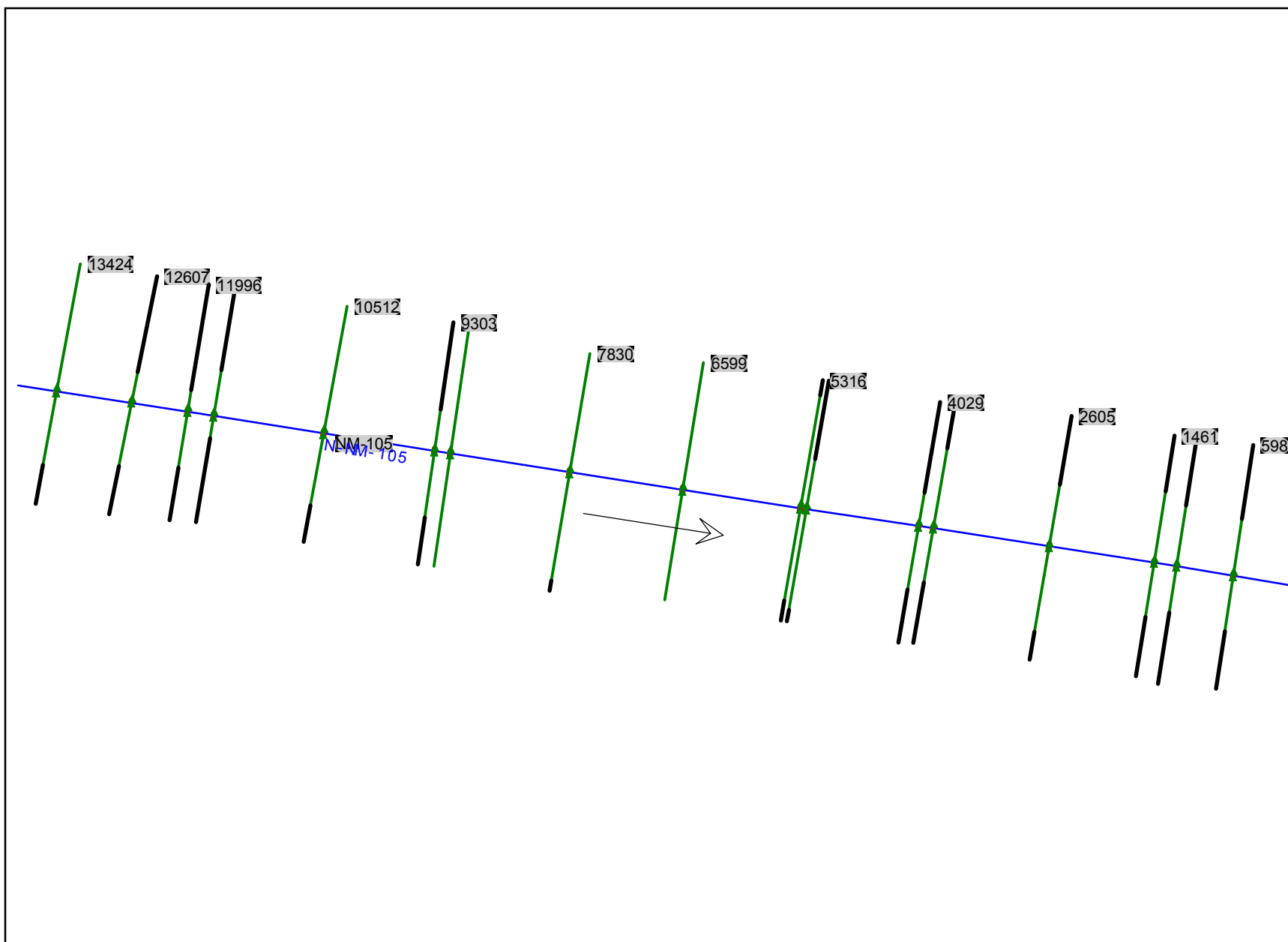
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NM-103	7025	EX 100Y	137.00	86.78	86.79	81.02
0.86	159.74	37.06	19.89			
NM-103	7025	ULT 10Y	89.00	85.69	85.69	81.02
0.74	120.54	34.79	14.79			
NM-103	7025	ULT 25Y	116.00	86.34	86.35	81.02
0.81	143.63	36.14	17.81			
NM-103	7025	ULT 100Y	184.00	87.74	87.75	81.02
0.94	196.34	39.11	24.91			
NM-103	7975	EX 10Y	56.00	84.85	84.85	80.24
0.66	85.39	25.56	12.93			
NM-103	7975	EX 25Y	79.00	85.49	85.50	80.24
0.77	102.40	26.95	15.90			
NM-103	7975	EX 100Y	137.00	86.86	86.88	80.24
0.97	141.33	29.90	23.18			
NM-103	7975	ULT 10Y	89.00	85.77	85.78	80.24
0.81	109.81	27.53	17.31			
NM-103	7975	ULT 25Y	116.00	86.42	86.43	80.24
0.90	128.30	28.94	20.77			
NM-103	7975	ULT 100Y	184.00	87.83	87.84	80.24
1.08	171.11	31.95	28.92			
NM-103	8419	EX 10Y	56.00	84.89	84.90	81.34
0.89	62.74	22.64	13.68			
NM-103	8419	EX 25Y	79.00	85.55	85.56	81.34
1.00	79.09	28.98	16.82			
NM-103	8419	EX 100Y	137.00	86.92	86.94	81.34
1.13	120.85	31.84	24.51			
NM-103	8419	ULT 10Y	89.00	85.82	85.84	81.34
1.02	87.06	29.55	18.31			
NM-103	8419	ULT 25Y	116.00	86.48	86.49	81.34
1.09	106.90	30.90	21.97			
NM-103	8419	ULT 100Y	184.00	87.88	87.91	81.34
1.21	152.54	34.01	30.57			
NM-103	8922	EX 10Y	12.00	84.92	84.92	80.21
0.15	80.40	24.12	14.51			
NM-103	8922	EX 25Y	16.00	85.59	85.59	80.21
0.17	96.94	25.64	17.84			
NM-103	8922	EX 100Y	28.00	86.97	86.97	80.21
0.21	134.48	28.81	25.98			
NM-103	8922	ULT 10Y	19.00	85.86	85.86	80.21
0.18	104.04	26.26	19.41			
NM-103	8922	ULT 25Y	24.00	86.52	86.52	80.21
0.20	121.84	27.77	23.29			
NM-103	8922	ULT 100Y	38.00	87.93	87.93	80.21
0.23	163.37	31.04	32.39			
NM-103	9510	EX 10Y	12.00	84.93	84.93	80.81
0.17	71.61	24.71	15.54			
NM-103	9510	EX 25Y	16.00	85.59	85.59	80.81
0.18	88.57	26.33	19.09			
NM-103	9510	EX 100Y	28.00	86.97	86.97	80.81
0.22	127.22	29.68	27.75			
NM-103	9510	ULT 10Y	19.00	85.87	85.87	80.81
0.20	95.88	27.00	20.76			
NM-103	9510	ULT 25Y	24.00	86.52	86.52	80.81
0.21	114.19	28.60	24.88			
NM-103	9510	ULT 100Y	38.00	87.94	87.94	80.81

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 32.03 34.55

0.24	157.01					
NM-103	9676	EX 10Y	12.00	84.93	84.93	81.07
0.16	77.05	26.96	15.82			
NM-103	9676	EX 25Y	16.00	85.59	85.59	81.07
0.17	95.51	28.59	19.44			
NM-103	9676	EX 100Y	28.00	86.97	86.97	81.07
0.20	137.29	31.96	28.25			
NM-103	9676	ULT 10Y	19.00	85.87	85.87	81.07
0.18	103.44	29.26	21.14			
NM-103	9676	ULT 25Y	24.00	86.52	86.53	81.07
0.19	123.24	30.86	25.34			
NM-103	9676	ULT 100Y	38.00	87.94	87.94	81.07
0.22	169.28	34.31	35.18			
NM-103	10905	EX 10Y	12.00	84.93	84.93	81.03
0.16	75.20	26.38	17.97			
NM-103	10905	EX 25Y	16.00	85.60	85.60	81.03
0.17	93.15	27.66	22.10			
NM-103	10905	EX 100Y	28.00	86.98	86.98	81.03
0.21	133.17	30.32	32.07			
NM-103	10905	ULT 10Y	19.00	85.87	85.87	81.03
0.19	100.83	28.19	24.02			
NM-103	10905	ULT 25Y	24.00	86.53	86.53	81.03
0.20	119.81	29.46	28.76			
NM-103	10905	ULT 100Y	38.00	87.94	87.94	81.03
0.23	163.35	32.18	39.87			
NM-103	12134	EX 10Y	12.00	84.94	84.94	81.90
0.22	53.85	29.03	19.79			
NM-103	12134	EX 25Y	16.00	85.61	85.61	81.90
0.22	73.90	31.49	24.46			
NM-103	12134	EX 100Y	28.00	86.99	86.99	81.90
0.23	121.08	36.90	35.66			
NM-103	12134	ULT 10Y	19.00	85.88	85.88	81.90
0.23	82.72	32.57	26.61			
NM-103	12134	ULT 25Y	24.00	86.54	86.54	81.90
0.23	104.99	35.15	31.94			
NM-103	12134	ULT 100Y	38.00	87.95	87.95	81.90
0.24	157.99	39.36	44.40			

APPENDIX D
HEC-RAS HYDRAULIC OUTPUT
NM-105 BASE CONDITION



HEC-RAS Plan: BASE River: N-NM-105 Reach: NM-105

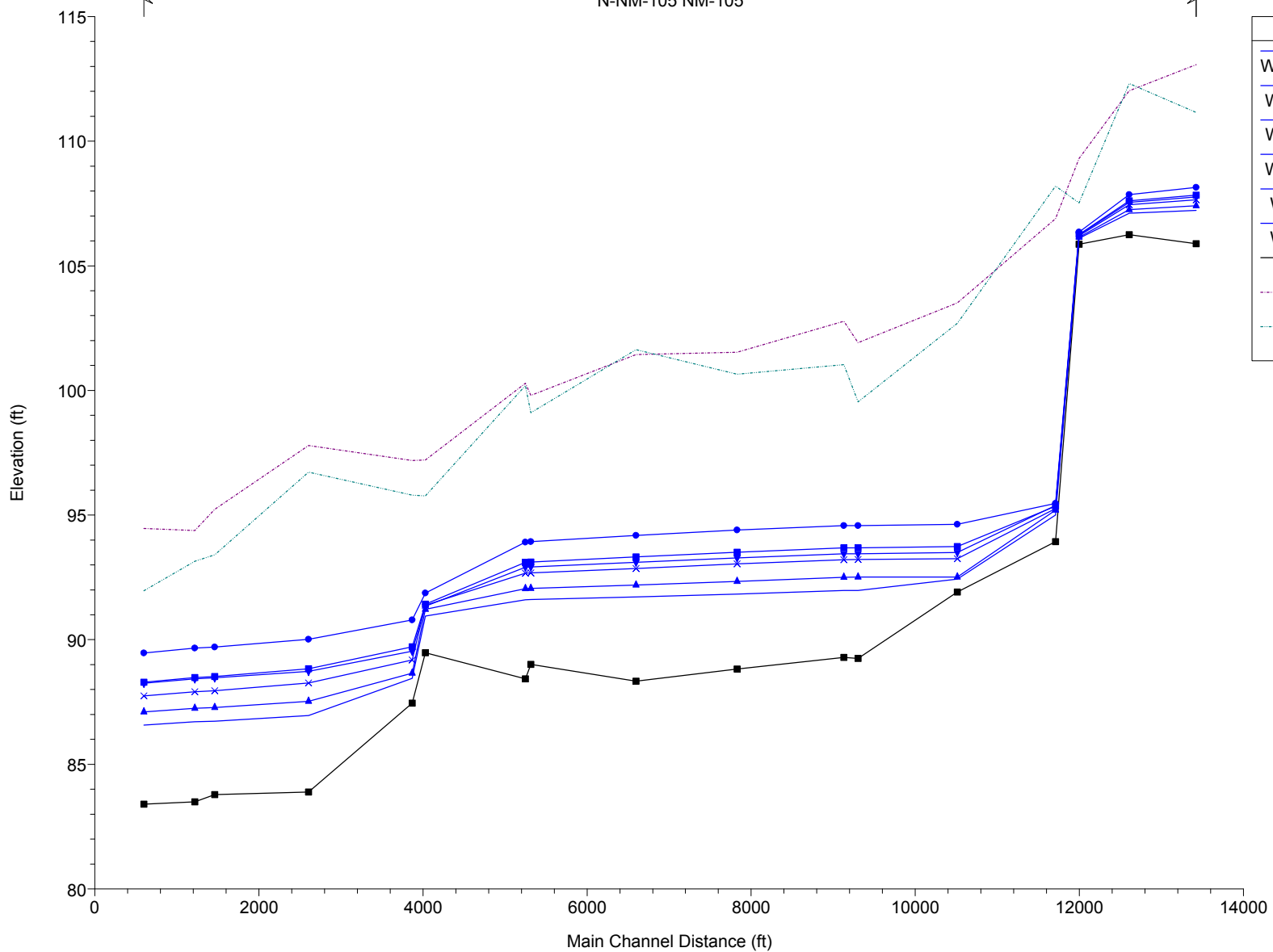
Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
NM-105	598	EX 10Y	42.00	83.40	86.57	84.77	86.59	0.000400	1.11	37.97	19.26	0.14
NM-105	598	EX 25Y	60.00	83.40	87.10	84.97	87.12	0.000400	1.24	48.51	20.56	0.14
NM-105	598	EX 100Y	110.00	83.40	88.26	85.41	88.29	0.000401	1.49	73.93	23.23	0.15
NM-105	598	ULT 10Y	86.00	83.40	87.74	85.21	87.77	0.000400	1.38	62.24	22.06	0.14
NM-105	598	ULT 25Y	112.00	83.40	88.30	85.42	88.33	0.000401	1.50	74.87	23.32	0.15
NM-105	598	ULT 100Y	177.00	83.40	89.47	85.88	89.51	0.000400	1.71	103.65	25.96	0.15
NM-105	1218	EX 10Y	25.00	83.49	86.70	84.22	86.71	0.000084	0.56	44.42	19.08	0.07
NM-105	1218	EX 25Y	38.00	83.49	87.25	84.41	87.25	0.000104	0.69	55.14	20.32	0.07
NM-105	1218	EX 100Y	73.00	83.49	88.43	84.79	88.44	0.000132	0.90	80.75	23.03	0.09
NM-105	1218	ULT 10Y	62.00	83.49	87.91	84.67	87.93	0.000146	0.90	69.18	21.83	0.09
NM-105	1218	ULT 25Y	81.00	83.49	88.48	84.86	88.49	0.000156	0.99	81.87	23.15	0.09
NM-105	1218	ULT 100Y	128.00	83.49	89.66	85.26	89.68	0.000169	1.15	110.83	25.92	0.10
NM-105	1461	EX 10Y	25.00	83.78	86.73	84.72	86.74	0.000181	0.74	33.76	17.41	0.09
NM-105	1461	EX 25Y	38.00	83.78	87.28	84.93	87.29	0.000200	0.87	43.71	18.83	0.10
NM-105	1461	EX 100Y	73.00	83.78	88.47	85.34	88.48	0.000214	1.08	67.90	21.91	0.11
NM-105	1461	ULT 10Y	62.00	83.78	87.95	85.22	87.97	0.000251	1.09	57.05	20.59	0.12
NM-105	1461	ULT 25Y	81.00	83.78	88.52	85.42	88.54	0.000251	1.17	69.11	22.05	0.12
NM-105	1461	ULT 100Y	128.00	83.78	89.70	85.82	89.73	0.000245	1.32	96.79	24.78	0.12
NM-105	2605	EX 10Y	25.00	83.89	86.95	84.82	86.96	0.000211	0.81	30.91	15.13	0.10
NM-105	2605	EX 25Y	38.00	83.89	87.52	85.05	87.54	0.000236	0.95	39.99	16.50	0.11
NM-105	2605	EX 100Y	73.00	83.89	88.73	85.53	88.75	0.000262	1.19	61.26	18.72	0.12
NM-105	2605	ULT 10Y	62.00	83.89	88.26	85.39	88.28	0.000289	1.18	52.62	17.85	0.12
NM-105	2605	ULT 25Y	81.00	83.89	88.83	85.62	88.86	0.000297	1.28	63.07	18.90	0.12
NM-105	2605	ULT 100Y	128.00	83.89	90.01	86.09	90.04	0.000308	1.48	86.69	21.07	0.13
NM-105	3868	EX 10Y	25.00	87.45	88.45	88.45	88.74	0.028909	4.33	5.77	9.87	1.00
NM-105	3868	EX 25Y	38.00	87.45	88.65	88.65	89.01	0.027362	4.77	7.96	11.29	1.00
NM-105	3868	EX 100Y	73.00	87.45	89.54	89.07	89.74	0.007223	3.62	20.17	15.70	0.56
NM-105	3868	ULT 10Y	62.00	87.45	89.19	88.95	89.46	0.012590	4.16	14.90	14.38	0.72
NM-105	3868	ULT 25Y	81.00	87.45	89.72	89.14	89.91	0.006013	3.52	22.99	16.14	0.52
NM-105	3868	ULT 100Y	128.00	87.45	90.79	89.52	90.94	0.002609	3.06	41.83	18.80	0.36
NM-105	4029	EX 10Y	25.00	89.48	90.95	90.63	91.09	0.008784	3.02	8.27	9.59	0.57
NM-105	4029	EX 25Y	38.00	89.48	91.22	90.86	91.40	0.009268	3.46	10.98	10.78	0.60
NM-105	4029	EX 100Y	73.00	89.48	91.34	91.34	91.88	0.024601	5.90	12.38	11.35	0.99
NM-105	4029	ULT 10Y	62.00	89.48	91.39	91.20	91.75	0.015868	4.81	12.90	11.55	0.80
NM-105	4029	ULT 25Y	81.00	89.48	91.43	91.43	92.00	0.024724	6.07	13.34	11.72	1.00
NM-105	4029	ULT 100Y	128.00	89.48	91.87	91.87	92.58	0.023223	6.74	19.00	13.54	1.00
NM-105	5250	EX 10Y	19.00	88.43	91.60	89.34	91.61	0.000100	0.56	33.66	16.34	0.07
NM-105	5250	EX 25Y	29.00	88.43	92.05	89.54	92.06	0.000131	0.71	41.08	17.13	0.08
NM-105	5250	EX 100Y	54.00	88.43	92.91	89.92	92.92	0.000182	0.96	56.48	18.66	0.10
NM-105	5250	ULT 10Y	48.00	88.43	92.67	89.84	92.68	0.000182	0.92	52.03	18.23	0.10
NM-105	5250	ULT 25Y	63.00	88.43	93.10	90.03	93.12	0.000208	1.05	60.14	19.01	0.10
NM-105	5250	ULT 100Y	98.00	88.43	93.91	90.41	93.94	0.000259	1.29	76.15	20.46	0.12
NM-105	5316	EX 10Y	19.00	89.01	91.61	89.71	91.62	0.000106	0.56	33.94	17.74	0.07
NM-105	5316	EX 25Y	29.00	89.01	92.06	89.87	92.06	0.000131	0.69	42.05	18.66	0.08
NM-105	5316	EX 100Y	54.00	89.01	92.92	90.20	92.93	0.000172	0.92	58.95	20.44	0.10
NM-105	5316	ULT 10Y	48.00	89.01	92.68	90.13	92.69	0.000174	0.89	54.07	19.94	0.10
NM-105	5316	ULT 25Y	63.00	89.01	93.12	90.29	93.13	0.000194	1.00	63.00	20.85	0.10
NM-105	5316	ULT 100Y	98.00	89.01	93.93	90.58	93.96	0.000234	1.21	80.70	22.53	0.11
NM-105	6599	EX 10Y	19.00	88.34	91.71	89.10	91.72	0.000059	0.46	41.10	18.24	0.05
NM-105	6599	EX 25Y	29.00	88.34	92.19	89.29	92.19	0.000079	0.58	50.06	19.42	0.06
NM-105	6599	EX 100Y	54.00	88.34	93.10	89.66	93.11	0.000113	0.78	68.87	197.88	0.08
NM-105	6599	ULT 10Y	48.00	88.34	92.86	89.58	92.87	0.000110	0.75	63.67	52.29	0.08
NM-105	6599	ULT 25Y	63.00	88.34	93.32	89.76	93.33	0.000127	0.85	73.72	294.74	0.08
NM-105	6599	ULT 100Y	98.00	88.34	94.19	90.10	94.20	0.000158	1.04	94.02	557.66	0.09
NM-105	7830	EX 10Y	19.00	88.82	91.83	89.70	91.83	0.000171	0.66	28.85	16.87	0.09
NM-105	7830	EX 25Y	29.00	88.82	92.34	89.90	92.34	0.000214	0.74	39.00	22.76	0.10
NM-105	7830	EX 100Y	54.00	88.82	93.28	90.30	93.29	0.000189	0.86	62.88	26.65	0.10
NM-105	7830	ULT 10Y	48.00	88.82	93.04	90.22	93.05	0.000206	0.85	56.58	26.17	0.10
NM-105	7830	ULT 25Y	63.00	88.82	93.51	90.42	93.52	0.000193	0.91	69.17	27.11	0.10
NM-105	7830	ULT 100Y	98.00	88.82	94.40	90.82	94.41	0.000188	1.04	93.95	28.87	0.10
NM-105	9131	EX 10Y	6.00	89.29	91.97	90.04	91.97	0.000041	0.31	19.64	12.01	0.04
NM-105	9131	EX 25Y	9.00	89.29	92.50	90.18	92.51	0.000040	0.34	26.29	13.04	0.04
NM-105	9131	EX 100Y	17.00	89.29	93.45	90.43	93.45	0.000046	0.43	39.41	14.87	0.05
NM-105	9131	ULT 10Y	14.00	89.29	93.21	90.34	93.21	0.000040	0.39	35.98	14.41	0.04
NM-105	9131	ULT 25Y	19.00	89.29	93.68	90.48	93.69	0.000045	0.44	43.02	15.33	0.05

HEC-RAS Plan: BASE River: N-NM-105 Reach: NM-105 (Continued)

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
NM-105	9131	ULT 100Y	29.00	89.29	94.57	90.70	94.58	0.000047	0.50	57.43	17.06	0.05
NM-105	9303	EX 10Y	6.00	89.25	91.98	89.59	91.98	0.000011	0.18	32.68	16.82	0.02
NM-105	9303	EX 25Y	9.00	89.25	92.51	89.68	92.51	0.000012	0.21	41.90	17.87	0.02
NM-105	9303	EX 100Y	17.00	89.25	93.45	89.88	93.45	0.000016	0.29	59.62	19.75	0.03
NM-105	9303	ULT 10Y	14.00	89.25	93.22	89.81	93.22	0.000014	0.25	55.03	19.28	0.03
NM-105	9303	ULT 25Y	19.00	89.25	93.69	89.93	93.69	0.000016	0.30	64.39	20.22	0.03
NM-105	9303	ULT 100Y	29.00	89.25	94.58	90.11	94.58	0.000018	0.35	83.19	21.99	0.03
NM-105	10512	EX 10Y	6.00	91.91	92.43	92.43	92.57	0.035034	2.99	2.01	7.00	0.98
NM-105	10512	EX 25Y	9.00	91.91	92.52	92.52	92.70	0.034708	3.42	2.63	7.39	1.01
NM-105	10512	EX 100Y	17.00	91.91	93.50	92.72	93.53	0.001922	1.35	12.59	15.95	0.27
NM-105	10512	ULT 10Y	14.00	91.91	93.25	92.65	93.28	0.002174	1.51	9.26	10.73	0.29
NM-105	10512	ULT 25Y	19.00	91.91	93.74	92.76	93.76	0.001039	1.15	16.50	16.59	0.20
NM-105	10512	ULT 100Y	29.00	91.91	94.63	92.95	94.64	0.000317	0.90	32.38	18.98	0.12
NM-105	11711	EX 10Y	6.00	93.93	95.00	94.40	95.01	0.000653	0.73	8.22	11.88	0.15
NM-105	11711	EX 25Y	9.00	93.93	95.20	94.49	95.21	0.000677	0.85	10.65	12.62	0.16
NM-105	11711	EX 100Y	17.00	93.93	95.39	94.67	95.41	0.001322	1.30	13.06	13.31	0.23
NM-105	11711	ULT 10Y	14.00	93.93	95.26	94.61	95.29	0.001323	1.22	11.45	12.85	0.23
NM-105	11711	ULT 25Y	19.00	93.93	95.35	94.71	95.39	0.001845	1.51	12.58	13.17	0.27
NM-105	11711	ULT 100Y	29.00	93.93	95.46	94.87	95.53	0.003092	2.06	14.08	13.58	0.36
NM-105	11996	EX 10Y	6.00	105.87	106.10	106.10	106.17	0.045528	2.10	2.86	27.73	1.00
NM-105	11996	EX 25Y	9.00	105.87	106.15	106.15	106.23	0.041952	2.38	3.78	30.16	1.00
NM-105	11996	EX 100Y	17.00	105.87	106.24	106.24	106.37	0.035652	2.86	5.94	43.49	0.99
NM-105	11996	ULT 10Y	14.00	105.87	106.21	106.21	106.32	0.037754	2.72	5.16	34.15	1.00
NM-105	11996	ULT 25Y	19.00	105.87	106.26	106.26	106.40	0.036342	3.00	6.34	49.09	1.01
NM-105	11996	ULT 100Y	29.00	105.87	106.36	106.36	106.53	0.033004	3.38	8.58	105.19	1.00
NM-105	12607	EX 10Y	6.00	106.25	107.11	106.59	107.11	0.000467	0.56	10.80	18.62	0.13
NM-105	12607	EX 25Y	9.00	106.25	107.26	106.65	107.26	0.000519	0.66	13.67	19.73	0.14
NM-105	12607	EX 100Y	17.00	106.25	107.55	106.78	107.56	0.000619	0.87	19.64	21.35	0.16
NM-105	12607	ULT 10Y	14.00	106.25	107.45	106.73	107.46	0.000584	0.79	17.66	21.00	0.15
NM-105	12607	ULT 25Y	19.00	106.25	107.61	106.81	107.62	0.000634	0.91	20.94	21.57	0.16
NM-105	12607	ULT 100Y	29.00	106.25	107.86	106.93	107.88	0.000718	1.09	26.49	22.50	0.18
NM-105	13424	EX 10Y	6.00	105.89	107.23	106.15	107.23	0.000066	0.30	19.98	19.65	0.05
NM-105	13424	EX 25Y	9.00	105.89	107.41	106.21	107.41	0.000089	0.38	23.66	20.55	0.06
NM-105	13424	EX 100Y	17.00	105.89	107.77	106.35	107.77	0.000140	0.54	31.29	22.21	0.08
NM-105	13424	ULT 10Y	14.00	105.89	107.65	106.30	107.65	0.000123	0.49	28.72	21.71	0.07
NM-105	13424	ULT 25Y	19.00	105.89	107.84	106.38	107.84	0.000151	0.58	32.93	22.53	0.08
NM-105	13424	ULT 100Y	29.00	105.89	108.15	106.52	108.16	0.000198	0.72	40.12	23.86	0.10

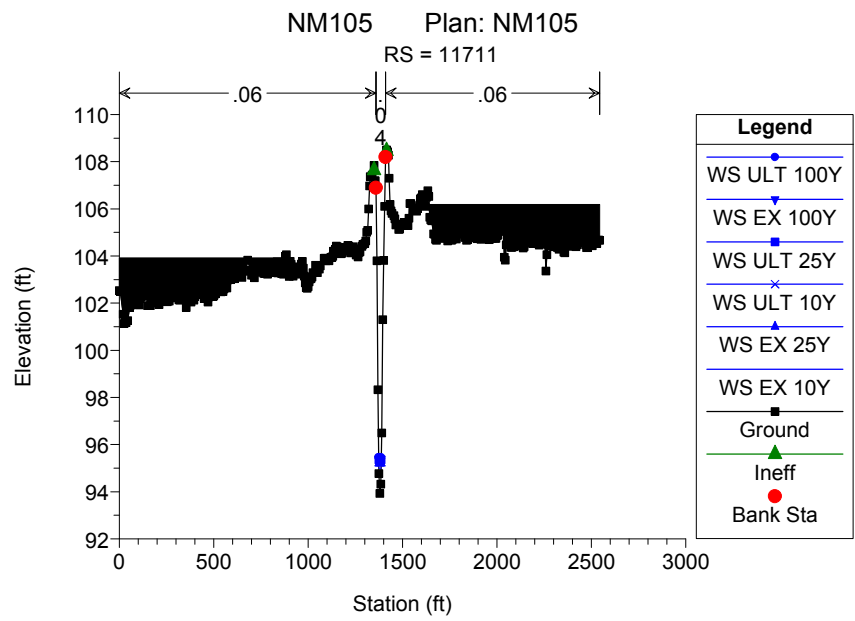
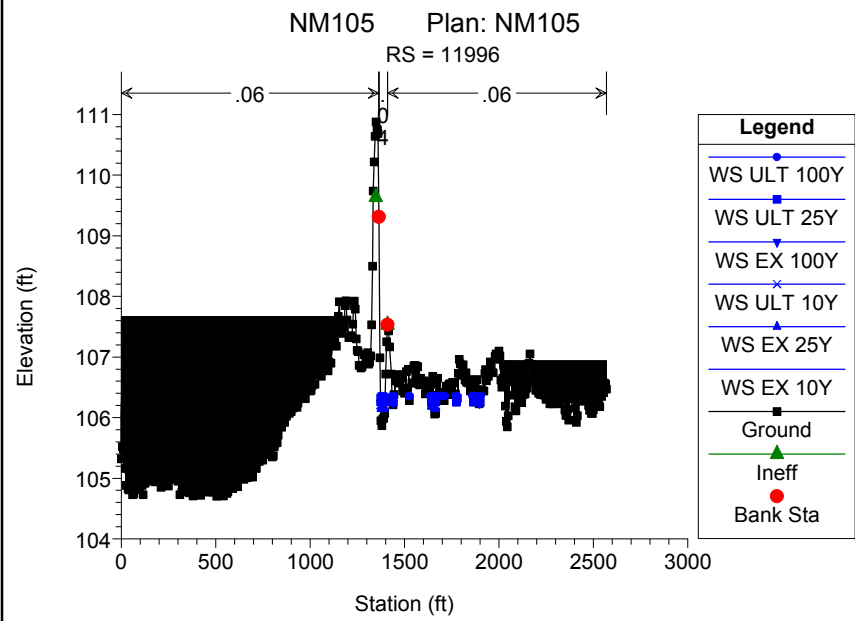
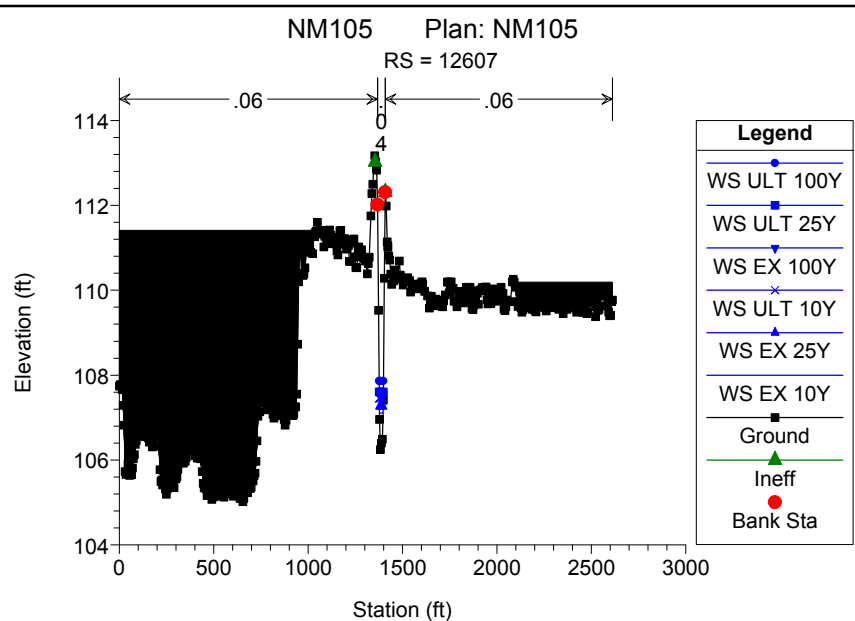
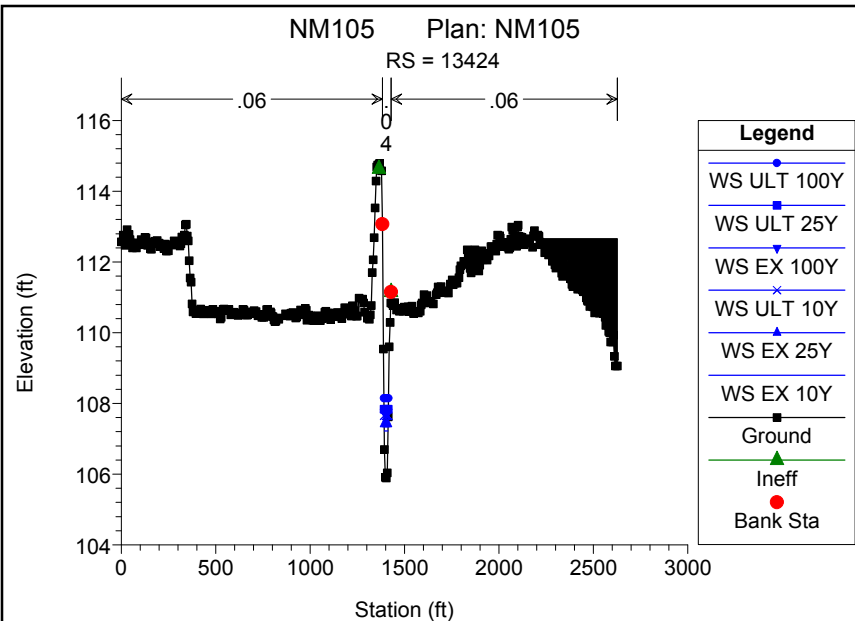
NM105 Plan: NM105

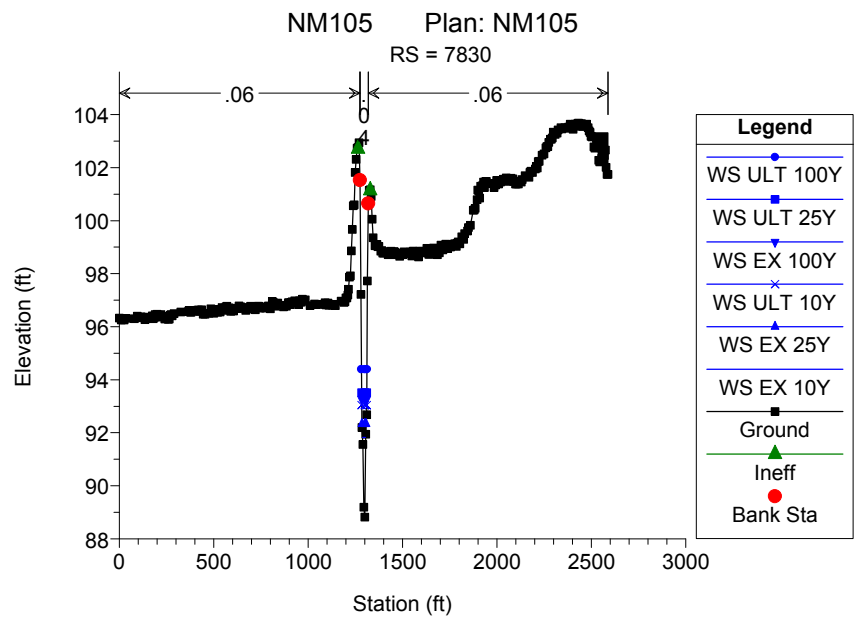
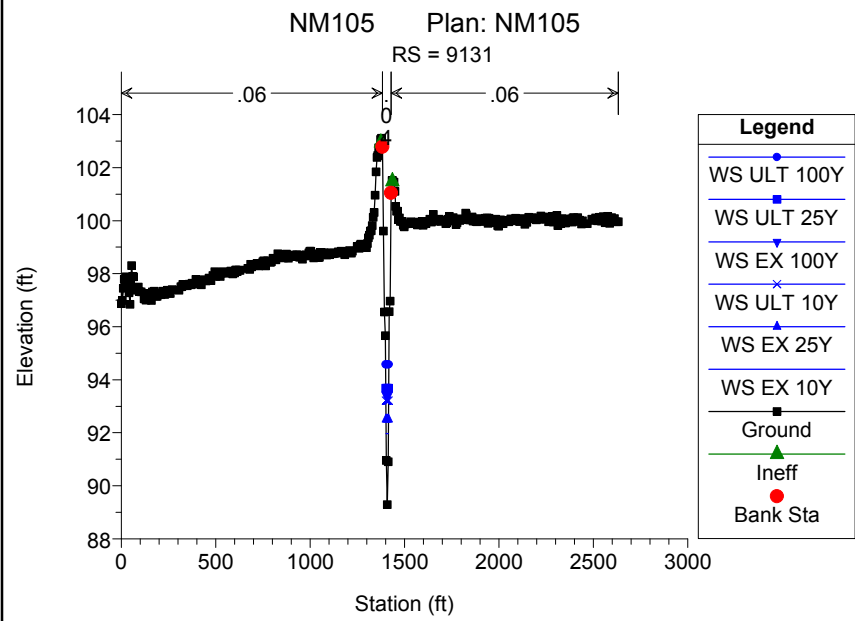
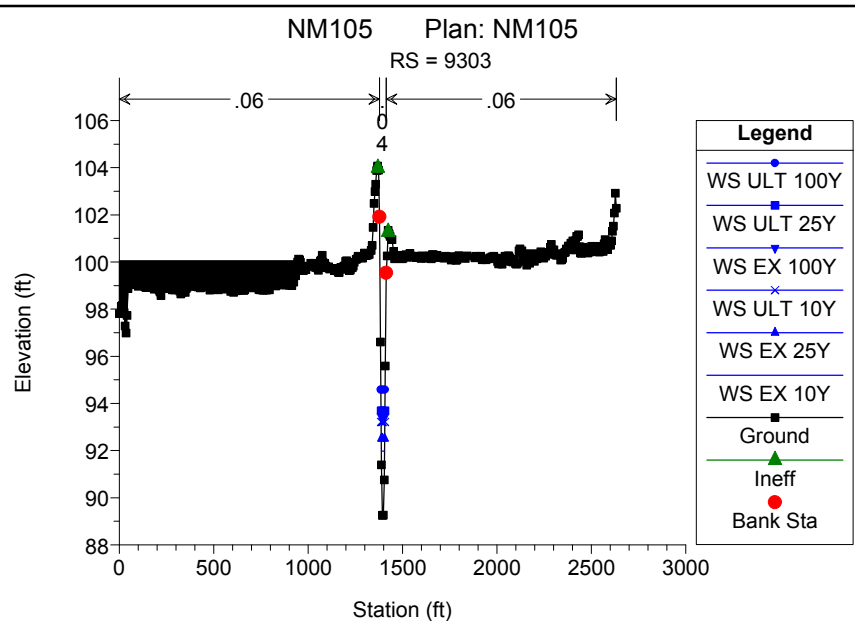
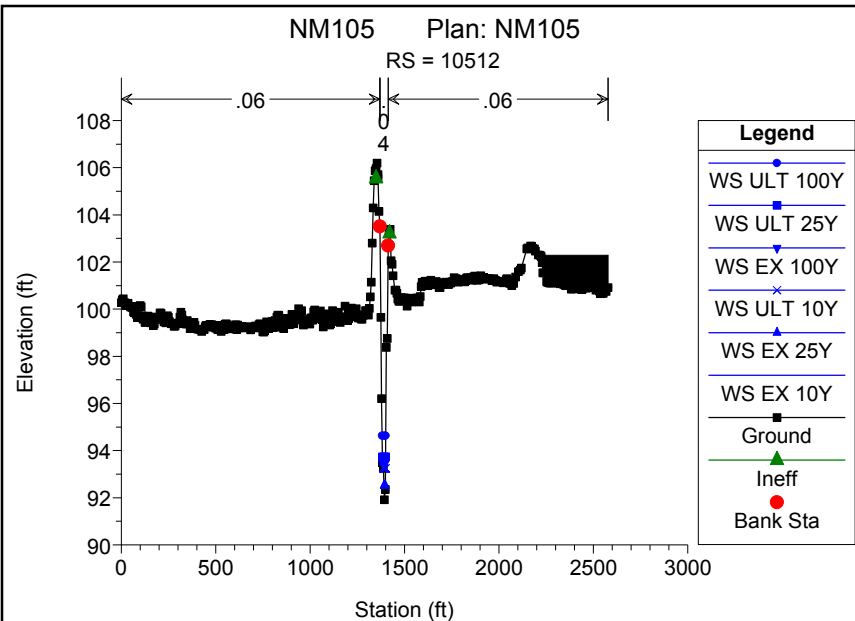
N-NM-105 NM-105

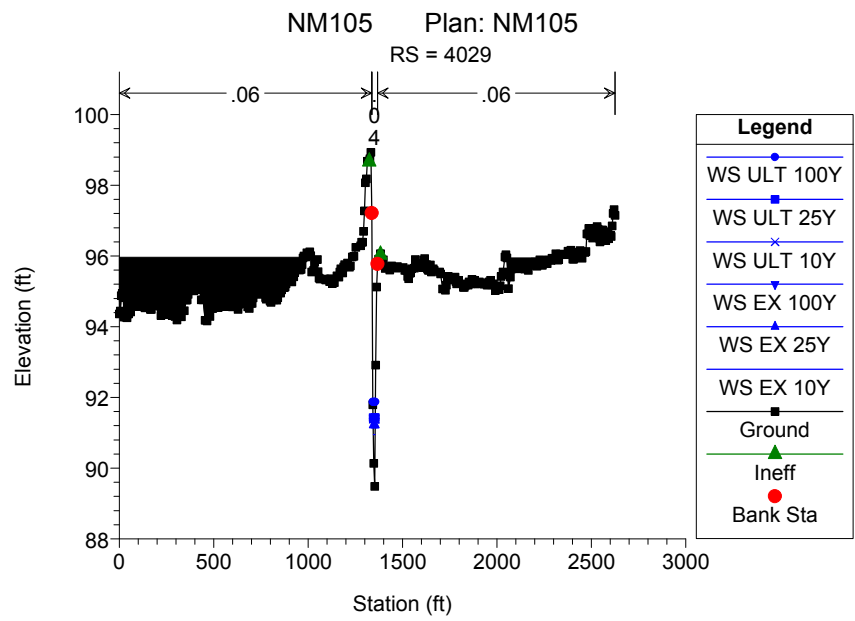
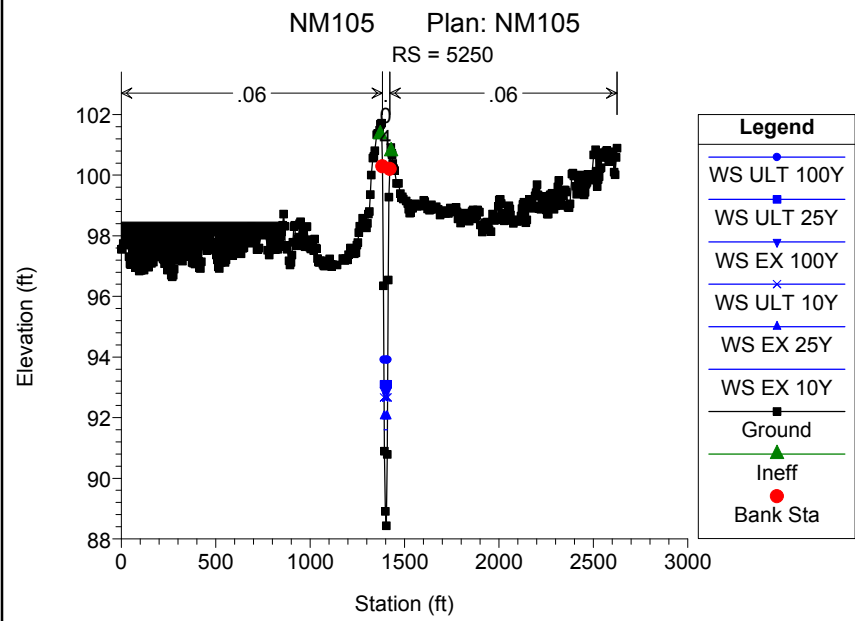
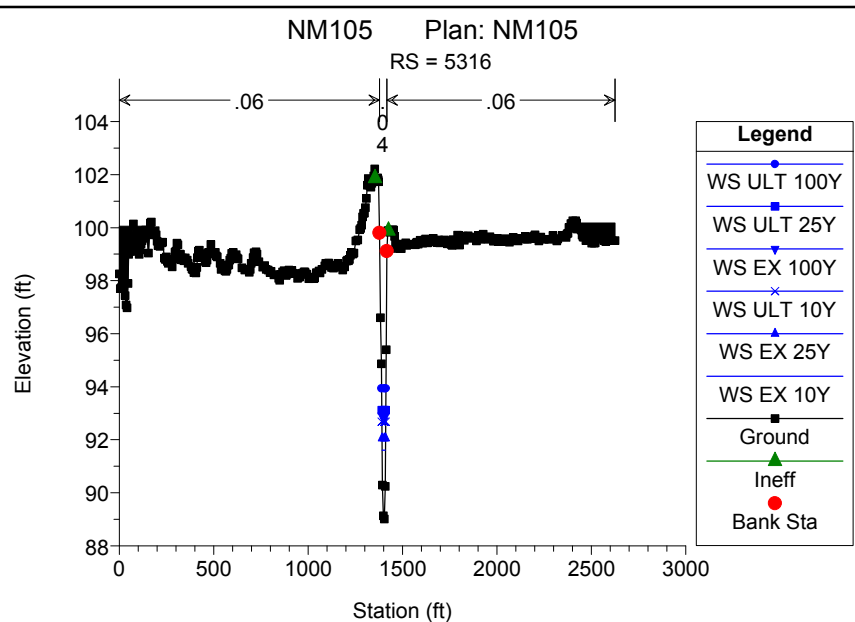
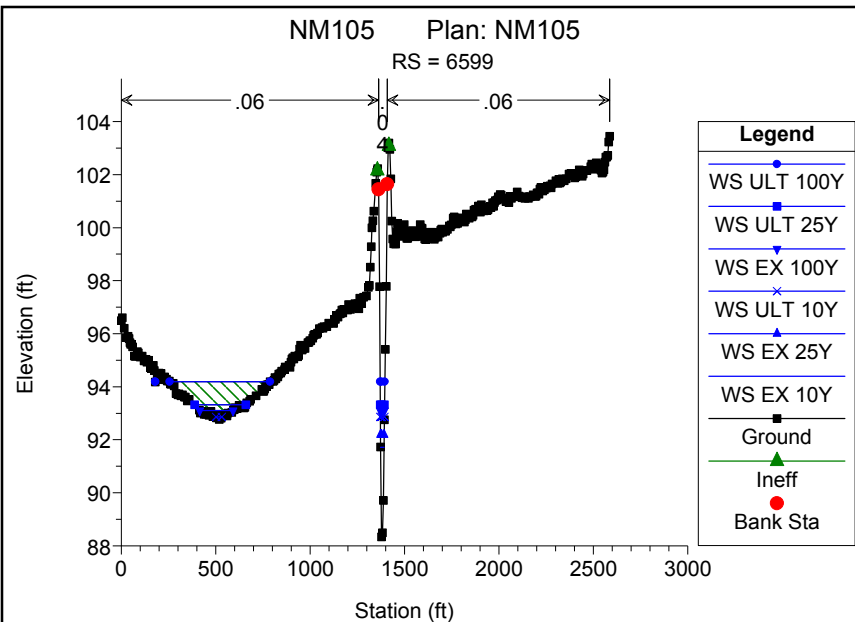


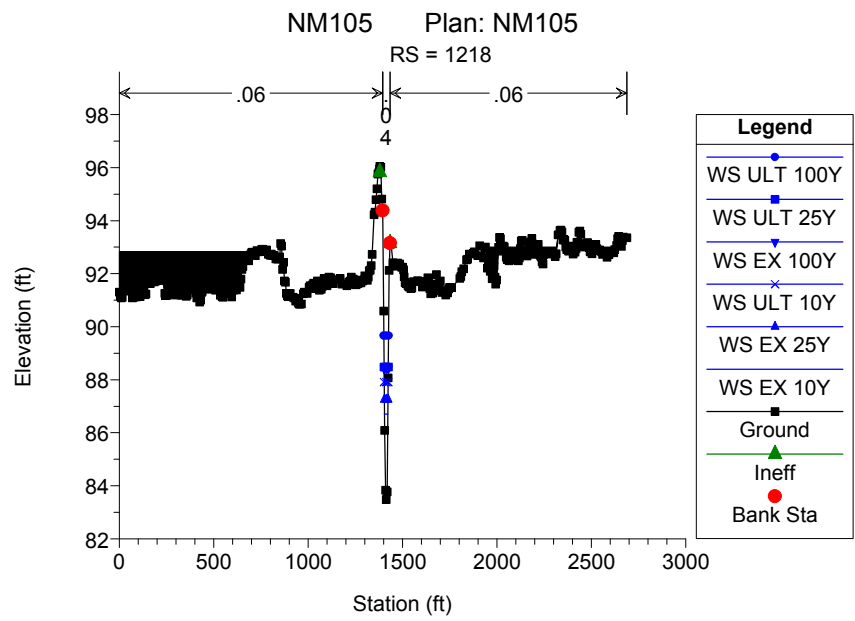
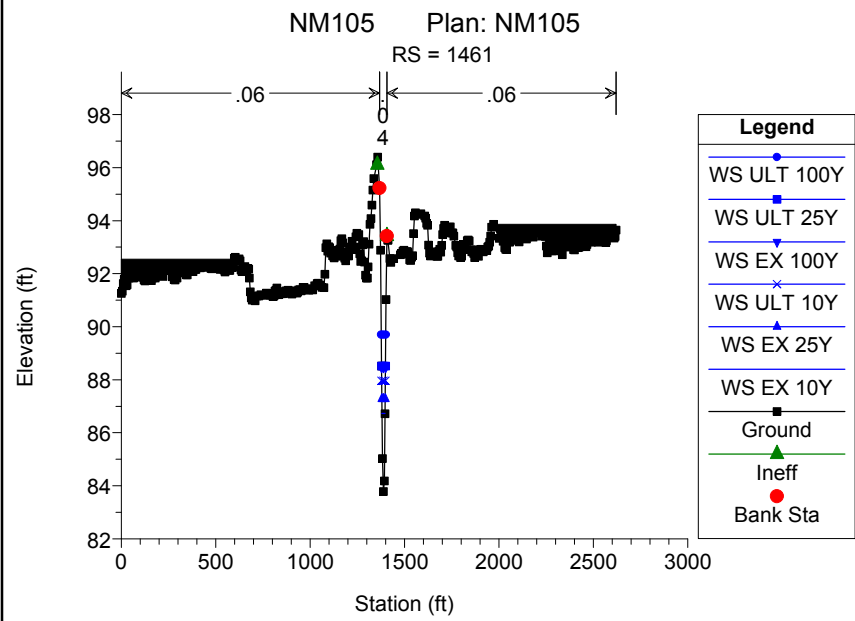
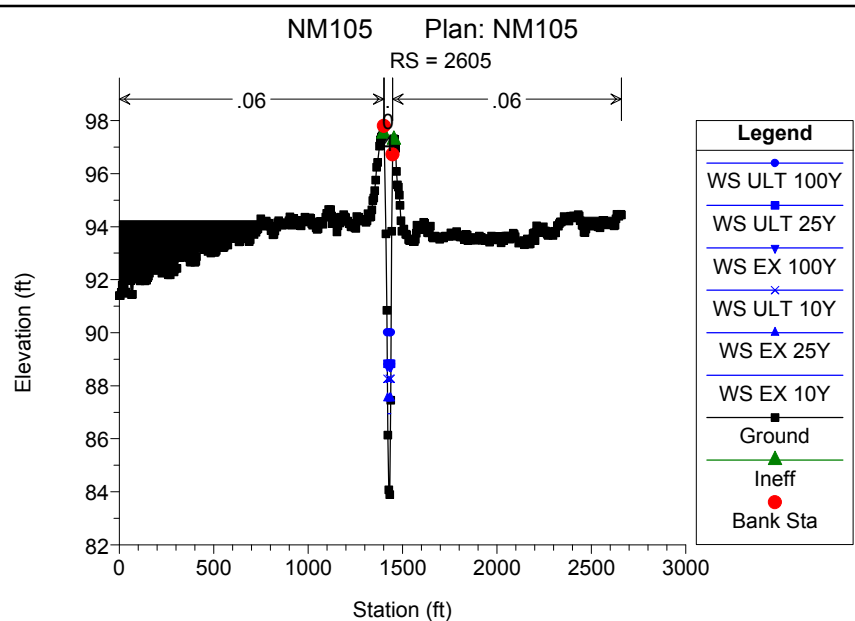
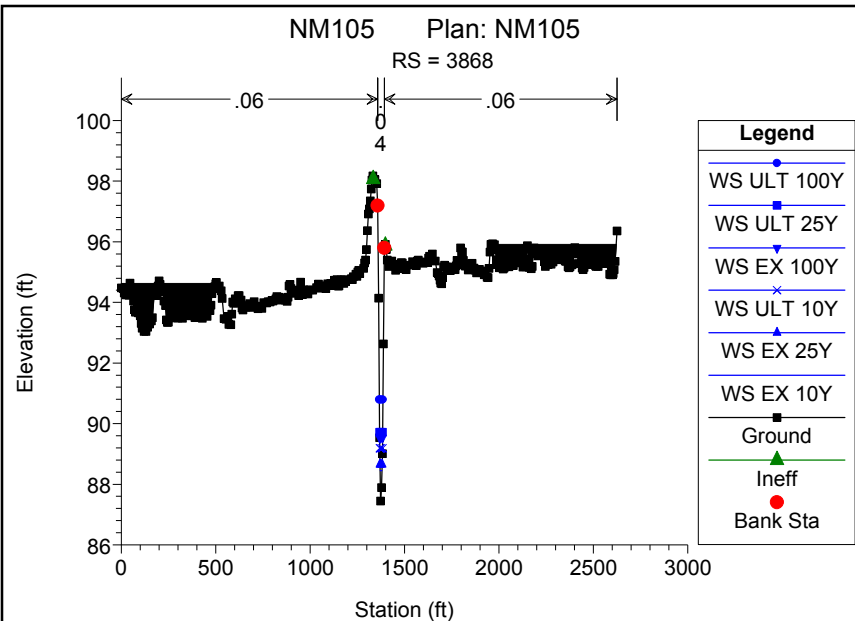
Legend

- WS ULT 100Y
- WS ULT 25Y
- WS EX 100Y
- WS ULT 10Y
- WS EX 25Y
- WS EX 10Y
- Ground
- LOB
- ROB



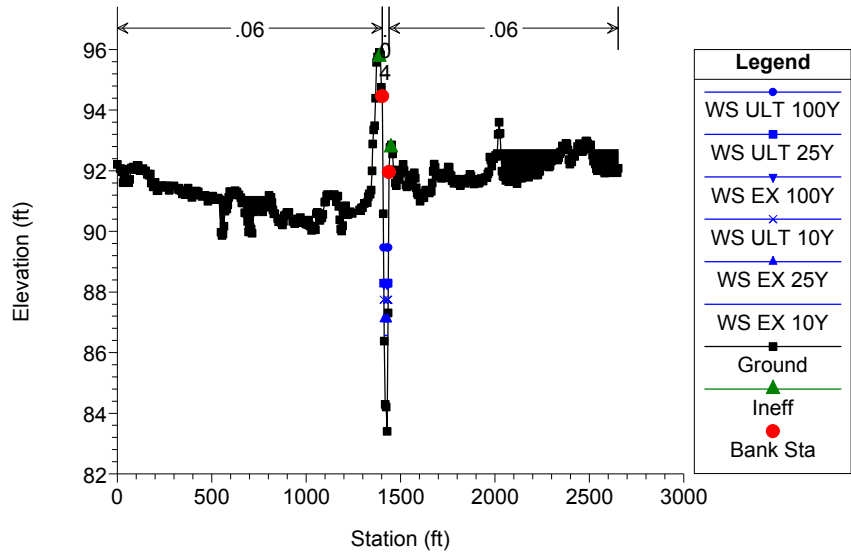






NM105 Plan: NM105

RS = 598



NM105 OUTPUT REPORT.TXT

HEC-RAS Version 4.1.0 Jan 2010
U.S. Army Corps of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

```

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PROJECT DATA

Project Title: NM105
Project File : NM105.prj

Project in English units

PLAN DATA

Plan Title: NM105
Plan File : K:\2014PROJECTS\COE_MDP_TEDSI\MODEL\APPENDIX C -
HYDRAULICS\NM105\NM105.p01

Geometry Title: NM105
Geometry File : K:\2014PROJECTS\COE_MDP_TEDSI\MODEL\APPENDIX C -
HYDRAULICS\NM105\NM105.g01

Flow Title : NM105 FLOW
Flow File : K:\2014PROJECTS\COE_MDP_TEDSI\MODEL\APPENDIX C -
HYDRAULICS\NM105\NM105.f01

Plan Summary Information:

Number of: Cross Sections	=	17	Multiple Openings	=	0
Culverts	=	0	Inline Structures	=	0
Bridges	=	0	Lateral Structures	=	0

Computational Information

Water surface calculation tolerance	=	0.01
Critical depth calculation tolerance	=	0.01
Maximum number of iterations	=	20
Maximum difference tolerance	=	0.3
Flow tolerance factor	=	0.001

Computation Options

Critical depth computed only where necessary
Conveyance Calculation Method: At breaks in n values only
Friction Slope Method: Average Conveyance
Computational Flow Regime: Subcritical Flow

NM105 OUTPUT REPORT.TXT

FLOW DATA

Flow Title: NM105 FLOW
 Flow File : K:\2014PROJECTS\COE_MDP_TEDSI\MODEL\APPENDIX C -
 HYDRAULICS\NM105\NM105.f01

Flow Data (cfs)

River	Reach	RS	EX 10Y	EX 25Y
EX 100Y	ULT 10Y	ULT 25Y	ULT 100Y	
N-NM-105	NM-105	13424	6	9
17	14	19	29	
N-NM-105	NM-105	7830	19	29
54	48	63	98	
N-NM-105	NM-105	4029	25	38
73	62	81	128	
N-NM-105	NM-105	598	42	60
110	86	112	177	

Boundary Conditions

River	Reach	Profile	Upstream
N-NM-105	NM-105	EX 10Y	
Normal S = 0.0004			
N-NM-105	NM-105	EX 25Y	
Normal S = 0.0004			
N-NM-105	NM-105	EX 100Y	
Normal S = 0.0004			
N-NM-105	NM-105	ULT 10Y	
Normal S = 0.0004			
N-NM-105	NM-105	ULT 25Y	
Normal S = 0.0004			
N-NM-105	NM-105	ULT 100Y	
Normal S = 0.0004			

GEOMETRY DATA

Geometry Title: NM105
 Geometry File : K:\2014PROJECTS\COE_MDP_TEDSI\MODEL\APPENDIX C -
 HYDRAULICS\NM105\NM105.g01

CROSS SECTION

RIVER: N-NM-105
 REACH: NM-105 RS: 13424

INPUT

Description:

Station	Elevation	Data	num=	377	Station	Elevation	Station	Elevation	Station	Elevation
0	112.57	9.99	112.76	14.98	112.57	19.98	112.47	24.97	112.75	

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29.96	112.91	39.95	112.78	44.95	112.63	49.94	112.54	54.93	112.5
59.93	112.4	69.92	112.45	79.9	112.4	89.89	112.54	99.88	112.49
104.87	112.63	114.86	112.57	119.86	112.58	124.85	112.7	129.84	112.68
134.84	112.5	139.83	112.47	144.83	112.52	154.81	112.37	159.81	112.36
169.8	112.57	179.78	112.59	184.78	112.52	189.77	112.61	199.76	112.53
204.75	112.43	224.73	112.38	229.72	112.51	239.71	112.31	244.71	112.34
249.7	112.32	264.68	112.48	269.68	112.49	279.66	112.6	309.63	112.45
314.62	112.52	319.62	112.71	324.61	112.69	334.6	112.76	339.59	113.05
344.59	113.07	349.58	112.73	354.57	112.6	359.57	112.04	364.56	111.55
369.56	111.43	374.55	110.81	379.54	110.59	389.53	110.63	394.53	110.54
399.52	110.63	409.51	110.63	419.5	110.67	424.49	110.6	434.48	110.53
439.47	110.58	444.47	110.58	449.46	110.63	454.46	110.63	459.45	110.57
464.44	110.59	474.43	110.53	479.43	110.56	484.42	110.66	499.4	110.59
504.4	110.61	514.38	110.53	519.38	110.59	524.37	110.39	529.37	110.43
539.35	110.66	544.35	110.67	549.34	110.62	569.32	110.66	579.31	110.51
594.29	110.58	604.28	110.52	614.26	110.56	619.26	110.49	639.23	110.55
644.23	110.66	649.22	110.64	654.22	110.51	659.21	110.58	664.2	110.5
669.2	110.51	674.19	110.59	694.17	110.54	704.16	110.62	714.14	110.6
724.13	110.48	739.11	110.52	744.11	110.43	754.1	110.43	769.08	110.65
774.07	110.66	779.07	110.57	784.06	110.55	789.05	110.59	794.05	110.55
799.04	110.46	804.04	110.45	809.03	110.36	814.02	110.32	819.02	110.33
824.01	110.4	829.01	110.42	834	110.38	868.96	110.53	873.95	110.48
893.93	110.47	898.92	110.55	908.91	110.57	923.89	110.42	928.89	110.44
933.88	110.54	948.86	110.64	953.86	110.53	958.85	110.63	963.84	110.53
968.84	110.51	973.83	110.69	978.83	110.63	983.82	110.35	988.81	110.49
993.81	110.5	998.8	110.44	1003.8	110.47	1008.79	110.36	1018.78	110.34
1023.77	110.39	1028.77	110.36	1033.76	110.38	1038.75	110.48	1043.75	110.45
1048.74	110.37	1053.74	110.34	1058.73	110.44	1063.72	110.4	1068.72	110.42
1078.71	110.58	1083.7	110.61	1088.69	110.54	1098.68	110.56	1103.68	110.5
1108.67	110.37	1118.66	110.54	1138.63	110.49	1143.63	110.57	1148.62	110.56
1153.62	110.45	1158.61	110.54	1163.6	110.54	1168.6	110.4	1178.59	110.55
1183.58	110.71	1188.57	110.7	1193.57	110.58	1198.56	110.54	1203.56	110.67
1208.55	110.69	1213.54	110.52	1218.54	110.47	1223.53	110.76	1228.53	110.75
1233.52	110.54	1238.51	110.62	1243.51	110.47	1248.5	110.47	1258.49	110.98
1278.47	110.95	1283.46	110.84	1288.45	110.58	1303.44	110.41	1313.42	110.38
1318.42	110.51	1323.41	110.77	1328.41	111.7	1333.4	112.06	1338.39	112.69
1343.39	113.53	1348.38	114.29	1353.38	114.69	1358.37	114.74	1363.36	114.74
1366.44	114.77	1368.36	114.79	1378.35	114.58	1383.34	113.07	1388.33	109.54
1393.33	106.7	1398.32	105.91	1403.32	105.89	1408.31	106.04	1413.3	107.62
1418.3	109.6	1423.29	110.29	1426.47	110.84	1428.29	111.15	1433.28	110.82
1438.27	110.77	1448.26	110.85	1458.25	110.64	1463.24	110.69	1468.24	110.68
1473.23	110.61	1483.22	110.69	1488.21	110.68	1493.21	110.61	1498.2	110.72
1503.2	110.63	1508.19	110.63	1518.18	110.73	1523.17	110.6	1533.16	110.63
1538.15	110.75	1548.14	110.54	1563.12	110.61	1573.11	110.56	1583.1	110.61
1588.09	110.79	1593.09	110.84	1603.08	111.08	1608.07	111	1613.07	110.97
1618.06	111.05	1623.05	110.84	1633.04	110.89	1653.02	110.81	1668	111.08
1672.99	111.13	1677.99	111.29	1692.97	111.3	1697.96	111.16	1707.95	111.13
1712.95	111.19	1732.92	111.12	1742.91	111.38	1752.9	111.49	1757.89	111.36
1767.88	111.4	1777.87	111.4	1787.86	111.56	1792.85	111.78	1797.84	111.89
1812.83	112.02	1822.81	111.94	1827.81	111.94	1832.8	112.34	1837.8	112.16
1842.79	112.17	1847.78	111.82	1852.78	111.69	1857.77	111.78	1862.77	111.81
1867.76	112.01	1872.75	112.34	1882.74	112.12	1887.74	111.87	1892.73	111.75
1897.72	111.91	1902.72	112.2	1907.71	112.32	1912.71	112.07	1917.7	112.06
1922.69	112.24	1927.69	112.24	1932.68	112.11	1937.68	112.05	1947.66	112.17
1957.65	112.43	1962.65	112.43	1967.64	112.37	1982.62	112.31	1987.62	112.51
1992.61	112.76	2002.6	112.74	2007.59	112.68	2012.59	112.53	2027.57	112.43
2037.56	112.45	2042.55	112.55	2047.54	112.42	2052.54	112.36	2057.53	112.41
2062.53	112.64	2067.52	112.99	2072.51	112.9	2077.51	112.66	2082.5	112.67
2087.5	112.52	2092.49	112.44	2097.48	112.99	2102.48	113.04	2107.47	112.72
2112.47	112.61	2117.46	112.71	2122.45	112.7	2132.44	112.49	2137.44	112.56
2147.42	112.53	2152.42	112.65	2157.41	112.65	2162.41	112.56	2177.39	112.42
2182.38	112.74	2187.38	112.89	2197.36	112.72	2207.35	112.76	2212.35	112.72
2217.34	112.56	2222.33	112.49	2232.32	112.52	2242.31	112.26	2262.29	112.2

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2267.28	112.28	2272.27	112.3	2277.27	112.23	2282.26	112.02	2297.24	111.92
2302.24	111.83	2307.23	111.94	2317.22	111.91	2322.21	111.95	2332.2	111.68
2337.2	111.59	2342.19	111.67	2347.18	111.86	2352.18	111.71	2357.17	111.87
2362.17	111.88	2367.16	112.22	2372.15	111.69	2377.15	111.53	2382.14	111.52
2387.14	111.37	2392.13	111.3	2397.12	111.4	2402.12	111.43	2407.11	111.52
2417.1	111.23	2427.09	111.24	2432.08	111.55	2437.08	111.45	2442.07	111.2
2447.06	111.16	2457.05	111.17	2462.05	110.99	2467.04	110.91	2472.03	110.89
2482.02	110.74	2497	110.73	2506.99	110.56	2511.99	110.64	2516.98	110.81
2521.97	110.85	2526.97	110.67	2531.96	110.55	2546.94	110.58	2551.94	110.54
2556.93	110.55	2561.93	110.43	2566.92	110.21	2576.91	110.21	2581.9	110.04
2586.9	110	2591.89	109.74	2601.88	109.74	2606.87	109.93	2611.87	109.33
2616.86	109.06	2626.85	109.06						

Manning's n Values num= 3
 Sta n Val Sta n Val
 0 .06 1383.34 .04 1428.29 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 1383.34 1428.29 818 817 815 .1 .3
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 1363.88 114.63 F
 1428.29 2626.85 111.15 F
 Blocked Obstructions num= 1
 Sta L Sta R Elev
 2201.76 2626.85 112.66

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	107.23	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-val.		0.040
w.s. Elev (ft)	107.23	Reach Len. (ft)	818.00	817.00
815.00				
Crit w.s. (ft)	106.15	Flow Area (sq ft)		19.98
E.G. Slope (ft/ft)	0.000066	Area (sq ft)		19.98
Q Total (cfs)	6.00	Flow (cfs)		6.00
Top width (ft)	19.65	Top width (ft)		19.65
Vel Total (ft/s)	0.30	Avg. Vel. (ft/s)		0.30
Max Chl Dpth (ft)	1.34	Hydr. Depth (ft)		1.02
Conv. Total (cfs)	740.6	Conv. (cfs)		740.6
Length wtd. (ft)	817.00	wetted Per. (ft)		20.04
Min Ch El (ft)	105.89	Shear (lb/sq ft)		0.00
Alpha	1.00	Stream Power (lb/ft s)	2626.85	0.00
0.00				
Frctn Loss (ft)	0.11	Cum Volume (acre-ft)		6.81
0.00				
C & E Loss (ft)	0.00	Cum SA (acres)		4.44
0.07				

NM105 OUTPUT REPORT.TXT

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	107.41	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-Val.		0.040
W.S. Elev (ft)	107.41	Reach Len. (ft)	818.00	817.00
815.00				
Crit w.s. (ft)	106.21	Flow Area (sq ft)		23.66
E.G. slope (ft/ft)	0.000089	Area (sq ft)		23.66
Q Total (cfs)	9.00	Flow (cfs)		9.00
Top width (ft)	20.55	Top width (ft)		20.55
Vel Total (ft/s)	0.38	Avg. Vel. (ft/s)		0.38
Max Chl Dpth (ft)	1.52	Hydr. Depth (ft)		1.15
Conv. Total (cfs)	951.4	Conv. (cfs)		951.4
Length wtd. (ft)	817.00	wetted Per. (ft)		21.02
Min Ch El (ft)	105.89	Shear (lb/sq ft)		0.01
Alpha	1.00	Stream Power (lb/ft s)	2626.85	0.00
0.00				
Frctn Loss (ft)	0.15	Cum Volume (acre-ft)		8.68
0.01				
C & E Loss (ft)	0.00	Cum SA (acres)		4.88
0.09				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	107.77	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-Val.		0.040
W.S. Elev (ft)	107.77	Reach Len. (ft)	818.00	817.00
815.00				
Crit w.s. (ft)	106.35	Flow Area (sq ft)		31.29
E.G. slope (ft/ft)	0.000140	Area (sq ft)		31.29
Q Total (cfs)	17.00	Flow (cfs)		17.00

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Top width (ft)	22.21	Top width (ft)		22.21
Vel Total (ft/s)	0.54	Avg. Vel. (ft/s)		0.54
Max Chl Dpth (ft)	1.88	Hydr. Depth (ft)		1.41
Conv. Total (cfs)	1434.3	Conv. (cfs)		1434.3
Length wtd. (ft)	817.00	Wetted Per. (ft)		22.83
Min Ch El (ft)	105.89	Shear (lb/sq ft)		0.01
Alpha	1.00	Stream Power (lb/ft s)	2626.85	0.00
0.00				
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	0.77	13.05
0.02				
C & E Loss (ft)	0.00	Cum SA (acres)	5.08	5.72
0.21				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	107.65	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-val.		0.040
W.S. Elev (ft)	107.65	Reach Len. (ft)	818.00	817.00
815.00				
Crit w.s. (ft)	106.30	Flow Area (sq ft)		28.72
E.G. Slope (ft/ft)	0.000123	Area (sq ft)		28.72
Q Total (cfs)	14.00	Flow (cfs)		14.00
Top width (ft)	21.71	Top width (ft)		21.71
Vel Total (ft/s)	0.49	Avg. Vel. (ft/s)		0.49
Max Chl Dpth (ft)	1.76	Hydr. Depth (ft)		1.32
Conv. Total (cfs)	1264.1	Conv. (cfs)		1264.1
Length wtd. (ft)	817.00	wetted Per. (ft)		22.28
Min Ch El (ft)	105.89	Shear (lb/sq ft)		0.01
Alpha	1.00	Stream Power (lb/ft s)	2626.85	0.00
0.00				
Frctn Loss (ft)	0.19	Cum Volume (acre-ft)	0.04	11.57
0.01				
C & E Loss (ft)	0.00	Cum SA (acres)	0.90	5.40
0.12				

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Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	107.84	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	wt. n-Val.		0.040
W.S. Elev (ft)	107.84	Reach Len. (ft)	818.00	817.00
815.00				
Crit w.s. (ft)	106.38	Flow Area (sq ft)		32.93
E.G. slope (ft/ft)	0.000151	Area (sq ft)		32.93
Q Total (cfs)	19.00	Flow (cfs)		19.00
Top width (ft)	22.53	Top width (ft)		22.53
Vel Total (ft/s)	0.58	Avg. Vel. (ft/s)		0.58
Max Chl Dpth (ft)	1.95	Hydr. Depth (ft)		1.46
Conv. Total (cfs)	1546.1	Conv. (cfs)		1546.1
Length wtd. (ft)	817.00	wetted Per. (ft)		23.18
Min Ch El (ft)	105.89	Shear (lb/sq ft)		0.01
Alpha	1.00	Stream Power (lb/ft s)	2626.85	0.00
0.00				
Frctn Loss (ft)	0.22	Cum Volume (acre-ft)	2.18	13.91
0.02				
C & E Loss (ft)	0.00	Cum SA (acres)	7.86	5.82
0.27				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	108.16	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	wt. n-Val.		0.040
W.S. Elev (ft)	108.15	Reach Len. (ft)	818.00	817.00
815.00				
Crit w.s. (ft)	106.52	Flow Area (sq ft)		40.12
E.G. slope (ft/ft)	0.000198	Area (sq ft)		40.12
Q Total (cfs)	29.00	Flow (cfs)		29.00

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Top width (ft)	23.86	Top width (ft)	23.86
Vel Total (ft/s)	0.72	Avg. Vel. (ft/s)	0.72
Max Chl Dpth (ft)	2.26	Hydr. Depth (ft)	1.68
Conv. Total (cfs)	2062.7	Conv. (cfs)	2062.7
Length wtd. (ft)	817.00	Wetted Per. (ft)	24.65
Min ch El (ft)	105.89	Shear (lb/sq ft)	0.02
Alpha	1.00	Stream Power (lb/ft s)	2626.85
0.00			0.00
Frctn Loss (ft)	0.28	Cum Volume (acre-ft)	12.47
0.07			18.90
C & E Loss (ft)	0.00	Cum SA (acres)	15.39
0.84			6.38

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-105
 REACH: NM-105

RS: 12607

INPUT

Description:

Station	Elevation	Data	num=	411	Sta	Elev	Sta	Elev	Sta	Elev
0	107.74	4.99	107.78	14.98	107.66	19.97	107.29	24.96	106.82	
29.95	105.73	34.95	105.66	39.94	105.71	44.93	105.9	49.92	105.7	
54.92	105.64	64.9	105.65	69.89	105.81	74.89	106.03	79.88	106.13	
84.87	106.37	89.86	106.46	94.86	106.64	99.85	106.71	104.84	106.86	
109.83	106.88	114.83	106.83	119.82	106.87	124.81	106.67	129.8	106.58	
134.8	106.55	144.78	106.77	149.77	106.69	154.77	106.52	159.76	106.42	
174.74	106.31	179.73	106.37	184.72	106.54	189.71	106.76	194.71	106.87	
204.69	106.56	209.68	106.32	214.68	105.77	219.67	105.49	224.66	105.53	
229.65	105.41	244.63	105.31	249.62	105.19	254.62	105.32	259.61	105.54	
269.59	105.37	274.58	105.63	284.57	105.53	289.56	105.35	299.55	105.55	
304.54	105.61	309.53	105.78	314.52	106	319.52	105.97	334.49	105.98	
339.49	105.92	349.47	105.97	354.46	106.06	359.46	106.27	364.45	106.23	
389.41	106.22	394.4	106.26	399.4	106.1	414.37	106.04	424.36	106.14	
429.35	106.03	439.34	105.73	444.33	105.45	449.32	105.34	454.31	105.39	
459.31	105.32	464.3	105.16	474.28	105.32	479.28	105.3	489.26	105.07	
494.25	105.17	499.25	105.13	504.24	105.16	509.23	105.31	514.22	105.18	
524.21	105.22	529.2	105.15	534.19	105.19	539.18	105.35	544.18	105.35	
554.16	105.12	559.15	105.35	569.14	105.34	574.13	105.27	584.12	105.33	
589.11	105.31	594.1	105.37	599.09	105.21	604.09	105.15	609.08	105.17	
614.07	105.24	629.05	105.32	639.03	105.09	649.02	105.09	654.01	105.02	
659	105.09	664	105.27	668.99	105.33	678.97	105.23	688.96	105.36	
693.95	105.33	698.94	105.36	708.93	105.51	713.92	105.63	718.91	105.69	
723.91	105.97	728.9	106.45	733.89	107.03	743.88	107.14	748.87	107.41	
753.86	107.62	758.85	107.62	763.85	107.35	768.84	107.42	773.83	107.58	
778.82	107.32	783.82	107.32	788.81	107.18	803.79	107.33	808.78	107.24	
813.77	107.08	818.76	106.99	823.76	107.04	828.75	107.35	833.74	107.5	

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838.73	107.26	843.72	107.2	853.71	107.17	858.7	107.05	868.69	107.05
873.68	106.96	878.67	106.82	883.66	106.93	888.66	107.16	893.65	107.21
898.64	107.1	903.63	107.08	908.63	107.11	918.61	107.05	923.6	107.08
928.6	107.26	933.59	107.25	938.58	107.55	943.57	108.73	948.57	110.2
953.56	110.87	958.55	110.86	968.54	110.4	973.53	110.35	978.52	110.39
983.51	110.53	993.5	111.07	1003.48	111.19	1008.48	111.09	1013.47	110.89
1023.45	110.86	1028.45	111.32	1033.44	111.26	1038.43	111.37	1043.42	111.4
1048.42	111.6	1058.4	111.32	1068.39	111.34	1073.38	111.41	1083.36	111.02
1088.36	111.27	1093.35	111.3	1098.34	111.15	1103.33	111.1	1108.33	111.33
1113.32	111.42	1118.31	111.3	1123.3	111.25	1128.3	111.12	1133.29	111.2
1138.28	111.23	1143.27	111.12	1148.27	111.09	1153.26	110.93	1158.25	110.83
1163.24	111.08	1168.23	111.4	1173.23	111.41	1178.22	111.22	1183.21	111.12
1188.2	111.14	1193.2	111.22	1198.19	111.19	1203.18	110.97	1208.17	111.11
1213.17	111.05	1218.16	110.68	1223.15	110.68	1228.14	111.11	1233.14	111.19
1243.12	111.21	1248.11	110.79	1253.11	110.54	1258.1	110.53	1263.09	110.81
1268.08	111.02	1273.08	110.95	1283.06	110.95	1293.05	110.75	1303.03	110.69
1313.02	110.39	1318.01	110.63	1323	110.78	1332.99	111.75	1337.98	112.28
1342.97	112.5	1352.96	113.17	1357.95	113.03	1361.29	112.89	1362.94	112.83
1367.93	112.02	1372.93	109.53	1377.92	106.96	1382.91	106.25	1387.9	106.4
1392.9	106.49	1397.89	107.41	1402.88	110.28	1407.87	112.31	1412.86	111.99
1417.86	111.14	1421.35	111.05	1422.85	111.01	1427.84	110.81	1432.83	110.71
1437.83	110.38	1442.82	110.14	1452.8	110.22	1457.8	110.48	1462.79	110.31
1467.78	110.33	1472.77	110.3	1482.76	110.69	1487.75	110.36	1497.74	110.26
1502.73	110.12	1507.72	110.28	1522.7	110.21	1527.69	110.3	1537.68	110.23
1542.67	109.96	1552.65	110.04	1557.65	110.04	1567.63	110.15	1572.62	110.1
1577.62	110.13	1587.6	110.03	1597.59	110.17	1602.58	110.2	1607.57	110.15
1617.56	109.97	1632.53	109.87	1642.52	109.58	1647.51	109.68	1652.5	109.86
1657.49	109.68	1662.49	109.71	1667.48	109.63	1677.46	109.79	1682.46	109.71
1697.43	109.76	1712.41	109.61	1717.4	109.75	1727.39	109.89	1737.37	110.19
1742.37	110.2	1747.36	109.94	1752.35	110.03	1757.34	110.2	1767.33	110.05
1772.32	109.74	1787.3	109.61	1797.28	109.89	1807.27	109.97	1812.26	109.89
1817.25	109.73	1822.25	109.7	1827.24	109.74	1832.23	109.85	1837.22	110.07
1842.22	110	1847.21	109.76	1852.2	109.89	1857.19	110.07	1862.19	109.93
1867.18	109.57	1872.17	109.54	1877.16	109.65	1882.16	109.69	1887.15	109.87
1892.14	109.99	1897.13	109.93	1902.13	109.67	1912.11	110.01	1917.1	109.99
1922.09	110.06	1927.09	109.99	1932.08	110.07	1942.06	110.08	1947.06	109.78
1952.05	109.68	1957.04	109.83	1962.03	109.82	1967.03	109.69	1972.02	109.91
1977.01	109.81	1982	109.83	1987	110.03	1991.99	109.92	1996.98	109.86
2001.97	109.88	2006.97	109.75	2011.96	109.75	2016.95	110	2021.94	110.07
2026.94	109.91	2031.93	109.93	2036.92	109.56	2041.91	109.52	2046.91	109.61
2051.9	109.77	2071.87	109.73	2081.85	110.2	2086.85	110.26	2091.84	110.19
2096.83	110.07	2106.82	109.73	2111.81	109.62	2116.8	109.64	2121.79	109.95
2126.78	109.59	2131.78	109.48	2136.77	109.54	2141.76	109.79	2146.75	109.88
2151.75	109.68	2156.74	109.68	2161.73	109.73	2166.72	109.85	2171.72	109.88
2176.71	109.85	2181.7	109.59	2186.69	109.55	2191.69	109.67	2196.68	109.65
2201.67	109.52	2206.66	109.49	2211.66	109.73	2216.65	109.63	2221.64	109.6
2226.63	109.79	2231.63	109.86	2241.61	109.78	2246.6	109.88	2251.6	109.83
2256.59	109.59	2261.58	109.51	2271.57	109.81	2276.56	109.7	2286.54	109.59
2306.51	109.7	2311.5	109.62	2316.5	109.6	2321.49	109.63	2326.48	109.55
2351.44	109.45	2361.43	109.57	2371.41	109.55	2376.41	109.63	2381.4	109.8
2386.39	109.61	2391.38	109.61	2396.38	109.71	2406.36	109.7	2411.35	109.61
2416.35	109.58	2421.34	109.48	2431.32	109.6	2436.32	109.62	2446.3	109.56
2451.29	109.49	2456.29	109.48	2461.28	109.62	2466.27	109.48	2476.25	109.45
2481.25	109.5	2491.23	109.71	2496.22	109.74	2521.19	109.38	2526.18	109.61
2531.17	109.64	2536.16	109.53	2541.16	109.55	2561.13	110.01	2566.12	109.86
2571.11	109.63	2591.08	109.49	2596.07	109.4	2601.07	109.41	2606.06	109.73
2611.05	109.77								

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 1367.93 .04 1407.87 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

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1367.93	1407.87		608	611	615	.1	.3
Ineffective Flow		num=	2				
Sta L	Sta R	Elev	Permanent				
0	1353.73	113.03	F				
1407.87	2611.05	112.31	F				
Blocked Obstructions		num=	2				
Sta L	Sta R	Elev	Sta L	Sta R	Elev		
0	1051.98	111.41	2085.46	2611.05	110.19		

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	107.11	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-val.		0.040
W.S. Elev (ft)	107.11	Reach Len. (ft)	608.00	611.00
615.00				
Crit w.s. (ft)	106.59	Flow Area (sq ft)		10.80
E.G. slope (ft/ft)	0.000467	Area (sq ft)		10.80
Q Total (cfs)	6.00	Flow (cfs)		6.00
Top width (ft)	18.62	Top width (ft)		18.62
Vel Total (ft/s)	0.56	Avg. Vel. (ft/s)		0.56
Max Chl Dpth (ft)	0.86	Hydr. Depth (ft)		0.58
Conv. Total (cfs)	277.5	Conv. (cfs)		277.5
Length wtd. (ft)	611.00	wetted Per. (ft)		18.77
Min Ch El (ft)	106.25	Shear (lb/sq ft)		0.02
Alpha	1.00	Stream Power (lb/ft s)	2611.05	0.00
0.00				
Frctn Loss (ft)	0.94	Cum Volume (acre-ft)		6.53
0.00				
C & E Loss (ft)	0.01	Cum SA (acres)		4.08
0.07				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	107.26	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	wt. n-val.		0.040
W.S. Elev (ft)	107.26	Reach Len. (ft)	608.00	611.00
615.00				
Crit w.s. (ft)	106.65	Flow Area (sq ft)		13.67
E.G. slope (ft/ft)	0.000519	Area (sq ft)		13.67

NM105 OUTPUT REPORT.TXT

Q Total (cfs)	9.00	Flow (cfs)	9.00
Top width (ft)	19.73	Top width (ft)	19.73
Vel Total (ft/s)	0.66	Avg. Vel. (ft/s)	0.66
Max Chl Dpth (ft)	1.01	Hydr. Depth (ft)	0.69
Conv. Total (cfs)	395.0	Conv. (cfs)	395.0
Length wtd. (ft)	611.00	wetted Per. (ft)	19.92
Min Ch El (ft)	106.25	Shear (lb/sq ft)	0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	2611.05
Frctn Loss (ft) 0.01	1.03	Cum Volume (acre-ft)	8.33
C & E Loss (ft) 0.09	0.01	Cum SA (acres)	4.51

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	107.56	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-val.		0.040
W.S. Elev (ft)	107.55	Reach Len. (ft)	608.00	611.00
615.00 Crit w.s. (ft)	106.78	Flow Area (sq ft)		19.64
E.G. Slope (ft/ft)	0.000619	Area (sq ft)		19.64
Q Total (cfs)	17.00	Flow (cfs)		17.00
Top width (ft)	21.35	Top width (ft)		21.35
Vel Total (ft/s)	0.87	Avg. Vel. (ft/s)		0.87
Max Chl Dpth (ft)	1.30	Hydr. Depth (ft)		0.92
Conv. Total (cfs)	683.4	Conv. (cfs)		683.4
Length wtd. (ft)	611.00	wetted Per. (ft)		21.66
Min Ch El (ft)	106.25	Shear (lb/sq ft)		0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	2611.05	0.00
Frctn Loss (ft)	1.18	Cum Volume (acre-ft)	0.77	12.57

NM105 OUTPUT REPORT.TXT

0.02				
C & E Loss (ft)	0.01	Cum SA (acres)	5.08	5.31
0.21				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	107.46	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	wt. n-Val.		0.040
W.S. Elev (ft)	107.45	Reach Len. (ft)	608.00	611.00
615.00				
Crit w.s. (ft)	106.73	Flow Area (sq ft)		17.66
E.G. Slope (ft/ft)	0.000584	Area (sq ft)		17.66
Q Total (cfs)	14.00	Flow (cfs)		14.00
Top width (ft)	21.00	Top width (ft)		21.00
Vel Total (ft/s)	0.79	Avg. Vel. (ft/s)		0.79
Max Chl Dpth (ft)	1.20	Hydr. Depth (ft)		0.84
Conv. Total (cfs)	579.2	Conv. (cfs)		579.2
Length wtd. (ft)	611.00	wetted Per. (ft)		21.27
Min Ch El (ft)	106.25	Shear (lb/sq ft)		0.03
Alpha	1.00	Stream Power (lb/ft s)	2611.05	0.00
0.00				
Frctn Loss (ft)	1.13	Cum Volume (acre-ft)	0.04	11.14
0.01				
C & E Loss (ft)	0.01	Cum SA (acres)	0.90	5.00
0.12				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

NM105 OUTPUT REPORT.TXT				
		Element	Left OB	Channel
E.G. Elev (ft)	107.62			
Right OB				
Vel Head (ft)	0.01	wt. n-Val.		0.040
W.S. Elev (ft)	107.61	Reach Len. (ft)	608.00	611.00
615.00				
Crit w.s. (ft)	106.81	Flow Area (sq ft)		20.94
E.G. Slope (ft/ft)	0.000634	Area (sq ft)		20.94
Q Total (cfs)	19.00	Flow (cfs)		19.00
Top width (ft)	21.57	Top width (ft)		21.57
Vel Total (ft/s)	0.91	Avg. Vel. (ft/s)		0.91
Max Chl Dpth (ft)	1.36	Hydr. Depth (ft)		0.97
Conv. Total (cfs)	754.4	Conv. (cfs)		754.4
Length wtd. (ft)	611.00	wetted Per. (ft)		21.92
Min Ch El (ft)	106.25	Shear (lb/sq ft)		0.04
Alpha	1.00	Stream Power (lb/ft s)	2611.05	0.00
0.00				
Frctn Loss (ft)	1.21	Cum Volume (acre-ft)	2.18	13.41
0.02				
C & E Loss (ft)	0.01	Cum SA (acres)	7.86	5.41
0.27				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the

need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

		Element	Left OB	Channel
E.G. Elev (ft)	107.88			
Right OB				
Vel Head (ft)	0.02	wt. n-Val.		0.040
W.S. Elev (ft)	107.86	Reach Len. (ft)	608.00	611.00
615.00				
Crit w.s. (ft)	106.93	Flow Area (sq ft)		26.49
E.G. Slope (ft/ft)	0.000718	Area (sq ft)		26.49
Q Total (cfs)	29.00	Flow (cfs)		29.00
Top width (ft)	22.50	Top width (ft)		22.50
Vel Total (ft/s)	1.09	Avg. Vel. (ft/s)		1.09
Max Chl Dpth (ft)	1.61	Hydr. Depth (ft)		1.18

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Conv. Total (cfs)	1082.0	Conv. (cfs)	1082.0
Length wtd. (ft)	611.00	Wetted Per. (ft)	22.97
Min Ch El (ft)	106.25	Shear (lb/sq ft)	0.05
Alpha	1.00	Stream Power (lb/ft s)	2611.05
0.00			0.00
Frctn Loss (ft)	1.33	Cum Volume (acre-ft)	12.47
0.07			18.27
C & E Loss (ft)	0.02	Cum SA (acres)	15.39
0.84			5.94

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the

need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-105
 REACH: NM-105

RS: 11996

INPUT

Description:

Station Elevation Data		num= 381									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	105.32	5	105.52	9.99	105.48	19.98	105.16	24.98	104.88		
29.97	105.24	34.97	104.83	39.96	104.81	54.96	104.91	59.96	104.73		
64.96	104.74	79.96	104.87	89.95	104.81	99.95	104.95	104.95	104.95		
109.95	104.88	114.95	104.73	119.95	104.92	124.95	104.92	129.95	104.99		
154.94	104.95	164.94	105.07	174.94	105.04	179.94	104.94	184.93	105.1		
189.93	105.15	199.93	105.02	209.93	104.85	214.93	104.96	234.93	104.92		
239.92	105.03	244.92	104.91	249.92	104.87	269.92	104.98	299.91	104.95		
309.91	104.73	319.91	104.78	329.91	104.79	334.9	104.89	359.9	104.76		
369.9	104.79	379.9	104.71	389.89	104.84	399.89	104.74	414.89	104.86		
419.89	104.72	424.89	104.81	434.88	104.79	439.88	104.84	444.88	104.97		
454.88	104.93	459.88	104.77	464.88	104.92	469.88	104.9	474.88	104.79		
479.88	104.84	484.87	104.77	489.87	104.88	499.87	104.86	504.87	104.7		
509.87	104.85	519.87	104.86	524.87	104.74	534.86	104.75	539.86	104.71		
549.86	104.87	554.86	104.86	559.86	104.75	564.86	104.78	569.86	104.89		
574.86	104.92	589.85	104.83	609.85	104.93	614.85	104.86	649.84	104.98		
654.84	105.03	664.84	105.01	669.84	105.07	674.83	105.02	684.83	105.12		
694.83	105.02	704.83	105.16	714.83	105.16	724.82	105.29	729.82	105.28		
739.82	105.32	749.82	105.3	759.82	105.39	769.81	105.41	774.81	105.48		
784.81	105.48	794.81	105.59	799.81	105.35	804.81	105.37	809.81	105.52		
814.81	105.58	824.8	105.59	829.8	105.71	839.8	105.85	849.8	105.84		
854.8	106.04	859.8	105.94	864.8	105.92	874.79	106.02	879.79	106.13		
889.79	106.07	894.79	106.14	899.79	106.1	909.79	106.16	929.78	106.17		
934.78	106.24	939.78	106.36	944.78	106.33	954.78	106.37	959.78	106.43		
964.77	106.42	974.77	106.31	989.77	106.47	994.77	106.49	999.77	106.44		
1004.77	106.45	1009.77	106.53	1024.76	106.55	1034.76	106.72	1044.76	106.76		
1059.76	106.68	1074.75	106.78	1079.75	106.86	1089.75	106.87	1094.75	106.77		
1099.75	106.92	1109.75	106.9	1119.74	107.3	1124.74	107.2	1129.74	107.24		
1139.74	107.18	1144.74	107.49	1149.74	107.67	1154.74	107.91	1159.74	107.57		
1164.73	107.39	1169.73	107.43	1174.73	107.6	1179.73	107.49	1184.73	107.85		

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1189.73	107.93	1194.73	107.61	1204.73	107.32	1214.72	107.35	1219.72	107.32
1224.72	107.54	1229.72	107.85	1234.72	107.92	1239.72	107.79	1244.72	107.3
1249.72	107.11	1254.72	107.09	1259.72	106.86	1269.71	106.82	1274.71	106.84
1284.71	107.04	1294.71	106.95	1299.71	106.98	1304.71	107.07	1309.71	106.88
1314.7	106.92	1319.7	107.02	1324.7	107.53	1329.7	108.5	1334.7	109.74
1339.7	110.22	1344.7	110.64	1349.7	110.88	1354.7	110.75	1356.02	110.74
1359.7	110.69	1364.69	109.31	1369.69	106.99	1374.69	105.95	1379.69	105.87
1384.69	105.98	1389.69	105.99	1394.69	106.07	1399.69	106.72	1404.69	107.25
1409.69	107.53	1414.68	107.53	1416.02	107.43	1419.68	107.17	1429.68	106.72
1434.68	106.31	1439.68	106.21	1444.68	106.38	1454.68	106.61	1459.68	106.6
1464.67	106.71	1474.67	106.57	1479.67	106.71	1484.67	106.65	1489.67	106.44
1499.67	106.4	1504.67	106.49	1509.67	106.76	1519.66	106.8	1524.66	106.28
1539.66	106.57	1544.66	106.57	1549.66	106.85	1554.66	106.86	1559.66	106.7
1564.65	106.85	1569.65	106.84	1574.65	106.56	1579.65	106.54	1584.65	106.65
1594.65	106.57	1604.65	106.61	1609.65	106.39	1614.64	106.53	1619.64	106.53
1624.64	106.41	1629.64	106.55	1644.64	106.2	1649.64	106.68	1654.64	106.21
1659.64	106.06	1664.63	106.07	1669.63	106.55	1674.63	106.65	1679.63	106.37
1684.63	106.28	1689.63	106.41	1704.63	106.42	1709.63	106.28	1719.62	106.52
1724.62	106.42	1729.62	106.38	1734.62	106.54	1739.62	106.56	1744.62	106.45
1749.62	106.45	1754.62	106.58	1759.62	106.57	1769.61	106.39	1774.61	106.26
1779.61	106.32	1784.61	106.73	1789.61	106.96	1794.61	106.89	1799.61	106.72
1804.61	106.7	1809.61	106.87	1819.6	106.62	1824.6	106.74	1829.6	106.58
1839.6	106.57	1844.6	106.63	1849.6	106.44	1854.6	106.45	1864.59	106.26
1874.59	106.52	1884.59	106.63	1889.59	106.46	1894.59	106.23	1899.59	106.25
1909.59	106.46	1919.58	106.44	1924.58	106.73	1929.58	106.79	1934.58	106.61
1939.58	106.69	1944.58	106.68	1954.58	106.92	1959.58	106.82	1969.57	106.74
1979.57	107.01	1984.57	107.05	1989.57	106.96	1994.57	106.99	1999.57	107.1
2004.57	107.02	2009.57	106.62	2014.56	106.5	2019.56	106.65	2029.56	106.82
2034.56	106.19	2039.56	105.94	2044.56	105.85	2049.56	106.03	2054.56	106.59
2059.56	106.87	2064.55	106.7	2069.55	106.37	2079.55	106.77	2084.55	106.18
2089.55	106.11	2094.55	106.42	2099.55	106.55	2104.55	106.6	2109.54	106.54
2114.54	106.3	2119.54	106.25	2129.54	106.38	2139.54	106.39	2144.54	106.48
2149.54	106.49	2154.53	106.65	2159.53	106.9	2164.53	107.05	2169.53	106.87
2174.53	106.58	2179.53	106.7	2184.53	106.73	2194.53	106.45	2199.53	106.67
2204.52	106.51	2209.52	106.4	2219.52	106.38	2229.52	106.5	2234.52	106.47
2239.52	106.37	2244.52	106.38	2249.51	106.3	2254.51	106.32	2259.51	106.49
2264.51	106.44	2269.51	106.23	2274.51	106.28	2279.51	106.42	2284.51	106.23
2289.51	106.53	2294.5	106.54	2299.5	106.49	2304.5	106.28	2309.5	106.57
2314.5	106.29	2319.5	106.23	2324.5	106.3	2329.5	106.51	2334.5	106.33
2339.5	106.3	2344.49	106.37	2349.49	106.12	2354.49	106.04	2359.49	106.04
2364.49	106.14	2369.49	105.96	2374.49	106.32	2379.49	106.43	2384.49	106.41
2394.48	106.57	2399.48	106.3	2404.48	106.16	2409.48	105.92	2414.48	106.03
2419.48	106.28	2424.48	106.34	2429.48	106.47	2434.47	106.33	2439.47	106.27
2444.47	106.33	2454.47	106.29	2464.47	106.46	2469.47	106.39	2474.47	106.2
2479.47	106.12	2484.46	106.12	2489.46	106.07	2494.46	106.07	2499.46	106.13
2504.46	106.32	2509.46	106.46	2519.46	106.25	2524.46	106.34	2529.45	106.21
2534.45	106.18	2544.45	106.35	2554.45	106.41	2559.45	106.57	2564.45	106.55
2569.45	106.47								

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 1364.69 .04 1409.69 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 1364.69 1409.69 285 285 285 .1 .3

Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 1347.67 109.64 F
 1409.69 2569.45 107.53 F

Blocked obstructions num= 2
 Sta L Sta R Elev Sta L Sta R Elev
 0 1149.78 107.67 1995.59 2569.45 106.94

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	106.17	Element	Left OB	Channel
Right OB Vel Head (ft)	0.07	wt. n-Val.		0.040
W.S. Elev (ft)	106.10	Reach Len. (ft)	285.00	285.00
285.00 Crit w.s. (ft)	106.10	Flow Area (sq ft)		2.86
E.G. Slope (ft/ft)	0.045528	Area (sq ft)		2.86
0.22 Q Total (cfs)	6.00	Flow (cfs)		6.00
Top width (ft)	27.73	Top width (ft)		20.98
6.75 Vel Total (ft/s)	2.10	Avg. Vel. (ft/s)		2.10
Max Chl Dpth (ft)	0.23	Hydr. Depth (ft)		0.14
Conv. Total (cfs)	28.1	Conv. (cfs)		28.1
Length wtd. (ft)	285.00	wetted Per. (ft)		21.00
Min Ch El (ft)	105.87	Shear (lb/sq ft)		0.39
Alpha	1.00	Stream Power (lb/ft s)	2569.45	0.00
0.00 Frctn Loss (ft)	0.59	Cum Volume (acre-ft)		6.43
0.00 C & E Loss (ft)	0.02	Cum SA (acres)		3.80
0.02				

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: Divided flow computed for this cross-section.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	106.23	Element	Left OB	Channel
Right OB Vel Head (ft)	0.09	wt. n-Val.		0.040
W.S. Elev (ft)	106.15	Reach Len. (ft)	285.00	285.00
285.00				

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Crit w.s. (ft)	106.15	Flow Area (sq ft)		3.78
E.G. Slope (ft/ft)	0.041952	Area (sq ft)		3.78
0.55				
Q Total (cfs)	9.00	Flow (cfs)		9.00
Top width (ft)	30.16	Top width (ft)		21.52
8.63				
Vel Total (ft/s)	2.38	Avg. Vel. (ft/s)		2.38
Max Chl Dpth (ft)	0.28	Hydr. Depth (ft)		0.18
Conv. Total (cfs)	43.9	Conv. (cfs)		43.9
Length wtd. (ft)	285.00	Wetted Per. (ft)		21.55
Min Ch El (ft)	105.87	Shear (lb/sq ft)		0.46
Alpha	1.00	Stream Power (lb/ft s)	2569.45	0.00
0.00				
Frctn Loss (ft)	0.61	Cum Volume (acre-ft)		8.21
0.00				
C & E Loss (ft)	0.02	Cum SA (acres)		4.22
0.03				

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: Divided flow computed for this cross-section.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	106.37	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.13	wt. n-val.		0.040
W.S. Elev (ft)	106.24	Reach Len. (ft)	285.00	285.00
285.00				
Crit w.s. (ft)	106.24	Flow Area (sq ft)		5.94
E.G. Slope (ft/ft)	0.035652	Area (sq ft)		5.94
1.71				
Q Total (cfs)	17.00	Flow (cfs)		17.00
Top width (ft)	43.49	Top width (ft)		22.74
20.74				
Vel Total (ft/s)	2.86	Avg. Vel. (ft/s)		2.86

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Max Chl Dpth (ft)	0.37	Hydr. Depth (ft)		0.26
Conv. Total (cfs)	90.0	Conv. (cfs)		90.0
Length wtd. (ft)	285.00	Wetted Per. (ft)		22.79
Min Ch El (ft)	105.87	Shear (lb/sq ft)		0.58
Alpha	1.00	Stream Power (lb/ft s)	2569.45	0.00
0.00				
Frctn Loss (ft)	1.06	Cum Volume (acre-ft)	0.77	12.39
0.01				
C & E Loss (ft)	0.03	Cum SA (acres)	5.08	5.00
0.07				

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: Divided flow computed for this cross-section.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	106.32	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.11	wt. n-Val.		0.040
W.S. Elev (ft)	106.21	Reach Len. (ft)	285.00	285.00
285.00				
Crit w.s. (ft)	106.21	Flow Area (sq ft)		5.16
E.G. Slope (ft/ft)	0.037754	Area (sq ft)		5.16
1.19				
Q Total (cfs)	14.00	Flow (cfs)		14.00
Top width (ft)	34.15	Top width (ft)		22.31
11.84				
Vel Total (ft/s)	2.72	Avg. vel. (ft/s)		2.72
Max Chl Dpth (ft)	0.34	Hydr. Depth (ft)		0.23
Conv. Total (cfs)	72.1	Conv. (cfs)		72.1
Length wtd. (ft)	285.00	wetted Per. (ft)		22.35
Min Ch El (ft)	105.87	Shear (lb/sq ft)		0.54

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Alpha	1.00	Stream Power (lb/ft s)	2569.45	0.00
0.00				
Frctn Loss (ft)	1.07	Cum Volume (acre-ft)	0.04	10.98
0.00				
C & E Loss (ft)	0.03	Cum SA (acres)	0.90	4.70
0.04				

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: Divided flow computed for this cross-section.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	106.40	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.14	wt. n-val.		0.040
W.S. Elev (ft)	106.26	Reach Len. (ft)	285.00	285.00
285.00				
Crit w.s. (ft)	106.26	Flow Area (sq ft)		6.34
E.G. Slope (ft/ft)	0.036342	Area (sq ft)		6.34
2.13				
Q Total (cfs)	19.00	Flow (cfs)		19.00
Top width (ft)	49.09	Top width (ft)		22.96
26.13				
Vel Total (ft/s)	3.00	Avg. Vel. (ft/s)		3.00
Max Chl Dpth (ft)	0.39	Hydr. Depth (ft)		0.28
Conv. Total (cfs)	99.7	Conv. (cfs)		99.7
Length wtd. (ft)	285.00	wetted Per. (ft)		23.01
Min Ch El (ft)	105.87	Shear (lb/sq ft)		0.62
Alpha	1.00	Stream Power (lb/ft s)	2569.45	0.00
0.00				
Frctn Loss (ft)	1.40	Cum Volume (acre-ft)	2.18	13.22
0.01				
C & E Loss (ft)	0.03	Cum SA (acres)	7.86	5.09
0.09				

NM105 OUTPUT REPORT.TXT

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
 Warning: Divided flow computed for this cross-section.
 Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
 Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
 Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
 Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	106.53	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.18	wt. n-Val.		0.040
W.S. Elev (ft)	106.36	Reach Len. (ft)	285.00	285.00
285.00				
Crit w.s. (ft)	106.36	Flow Area (sq ft)		8.58
E.G. Slope (ft/ft)	0.033004	Area (sq ft)		8.58
7.18				
Q Total (cfs)	29.00	Flow (cfs)		29.00
Top width (ft)	105.19	Top width (ft)		24.15
81.04				
Vel Total (ft/s)	3.38	Avg. Vel. (ft/s)		3.38
Max Chl Dpth (ft)	0.49	Hydr. Depth (ft)		0.36
Conv. Total (cfs)	159.6	Conv. (cfs)		159.6
Length wtd. (ft)	285.00	wetted Per. (ft)		24.21
Min Ch El (ft)	105.87	Shear (lb/sq ft)		0.73
Alpha	1.00	Stream Power (lb/ft s)	2569.45	0.00
0.00				
Frctn Loss (ft)	2.07	Cum Volume (acre-ft)	12.47	18.03
0.02				
C & E Loss (ft)	0.03	Cum SA (acres)	15.39	5.62
0.27				

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
 Warning: Divided flow computed for this cross-section.
 Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
 Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the

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need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-105
 REACH: NM-105

RS: 11711

INPUT

Description:

Station	Elevation	Data	num=	386	Sta	Elev	Sta	Elev	Sta	Elev
0	102.54	4.96	102.49	19.91	101.53	24.91	101.14	29.91	101.25	
34.91	101.17	44.91	101.26	54.91	101.82	59.9	101.91	64.9	102.11	
69.9	102.38	74.9	102.75	79.9	102.62	84.9	102.16	89.9	101.97	
99.9	102.1	104.89	101.92	109.89	102.19	114.89	102.27	119.89	102.55	
124.89	102.29	134.89	102.31	139.89	102.5	144.89	102.53	149.89	101.9	
164.88	101.9	174.88	102.22	179.88	102.23	184.88	102.41	194.88	102.09	
204.87	102.01	209.87	101.93	214.87	102.24	219.87	102.3	224.87	102.48	
229.87	102.52	244.87	102.41	249.87	102.14	254.86	102.06	264.86	102.09	
274.86	102.22	279.86	102.47	284.86	102.59	289.86	102.52	294.86	102.34	
299.86	102.41	304.85	102.53	314.85	102.14	319.85	102.12	329.85	102.23	
334.85	102.15	344.85	102.15	354.84	101.82	364.84	102.17	369.84	102.28	
379.84	102.05	394.84	102.12	399.83	102.27	404.83	102.54	409.83	102.69	
419.83	102.61	424.83	102.53	429.83	102.36	439.83	102.39	449.82	102.19	
464.82	102.23	469.82	102.04	474.82	102.26	489.82	102.35	494.82	102.28	
499.81	102.3	504.81	102.39	509.81	102.4	514.81	102.62	519.81	102.63	
524.81	102.76	529.81	102.66	534.81	102.92	539.81	102.48	544.81	102.54	
549.8	102.5	554.8	102.6	564.8	102.67	569.8	102.64	574.8	102.98	
579.8	103.21	584.8	103.24	589.8	102.99	599.79	103.09	604.79	103.1	
609.79	103.04	619.79	103.26	624.79	103.44	634.79	103.45	639.79	103.34	
644.78	103.14	649.78	103.09	669.78	103.35	679.78	103.83	694.77	103.39	
699.77	103.19	709.77	103.18	714.77	103.08	744.76	103.33	749.76	103.31	
754.76	103.37	759.76	103.37	764.76	103.27	769.76	103.26	774.76	103.31	
784.76	103.23	794.75	103.39	804.75	103.4	809.75	103.3	819.75	103.44	
829.75	103.47	834.75	103.76	839.74	103.28	844.74	103.3	849.74	103.45	
854.74	103.49	859.74	103.25	869.74	103.22	879.74	103.99	884.73	104.05	
889.73	103.77	894.73	103.58	899.73	103.13	904.73	103.77	909.73	103.65	
914.73	103.37	919.73	103.15	924.73	103.26	929.73	103.29	939.72	103.52	
944.72	103.54	949.72	103.5	954.72	103.25	959.72	103.23	964.72	103.66	
969.72	103.77	974.72	103.48	979.72	103.14	984.71	102.86	989.71	102.65	
994.71	102.63	999.71	102.7	1004.71	102.9	1009.71	103.02	1014.71	103.03	
1019.71	103.1	1024.71	103.29	1039.7	103.6	1049.7	103.3	1059.7	103.44	
1064.7	103.58	1084.69	103.91	1089.69	103.9	1094.69	103.79	1109.69	103.8	
1119.69	103.94	1124.69	103.93	1129.68	103.99	1134.68	104.2	1139.68	104.2	
1144.68	104.28	1149.68	104.42	1154.68	104.39	1159.68	104.27	1169.68	104.22	
1174.68	104.1	1179.67	104.12	1184.67	104.36	1189.67	104.32	1194.67	104.2	
1199.67	104.35	1209.67	104.45	1214.67	104.42	1219.67	104.31	1224.67	104.14	
1229.66	104.14	1234.66	104.24	1239.66	104.39	1244.66	104.3	1249.66	104.3	
1254.66	104.04	1259.66	104.19	1264.66	103.96	1269.66	104.15	1274.66	104.17	
1284.65	104.41	1289.65	104.49	1299.65	104.53	1304.65	104.64	1309.65	105.01	
1314.65	105.09	1319.65	106	1324.65	106.97	1329.64	107.36	1339.64	107.43	
1349.64	107.84	1354.64	107.19	1354.68	107.19	1359.64	106.89	1364.64	103.79	
1369.64	98.33	1374.64	94.77	1379.64	93.93	1384.63	94.32	1389.63	96.5	
1394.63	101.3	1399.63	103.81	1404.63	106.1	1409.63	108.2	1414.63	108.5	
1414.68	108.5	1419.63	108.43	1424.63	108.28	1429.62	107.3	1434.62	106.18	

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1439.62	105.91	1444.62	105.8	1454.62	105.71	1459.62	105.58	1464.62	105.32
1479.61	105.12	1484.61	105.14	1494.61	105.36	1504.61	105.35	1509.61	105.43
1519.61	105.41	1524.61	105.32	1529.6	105.29	1534.6	105.6	1539.6	106.23
1544.6	106.22	1554.6	105.93	1559.6	106.04	1564.6	106.03	1574.6	105.9
1579.59	106.01	1589.59	106.15	1594.59	106.43	1599.59	106.47	1604.59	106.61
1609.59	106.45	1614.59	106.43	1619.59	106.1	1624.59	106.49	1629.58	106.51
1634.58	106.77	1639.58	106.52	1644.58	105.64	1649.58	105.53	1654.58	105.49
1664.58	104.94	1669.58	104.92	1674.58	104.71	1679.58	104.67	1684.57	104.77
1699.57	104.86	1704.57	104.74	1714.57	104.79	1719.57	104.86	1724.57	104.76
1739.56	104.64	1754.56	104.71	1759.56	104.67	1764.56	104.7	1769.56	104.83
1774.56	104.88	1784.55	104.72	1804.55	104.99	1809.55	105.02	1814.55	104.92
1819.55	104.95	1829.54	104.79	1834.54	104.8	1839.54	104.66	1844.54	104.69
1854.54	104.83	1859.54	104.78	1874.54	104.77	1879.53	104.84	1884.53	105.1
1889.53	105.08	1894.53	104.73	1899.53	104.95	1909.53	104.96	1914.53	104.7
1919.53	104.88	1924.53	105	1929.52	105.03	1939.52	104.82	1954.52	104.79
1959.52	104.69	1969.52	104.77	1974.52	104.74	1979.51	104.78	1984.51	104.96
1989.51	104.74	1994.51	104.75	1999.51	104.87	2004.51	104.88	2009.51	105.05
2019.51	105.21	2024.51	105.04	2029.51	105.2	2034.5	105.29	2039.5	103.95
2044.5	103.82	2049.5	104.48	2054.5	104.66	2059.5	104.68	2064.5	104.5
2074.5	104.37	2079.49	104.36	2084.49	104.49	2089.49	104.4	2104.49	104.66
2109.49	104.86	2114.49	104.91	2119.49	104.88	2129.48	104.42	2139.48	104.34
2144.48	104.39	2154.48	104.57	2164.48	104.96	2169.48	104.95	2174.47	104.84
2184.47	104.54	2189.47	104.53	2194.47	104.71	2199.47	104.99	2204.47	105.02
2209.47	104.85	2214.47	104.62	2219.46	104.71	2224.46	104.46	2229.46	104.53
2234.46	104.78	2239.46	104.76	2244.46	104.67	2249.46	104.86	2254.46	104.51
2259.46	103.36	2264.45	104.05	2269.45	104.49	2279.45	104.44	2284.45	104.53
2294.45	104.51	2299.45	104.4	2304.45	104.43	2309.45	104.6	2314.44	104.63
2319.44	104.36	2324.44	104.37	2329.44	104.29	2334.44	104.36	2344.44	104.4
2349.44	104.34	2354.44	104.16	2359.43	104.14	2369.43	104.53	2379.43	104.59
2389.43	104.41	2394.43	104.75	2399.43	104.82	2404.42	104.98	2409.42	104.68
2414.42	104.44	2419.42	104.4	2424.42	104.48	2434.42	104.56	2449.42	104.57
2454.41	104.64	2469.41	104.48	2474.41	104.35	2479.41	104.35	2484.41	104.43
2504.4	104.44	2519.4	104.61	2524.4	104.61	2529.4	104.53	2539.4	104.68
2544.39	104.67								

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 1359.64 .04 1409.63 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 1359.64 1409.63 1200 1199 1197 .1 .3

Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 1348.93 107.64 F
 1414.77 2544.39 108.45 F

Blocked Obstructions num= 2
 Sta L Sta R Elev Sta L Sta R Elev
 0 885.46 103.92 1630.84 2544.39 106.19

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	95.01	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-val.		0.040
w.s. Elev (ft)	95.00	Reach Len. (ft)	1200.00	1199.00
1197.00 Crit w.s. (ft)	94.40	Flow Area (sq ft)		8.22
E.G. slope (ft/ft)	0.000653	Area (sq ft)		8.22
Q Total (cfs)	6.00	Flow (cfs)		6.00

NM105 OUTPUT REPORT.TXT

Top width (ft)	11.88	Top width (ft)	11.88
Vel Total (ft/s)	0.73	Avg. Vel. (ft/s)	0.73
Max Chl Dpth (ft)	1.07	Hydr. Depth (ft)	0.69
Conv. Total (cfs)	234.8	Conv. (cfs)	234.8
Length wtd. (ft)	1199.00	wetted Per. (ft)	12.19
Min Ch El (ft)	93.93	Shear (lb/sq ft)	0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	2544.39
Frctn Loss (ft)	2.43	Cum Volume (acre-ft)	6.39
C & E Loss (ft)	0.01	Cum SA (acres)	3.69

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	95.21	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-val.		0.040
W.S. Elev (ft)	95.20	Reach Len. (ft)	1200.00	1199.00
1197.00 Crit w.s. (ft)	94.49	Flow Area (sq ft)		10.65
E.G. Slope (ft/ft)	0.000677	Area (sq ft)		10.65
Q Total (cfs)	9.00	Flow (cfs)		9.00
Top width (ft)	12.62	Top width (ft)		12.62
Vel Total (ft/s)	0.85	Avg. Vel. (ft/s)		0.85
Max Chl Dpth (ft)	1.27	Hydr. Depth (ft)		0.84
Conv. Total (cfs)	345.8	Conv. (cfs)		345.8
Length wtd. (ft)	1199.00	wetted Per. (ft)		13.02
Min Ch El (ft)	93.93	Shear (lb/sq ft)		0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	2544.39	0.00
Frctn Loss (ft)	2.50	Cum Volume (acre-ft)		8.16
C & E Loss (ft)	0.02	Cum SA (acres)		4.10

NM105 OUTPUT REPORT.TXT

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	95.41	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.03	wt. n-val.		0.040
W.S. Elev (ft)	95.39	Reach Len. (ft)	1200.00	1199.00
1197.00				
Crit w.s. (ft)	94.67	Flow Area (sq ft)		13.06
E.G. slope (ft/ft)	0.001322	Area (sq ft)		13.06
Q Total (cfs)	17.00	Flow (cfs)		17.00
Top width (ft)	13.31	Top width (ft)		13.31
vel Total (ft/s)	1.30	Avg. vel. (ft/s)		1.30
Max Chl Dpth (ft)	1.46	Hydr. Depth (ft)		0.98
Conv. Total (cfs)	467.6	Conv. (cfs)		467.6
Length wtd. (ft)	1199.00	wetted Per. (ft)		13.81
Min Ch El (ft)	93.93	Shear (lb/sq ft)		0.08
Alpha	1.00	Stream Power (lb/ft s)	2544.39	0.00
0.00				
Frctn Loss (ft)	1.89	Cum volume (acre-ft)	0.77	12.33
C & E Loss (ft)	0.00	Cum SA (acres)	5.08	4.88

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	95.29	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	wt. n-val.		0.040
W.S. Elev (ft)	95.26	Reach Len. (ft)	1200.00	1199.00

NM105 OUTPUT REPORT.TXT

1197.00				
Crit w.s. (ft)	94.61	Flow Area (sq ft)		11.45
E.G. Slope (ft/ft)	0.001323	Area (sq ft)		11.45
Q Total (cfs)	14.00	Flow (cfs)		14.00
Top width (ft)	12.85	Top width (ft)		12.85
Vel Total (ft/s)	1.22	Avg. Vel. (ft/s)		1.22
Max Chl Dpth (ft)	1.33	Hydr. Depth (ft)		0.89
Conv. Total (cfs)	384.9	Conv. (cfs)		384.9
Length wtd. (ft)	1199.00	wetted Per. (ft)		13.29
Min Ch El (ft)	93.93	Shear (lb/sq ft)		0.07
Alpha	1.00	Stream Power (lb/ft s)	2544.39	0.00
0.00				
Frctn Loss (ft)	2.00	Cum volume (acre-ft)	0.04	10.92
C & E Loss (ft)	0.00	Cum SA (acres)	0.90	4.58

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	95.39	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.04	wt. n-val.		0.040
w.s. Elev (ft)	95.35	Reach Len. (ft)	1200.00	1199.00
1197.00				
Crit w.s. (ft)	94.71	Flow Area (sq ft)		12.58
E.G. Slope (ft/ft)	0.001845	Area (sq ft)		12.58
Q Total (cfs)	19.00	Flow (cfs)		19.00
Top width (ft)	13.17	Top width (ft)		13.17
Vel Total (ft/s)	1.51	Avg. Vel. (ft/s)		1.51
Max Chl Dpth (ft)	1.42	Hydr. Depth (ft)		0.95
Conv. Total (cfs)	442.3	Conv. (cfs)		442.3
Length wtd. (ft)	1199.00	wetted Per. (ft)		13.66
Min Ch El (ft)	93.93	Shear (lb/sq ft)		0.11
Alpha	1.00	Stream Power (lb/ft s)	2544.39	0.00
0.00				

NM105 OUTPUT REPORT.TXT				
Frctn Loss (ft)	1.63	Cum Volume (acre-ft)	2.18	13.15
C & E Loss (ft)	0.00	Cum SA (acres)	7.86	4.97

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
 Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	95.53	Element	Left OB	Channel
Right OB Vel Head (ft)	0.07	wt. n-val.		0.040
W.S. Elev (ft)	95.46	Reach Len. (ft)	1200.00	1199.00
1197.00 Crit w.s. (ft)	94.87	Flow Area (sq ft)		14.08
E.G. slope (ft/ft)	0.003092	Area (sq ft)		14.08
Q Total (cfs)	29.00	Flow (cfs)		29.00
Top width (ft)	13.58	Top width (ft)		13.58
vel Total (ft/s)	2.06	Avg. vel. (ft/s)		2.06
Max chl Dpth (ft)	1.53	Hydr. Depth (ft)		1.04
Conv. Total (cfs)	521.5	Conv. (cfs)		521.5
Length wtd. (ft)	1199.00	wetted Per. (ft)		14.13
Min Ch El (ft)	93.93	Shear (lb/sq ft)		0.19
Alpha 0.00	1.00	Stream Power (lb/ft s)	2544.39	0.00
Frctn Loss (ft)	0.87	Cum volume (acre-ft)	12.47	17.95
C & E Loss (ft)	0.02	Cum SA (acres)	15.39	5.49

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.
 Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-105
 REACH: NM-105 RS: 10512

INPUT
 Description:

NM105 OUTPUT REPORT.TXT

Station Elevation Data

num= 378

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	100.27	5	100.4	9.99	100.44	14.99	100.28	19.98	100.26
24.98	100.16	34.97	100.25	49.96	100.08	54.95	100.11	59.95	100.06
64.94	99.88	69.94	99.84	74.93	100.03	79.93	99.77	84.92	99.64
89.92	99.68	99.91	100.16	104.91	100.1	109.9	99.72	114.9	99.57
124.89	99.43	129.88	99.43	134.88	99.62	139.88	99.7	144.87	99.66
154.86	99.42	159.86	99.43	169.85	99.3	174.84	99.36	179.84	99.56
184.84	99.66	189.83	99.57	194.83	99.61	204.82	99.84	209.81	99.83
214.81	99.66	224.8	99.46	229.79	99.47	234.79	99.42	239.79	99.51
244.78	99.72	249.78	99.65	254.77	99.47	264.76	99.38	274.75	99.41
279.75	99.27	284.75	99.28	294.74	99.38	304.73	99.41	309.72	99.67
314.72	99.87	319.71	99.75	324.71	99.54	339.7	99.38	344.69	99.37
349.69	99.52	354.68	99.38	364.67	99.18	369.67	99.3	374.67	99.32
379.66	99.44	384.66	99.44	389.65	99.31	404.64	99.15	414.63	99.14
424.62	99.05	439.61	99.14	444.6	99.26	449.6	99.31	464.59	99.3
469.58	99.35	479.57	99.34	484.57	99.23	499.55	99.19	504.55	99.31
509.55	99.13	519.54	99.26	524.53	99.13	529.53	99.05	534.52	99.28
539.52	99.26	544.51	99.14	549.51	99.35	554.51	99.38	559.5	99.34
564.5	99.16	574.49	99.22	579.48	99.18	589.47	99.18	594.47	99.27
604.46	99.34	609.46	99.14	614.45	99.32	624.44	99.2	639.43	99.27
649.42	99.2	674.4	99.26	684.39	99.12	709.37	99.28	719.36	99.21
724.35	99.24	729.35	99.34	734.34	99.38	744.34	99.2	749.33	99.04
754.33	99.03	759.32	99.08	764.32	99.24	769.31	99.46	779.3	99.18
789.3	99.26	794.29	99.45	799.29	99.48	804.28	99.22	809.28	99.33
814.27	99.52	819.27	99.32	824.26	99.67	829.26	99.74	834.26	99.73
839.25	99.25	849.24	99.25	854.24	99.38	859.23	99.18	864.23	99.52
869.22	99.61	879.21	99.36	884.21	99.45	889.21	99.34	894.2	99.37
899.2	99.53	904.19	99.78	909.19	99.47	914.18	99.38	919.18	99.68
924.17	99.54	934.17	99.78	939.16	100.02	944.16	99.82	954.15	99.93
959.14	99.54	964.14	99.33	974.13	99.52	979.13	99.55	984.12	99.47
989.12	99.54	994.11	99.53	999.11	99.36	1004.1	99.62	1009.1	99.62
1014.09	99.53	1019.09	99.88	1024.09	99.96	1029.08	99.71	1034.08	99.61
1039.07	99.67	1044.07	99.59	1049.06	99.6	1054.06	99.92	1059.05	99.67
1064.05	99.56	1069.05	99.25	1074.04	99.42	1079.04	99.8	1084.03	99.55
1089.03	99.6	1094.02	99.4	1099.02	99.44	1104.01	99.33	1109.01	99.38
1114.01	99.61	1119	99.94	1124	99.74	1128.99	99.78	1133.99	99.47
1138.98	99.52	1143.98	99.86	1148.97	99.87	1153.97	99.61	1158.97	99.43
1163.96	99.62	1168.96	99.55	1173.95	99.54	1178.95	99.68	1183.94	100.12
1188.94	99.65	1193.93	99.54	1198.93	99.51	1203.93	99.6	1208.92	99.78
1218.91	100.04	1223.91	99.69	1228.9	99.77	1233.9	99.75	1238.89	99.68
1243.89	100.02	1248.89	99.69	1253.88	99.63	1258.88	99.73	1263.87	99.74
1268.87	99.59	1273.86	99.57	1278.86	99.74	1283.85	99.75	1293.85	99.93
1298.84	99.93	1303.84	99.86	1308.83	99.74	1313.83	100.03	1318.82	100.52
1323.82	101.15	1328.81	102.8	1333.81	104.29	1338.81	105.45	1343.8	105.87
1348.8	105.97	1353.79	106.19	1358.79	105.71	1359.32	105.54	1363.78	104.14
1368.78	103.51	1373.78	99.65	1378.77	96.2	1383.77	93.49	1388.76	93.25
1393.76	91.91	1398.75	92.35	1403.75	98.38	1408.74	98.75	1413.74	102.69
1418.73	103.32	1419.34	103.32	1423.73	103.38	1428.73	102.06	1433.72	101.91
1438.72	101.41	1448.71	100.8	1453.7	100.81	1458.7	100.67	1463.7	100.43
1468.69	100.34	1473.69	100.33	1483.68	100.49	1493.67	100.38	1498.66	100.48
1503.66	100.41	1513.65	100.12	1523.64	100.41	1528.64	100.47	1538.63	100.3
1558.61	100.4	1568.6	100.48	1578.59	100.3	1583.59	100.53	1588.58	100.95
1593.58	101.13	1608.57	101.18	1618.56	101.03	1623.55	101	1628.55	101.04
1633.54	101.17	1638.54	101.23	1643.54	101.14	1653.53	101.12	1658.52	101.04
1663.52	101.15	1668.51	101.17	1673.51	101.12	1683.5	100.92	1688.5	100.92
1698.49	101.08	1703.48	101.05	1708.48	101.12	1713.47	101.1	1718.47	101.14
1728.46	101.05	1733.46	101.05	1738.45	101.14	1743.45	101.1	1753.44	101.17
1763.43	101.33	1773.42	101.3	1783.41	101.14	1798.4	101.27	1803.39	101.2
1813.38	101.21	1818.38	101.16	1823.38	101.21	1828.37	101.32	1833.37	101.34
1838.36	101.31	1848.35	101.33	1858.34	101.22	1863.34	101.26	1868.34	101.37
1873.33	101.4	1883.32	101.22	1893.31	101.24	1903.3	101.41	1918.29	101.35
1923.29	101.27	1933.28	101.31	1948.27	101.3	1963.25	101.21	1973.24	101.29

NM105 OUTPUT REPORT.TXT

1978.24	101.22	1983.23	101.21	1988.23	101.15	1998.22	101.19	2018.2	101.17
2023.2	101.12	2033.19	101.16	2038.19	101.26	2043.18	101.29	2053.17	101.21
2058.17	101.09	2068.16	100.99	2078.15	101.09	2088.14	101.36	2103.13	101.59
2113.12	101.66	2118.11	101.74	2148.09	102.55	2153.08	102.6	2158.08	102.56
2168.07	102.68	2173.06	102.66	2178.06	102.58	2188.05	102.56	2193.05	102.46
2208.03	102.3	2218.02	102.29	2223.02	102.23	2228.01	101.97	2233.01	101.54
2238.01	101.54	2252.99	101.17	2257.99	101.13	2262.98	101.15	2267.98	101.11
2272.97	101.14	2277.97	101.11	2282.97	101.22	2287.96	101.14	2292.96	101.26
2297.95	101.16	2302.95	101.17	2312.94	101.1	2322.93	101.08	2332.92	101.18
2342.91	101.05	2347.91	101.05	2352.9	101	2367.89	101.02	2382.88	100.85
2387.87	100.89	2392.87	100.86	2427.83	100.96	2432.83	100.86	2437.83	100.83
2442.82	100.86	2447.82	100.97	2462.8	100.89	2472.79	101.15	2477.79	101.11
2482.79	101.02	2497.77	100.92	2507.76	100.92	2512.76	100.8	2517.75	100.89
2532.74	100.76	2537.74	100.65	2542.73	100.65	2547.73	100.79	2552.72	100.67
2557.72	100.78	2567.71	100.75	2577.7	100.91				

Manning's n Values num= 3
 Sta n Val Sta n Val
 0 .06 1368.78 .04 1413.74 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 1368.78 1413.74 1205 1209 1213 .1 .3

Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 1349.94 105.54 F
 1420.69 2577.7 103.21 F

Blocked Obstructions num= 1
 Sta L Sta R Elev
 2180.62 2577.7 102.29

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	92.57	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.14	wt. n-Val.		0.040
W.S. Elev (ft)	92.43	Reach Len. (ft)	1205.00	1209.00
1213.00				
Crit w.s. (ft)	92.43	Flow Area (sq ft)		2.01
E.G. Slope (ft/ft)	0.035034	Area (sq ft)		2.01
Q Total (cfs)	6.00	Flow (cfs)		6.00
Top width (ft)	7.00	Top width (ft)		7.00
Vel Total (ft/s)	2.99	Avg. Vel. (ft/s)		2.99
Max Chl Dpth (ft)	0.52	Hydr. Depth (ft)		0.29
Conv. Total (cfs)	32.1	Conv. (cfs)		32.1
Length wtd. (ft)	1209.00	wetted Per. (ft)		7.12
Min Ch El (ft)	91.91	shear (lb/sq ft)		0.62
Alpha	1.00	Stream Power (lb/ft s)	2577.70	0.00
0.00				
Frctn Loss (ft)	0.05	cum volume (acre-ft)		6.25
C & E Loss (ft)	0.04	Cum SA (acres)		3.43

NM105 OUTPUT REPORT.TXT

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
 Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.
 Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
 Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	92.70	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.18	wt. n-Val.		0.040
W.S. Elev (ft)	92.52	Reach Len. (ft)	1205.00	1209.00
1213.00				
Crit w.s. (ft)	92.52	Flow Area (sq ft)		2.63
E.G. Slope (ft/ft)	0.034708	Area (sq ft)		2.63
Q Total (cfs)	9.00	Flow (cfs)		9.00
Top width (ft)	7.39	Top width (ft)		7.39
Vel Total (ft/s)	3.42	Avg. Vel. (ft/s)		3.42
Max Chl Dpth (ft)	0.61	Hydr. Depth (ft)		0.36
Conv. Total (cfs)	48.3	Conv. (cfs)		48.3
Length wtd. (ft)	1209.00	wetted Per. (ft)		7.57
Min Ch El (ft)	91.91	Shear (lb/sq ft)		0.75
Alpha	1.00	Stream Power (lb/ft s)	2577.70	0.00
0.00				
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)		7.98
C & E Loss (ft)	0.05	Cum SA (acres)		3.83

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
 Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.
 Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted

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to critical depth.
 Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	93.53	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	wt. n-val.		0.040
W.S. Elev (ft)	93.50	Reach Len. (ft)	1205.00	1209.00
1213.00 Crit w.s. (ft)	92.72	Flow Area (sq ft)		12.59
E.G. slope (ft/ft)	0.001922	Area (sq ft)		12.59
Q Total (cfs)	17.00	Flow (cfs)		17.00
Top width (ft)	15.95	Top width (ft)		15.95
Vel Total (ft/s)	1.35	Avg. vel. (ft/s)		1.35
Max Chl Dpth (ft)	1.59	Hydr. Depth (ft)		0.79
Conv. Total (cfs)	387.8	Conv. (cfs)		387.8
Length wtd. (ft)	1209.00	wetted Per. (ft)		16.69
Min Ch El (ft)	91.91	Shear (lb/sq ft)		0.09
Alpha 0.00	1.00	Stream Power (lb/ft s)	2577.70	0.00
Frctn Loss (ft)	0.06	Cum volume (acre-ft)	0.77	11.97
C & E Loss (ft)	0.01	Cum SA (acres)	5.08	4.48

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	93.28	Element	Left OB	Channel
Right OB Vel Head (ft)	0.04	wt. n-val.		0.040
W.S. Elev (ft)	93.25	Reach Len. (ft)	1205.00	1209.00
1213.00 Crit w.s. (ft)	92.65	Flow Area (sq ft)		9.26
E.G. slope (ft/ft)	0.002174	Area (sq ft)		9.26
Q Total (cfs)	14.00	Flow (cfs)		14.00
Top width (ft)	10.73	Top width (ft)		10.73

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Vel Total (ft/s)	1.51	Avg. Vel. (ft/s)		1.51
Max Chl Dpth (ft)	1.34	Hydr. Depth (ft)		0.86
Conv. Total (cfs)	300.2	Conv. (cfs)		300.2
Length wtd. (ft)	1209.00	wetted Per. (ft)		11.35
Min Ch El (ft)	91.91	Shear (lb/sq ft)		0.11
Alpha 0.00	1.00	Stream Power (lb/ft s)	2577.70	0.00
Frctn Loss (ft)	0.06	Cum volume (acre-ft)	0.04	10.64
C & E Loss (ft)	0.01	Cum SA (acres)	0.90	4.26

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	93.76	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-val.		0.040
W.S. Elev (ft)	93.74	Reach Len. (ft)	1205.00	1209.00
1213.00 Crit w.s. (ft)	92.76	Flow Area (sq ft)		16.50
E.G. slope (ft/ft)	0.001039	Area (sq ft)		16.50
Q Total (cfs)	19.00	Flow (cfs)		19.00
Top width (ft)	16.59	Top width (ft)		16.59
Vel Total (ft/s)	1.15	Avg. Vel. (ft/s)		1.15
Max Chl Dpth (ft)	1.83	Hydr. Depth (ft)		0.99
Conv. Total (cfs)	589.5	Conv. (cfs)		589.5
Length wtd. (ft)	1209.00	wetted Per. (ft)		17.50
Min Ch El (ft)	91.91	Shear (lb/sq ft)		0.06
Alpha 0.00	1.00	Stream Power (lb/ft s)	2577.70	0.00
Frctn Loss (ft)	0.06	Cum volume (acre-ft)	2.18	12.75
C & E Loss (ft)	0.01	Cum SA (acres)	7.86	4.57

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

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This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	94.64	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-val.		0.040
W.S. Elev (ft)	94.63	Reach Len. (ft)	1205.00	1209.00
1213.00 Crit w.s. (ft)	92.95	Flow Area (sq ft)		32.38
E.G. slope (ft/ft)	0.000317	Area (sq ft)		32.38
Q Total (cfs)	29.00	Flow (cfs)		29.00
Top width (ft)	18.98	Top width (ft)		18.98
vel Total (ft/s)	0.90	Avg. vel. (ft/s)		0.90
Max Chl Dpth (ft)	2.72	Hydr. Depth (ft)		1.71
Conv. Total (cfs)	1629.6	Conv. (cfs)		1629.6
Length wtd. (ft)	1209.00	wetted Per. (ft)		20.54
Min Ch El (ft)	91.91	Shear (lb/sq ft)		0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	2577.70	0.00
Frctn Loss (ft)	0.06	Cum volume (acre-ft)	12.47	17.32
C & E Loss (ft)	0.00	Cum SA (acres)	15.39	5.04

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-105
REACH: NM-105

RS: 9303

INPUT

Description:

Station	Elevation	Data	num=	362	Sta	Elev	Sta	Elev	Sta	Elev
0	97.82	9.99	98.11	14.98	98.16	19.98	98.08	24.97	97.85	
29.97	97.29	34.96	96.98	39.95	97.73	44.95	98.87	49.94	99.19	
64.93	99.04	99.89	98.97	114.87	99.17	124.86	99.12	134.85	98.95	
139.84	98.92	144.84	98.96	159.82	99.28	164.81	99.28	169.81	99.23	
174.8	99.07	179.8	98.98	184.79	98.84	209.76	98.81	214.76	98.73	
219.75	98.57	224.75	98.88	234.73	98.87	239.73	98.94	244.72	98.88	
259.71	98.95	264.7	99.11	269.7	99.03	274.69	99.05	279.68	98.82	

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284.68	98.92	289.67	98.82	294.67	98.82	299.66	98.91	304.66	99.32
309.65	98.85	319.64	98.77	324.63	98.64	334.62	98.71	344.61	98.82
349.61	98.71	354.6	98.87	359.59	98.93	364.59	99.12	369.58	99.21
379.57	99.18	394.55	98.97	404.54	98.97	409.54	99.03	414.53	98.94
429.51	98.9	434.51	98.92	439.5	99.04	449.49	99.19	459.48	99.2
469.47	99.26	474.46	98.96	479.46	98.81	484.45	98.92	489.45	99.3
494.44	99.62	504.43	99.23	509.42	99.12	514.42	99.19	519.41	99.11
524.41	98.82	529.4	98.92	549.38	98.95	559.37	98.85	564.36	98.89
569.36	99.06	574.35	99.11	579.35	99.1	584.34	98.99	589.33	98.75
599.32	98.78	604.32	98.71	619.3	98.78	624.29	98.87	634.28	98.8
639.28	98.82	644.27	99	649.27	98.95	654.26	98.8	659.26	98.79
664.25	98.83	669.24	99.19	674.24	99.25	679.23	99.23	684.23	99.08
689.22	99.08	694.22	99.03	704.2	99.07	709.2	98.9	719.19	98.99
724.18	98.99	734.17	98.91	739.16	98.83	744.16	98.82	749.15	98.94
754.15	98.94	759.14	98.8	764.14	98.8	769.13	98.89	774.13	98.9
779.12	98.8	794.1	98.82	799.1	99.05	804.09	99.17	814.08	99.18
824.07	99.01	829.06	98.98	834.06	99.04	849.04	99.02	874.01	99.12
879.01	99.1	884	99.02	898.98	99.01	903.98	99.05	913.97	98.99
923.96	99.15	933.94	99.41	938.94	99.64	943.93	100	948.93	100.12
953.92	100.1	958.92	99.98	963.91	99.8	973.9	99.63	978.89	99.67
988.88	99.67	993.88	99.81	1003.87	99.83	1013.85	99.95	1028.84	99.94
1038.83	99.77	1043.82	99.78	1048.82	99.74	1053.81	99.65	1058.8	99.77
1063.8	100.04	1068.79	100.08	1073.79	100.29	1078.78	99.98	1088.77	99.95
1093.76	99.82	1098.76	99.76	1108.75	99.8	1113.74	99.7	1138.71	99.64
1143.71	99.73	1153.7	99.71	1158.69	99.56	1163.69	99.55	1168.68	99.73
1173.67	99.77	1178.67	99.76	1183.66	99.69	1188.66	99.81	1193.65	99.84
1198.65	100.03	1203.64	100.06	1208.64	99.82	1213.63	99.77	1218.62	99.64
1223.62	99.66	1228.61	99.75	1233.61	99.76	1238.6	99.82	1243.6	99.98
1253.59	100.11	1258.58	100.13	1263.57	100.25	1278.56	100.23	1283.55	100.17
1288.55	100.16	1298.54	100.38	1303.53	100.27	1308.52	100.27	1313.52	100.32
1318.51	100.3	1323.51	100.33	1333.5	100.49	1338.49	100.71	1343.48	101.46
1348.48	102.48	1353.47	102.98	1358.47	103.3	1363.46	103.88	1367.37	104.03
1368.46	104.07	1373.45	103.9	1378.45	101.92	1383.44	96.61	1388.43	91.39
1393.43	89.25	1398.42	89.26	1403.42	90.75	1408.41	95.59	1413.41	99.54
1418.4	100.26	1423.39	101.34	1427.37	101.21	1428.39	101.18	1433.38	101.08
1443.37	100.95	1453.36	100.45	1458.36	100.13	1468.34	100.19	1473.34	100.17
1483.33	100.21	1488.32	100.27	1493.32	100.28	1498.31	100.14	1503.31	100.16
1508.3	100.27	1518.29	100.31	1523.28	100.21	1533.27	100.26	1538.27	100.36
1543.26	100.24	1548.25	100.25	1553.25	100.2	1568.23	100.24	1573.23	100.19
1578.22	100.25	1593.2	100.21	1598.2	100.15	1603.19	100.26	1608.19	100.22
1613.18	100.24	1618.18	100.17	1623.17	100.16	1628.17	100.25	1643.15	100.26
1648.14	100.16	1653.14	100.13	1658.13	100.31	1663.13	100.31	1678.11	100.19
1683.1	100.29	1688.1	100.22	1718.06	100.16	1723.06	100.18	1728.05	100.25
1758.02	100.08	1768.01	100.23	1782.99	100.07	1787.99	100.1	1792.98	100.22
1797.97	100.27	1812.96	100.19	1827.94	100.23	1832.94	100.15	1842.92	100.26
1882.88	100.17	1887.87	100.25	1912.85	100.25	1922.83	100.1	1937.82	100.13
1942.81	100.09	1962.79	100.17	1967.78	100.14	1972.78	100.22	1982.77	100.24
1987.76	100.16	1997.75	100.16	2002.74	100.01	2007.74	99.92	2012.73	100.04
2022.72	100.01	2027.72	99.91	2032.71	100.1	2037.71	100.13	2042.7	100.25
2047.69	100.04	2052.69	100.19	2057.68	100.26	2062.68	100.26	2067.67	100.18
2072.67	100.03	2082.65	100	2087.65	100.11	2097.64	99.93	2102.63	99.9
2107.63	99.95	2117.61	100.48	2122.61	100.56	2132.6	100.47	2137.59	100.22
2142.59	100.06	2147.58	100.03	2157.57	99.87	2172.55	99.95	2182.54	100.09
2197.52	100.03	2212.51	100.13	2217.5	100.22	2222.5	100.26	2232.48	100.43
2237.48	100.35	2242.47	100.21	2247.47	100.16	2257.46	100.24	2262.45	100.41
2272.44	100.32	2277.43	100.37	2282.43	100.63	2287.42	100.75	2292.42	100.52
2302.4	100.52	2312.39	100.3	2317.39	100.29	2337.36	100.08	2342.36	100.09
2347.35	100.15	2357.34	100.39	2362.34	100.42	2367.33	100.55	2377.32	100.68
2387.31	100.68	2392.3	100.8	2402.29	100.9	2407.28	100.51	2412.28	100.52
2417.27	100.92	2422.27	101.08	2427.26	101.08	2432.26	101.15	2437.25	100.65
2442.24	100.38	2447.24	100.36	2457.23	100.62	2472.21	100.57	2482.2	100.38
2492.19	100.42	2497.18	100.5	2502.18	100.66	2512.17	100.67	2517.16	100.61
2522.15	100.67	2537.14	100.44	2542.13	100.42	2552.12	100.46	2562.11	100.45

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2567.1	100.78	2572.1	100.95	2577.09	100.73	2582.09	100.59	2587.08	100.53
2602.06	100.7	2607.06	100.9	2612.05	101.3	2617.05	101.52	2622.04	102.08
2627.03	102.92	2632.03	102.28						

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 1378.45 .04 1413.41 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 1378.45 1413.41 173 173 173 .1 .3

Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 1369.63 103.99 F
 1424.07 2632.03 101.28 F

Blocked Obstructions num= 2
 Sta L Sta R Elev Sta L Sta R Elev
 0 946.26 100.06 2122.47 2632.03 100.52

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	91.98	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-Val.		0.040
W.S. Elev (ft)	91.98	Reach Len. (ft)	173.00	173.00
173.00				
Crit w.s. (ft)	89.59	Flow Area (sq ft)		32.68
E.G. Slope (ft/ft)	0.000011	Area (sq ft)		32.68
Q Total (cfs)	6.00	Flow (cfs)		6.00
Top width (ft)	16.82	Top width (ft)		16.82
Vel Total (ft/s)	0.18	Avg. Vel. (ft/s)		0.18
Max Chl Dpth (ft)	2.73	Hydr. Depth (ft)		1.94
Conv. Total (cfs)	1792.2	Conv. (cfs)		1792.2
Length wtd. (ft)	173.00	wetted Per. (ft)		18.22
Min Ch El (ft)	89.25	Shear (lb/sq ft)		0.00
Alpha	1.00	Stream Power (lb/ft s)	2632.03	0.00
0.00				
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		5.77
C & E Loss (ft)	0.00	Cum SA (acres)		3.10

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

NM105 OUTPUT REPORT.TXT				
E.G. Elev (ft)	92.51	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-val.		0.040
W.S. Elev (ft)	92.51	Reach Len. (ft)	173.00	173.00
173.00 Crit w.s. (ft)	89.68	Flow Area (sq ft)		41.90
E.G. Slope (ft/ft)	0.000012	Area (sq ft)		41.90
Q Total (cfs)	9.00	Flow (cfs)		9.00
Top width (ft)	17.87	Top width (ft)		17.87
Vel Total (ft/s)	0.21	Avg. Vel. (ft/s)		0.21
Max Chl Dpth (ft)	3.26	Hydr. Depth (ft)		2.34
Conv. Total (cfs)	2572.5	Conv. (cfs)		2572.5
Length wtd. (ft)	173.00	Wetted Per. (ft)		19.72
Min Ch El (ft)	89.25	Shear (lb/sq ft)		0.00
Alpha	1.00	Stream Power (lb/ft s)	2632.03	0.00
0.00 Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		7.36
C & E Loss (ft)	0.00	Cum SA (acres)		3.48

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	93.45	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-val.		0.040
W.S. Elev (ft)	93.45	Reach Len. (ft)	173.00	173.00
173.00 Crit w.s. (ft)	89.88	Flow Area (sq ft)		59.62
E.G. Slope (ft/ft)	0.000016	Area (sq ft)		59.62
Q Total (cfs)	17.00	Flow (cfs)		17.00
Top width (ft)	19.75	Top width (ft)		19.75
Vel Total (ft/s)	0.29	Avg. Vel. (ft/s)		0.29
Max Chl Dpth (ft)	4.20	Hydr. Depth (ft)		3.02
Conv. Total (cfs)	4256.8	Conv. (cfs)		4256.8
Length wtd. (ft)	173.00	Wetted Per. (ft)		22.38

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Min Ch El (ft)	89.25	Shear (lb/sq ft)		0.00
Alpha	1.00	Stream Power (lb/ft s)	2632.03	0.00
0.00				
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.77	10.97
C & E Loss (ft)	0.00	Cum SA (acres)	5.08	3.98

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	93.22	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-Val.		0.040
W.S. Elev (ft)	93.22	Reach Len. (ft)	173.00	173.00
173.00				
Crit w.s. (ft)	89.81	Flow Area (sq ft)		55.03
E.G. Slope (ft/ft)	0.000014	Area (sq ft)		55.03
Q Total (cfs)	14.00	Flow (cfs)		14.00
Top width (ft)	19.28	Top width (ft)		19.28
Vel Total (ft/s)	0.25	Avg. Vel. (ft/s)		0.25
Max Chl Dpth (ft)	3.97	Hydr. Depth (ft)		2.85
Conv. Total (cfs)	3800.0	Conv. (cfs)		3800.0
Length wtd. (ft)	173.00	wetted Per. (ft)		21.71
Min Ch El (ft)	89.25	Shear (lb/sq ft)		0.00
Alpha	1.00	Stream Power (lb/ft s)	2632.03	0.00
0.00				
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.04	9.74
C & E Loss (ft)	0.00	Cum SA (acres)	0.90	3.84

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

NM105 OUTPUT REPORT.TXT				
		Element	Left OB	Channel
E.G. Elev (ft)	93.69			
Right OB				
Vel Head (ft)	0.00	wt. n-Val.		0.040
W.S. Elev (ft)	93.69	Reach Len. (ft)	173.00	173.00
173.00				
Crit w.s. (ft)	89.93	Flow Area (sq ft)		64.39
E.G. Slope (ft/ft)	0.000016	Area (sq ft)		64.39
Q Total (cfs)	19.00	Flow (cfs)		19.00
Top width (ft)	20.22	Top width (ft)		20.22
Vel Total (ft/s)	0.30	Avg. Vel. (ft/s)		0.30
Max Chl Dpth (ft)	4.44	Hydr. Depth (ft)		3.18
Conv. Total (cfs)	4744.3	Conv. (cfs)		4744.3
Length wtd. (ft)	173.00	Wetted Per. (ft)		23.05
Min Ch El (ft)	89.25	Shear (lb/sq ft)		0.00
Alpha	1.00	Stream Power (lb/ft s)	2632.03	0.00
0.00				
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	2.18	11.63
C & E Loss (ft)	0.00	Cum SA (acres)	7.86	4.05

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

		Element	Left OB	Channel
E.G. Elev (ft)	94.58			
Right OB				
Vel Head (ft)	0.00	wt. n-Val.		0.040
W.S. Elev (ft)	94.58	Reach Len. (ft)	173.00	173.00
173.00				
Crit w.s. (ft)	90.11	Flow Area (sq ft)		83.19
E.G. Slope (ft/ft)	0.000018	Area (sq ft)		83.19
Q Total (cfs)	29.00	Flow (cfs)		29.00
Top width (ft)	21.99	Top width (ft)		21.99
Vel Total (ft/s)	0.35	Avg. Vel. (ft/s)		0.35
Max Chl Dpth (ft)	5.33	Hydr. Depth (ft)		3.78
Conv. Total (cfs)	6786.7	Conv. (cfs)		6786.7
Length wtd. (ft)	173.00	Wetted Per. (ft)		25.56

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Min Ch El (ft)	89.25	Shear (lb/sq ft)		0.00
Alpha	1.00	Stream Power (lb/ft s)	2632.03	0.00
0.00				
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	12.47	15.71
C & E Loss (ft)	0.00	Cum SA (acres)	15.39	4.48

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-105

REACH: NM-105

RS: 9131

INPUT

Description:

Station Elevation Data		num=		329							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	96.87	4.99	96.99	9.99	97.45	14.98	97.79	24.97	97.88		
29.97	97.79	34.96	97.57	39.95	97.28	44.95	96.85	49.94	97.65		
54.94	98.31	59.93	97.9	64.93	97.88	74.92	97.37	84.9	97.49		
89.9	97.5	94.89	97.33	104.88	97.31	119.86	97.05	124.86	97.08		
129.85	97	139.84	97.24	144.84	97.26	149.83	97.23	154.83	97.08		
159.82	96.99	164.81	97.31	174.8	97.34	179.8	97.21	184.79	97.15		
189.79	97.15	194.78	97.27	199.77	97.27	209.76	97.21	219.75	97.34		
224.75	97.23	229.74	97.22	234.73	97.33	244.72	97.37	254.71	97.26		
259.71	97.25	269.7	97.4	304.66	97.38	314.64	97.51	319.64	97.51		
324.63	97.59	349.61	97.54	359.59	97.6	369.58	97.58	374.58	97.64		
384.57	97.6	394.55	97.78	409.54	97.66	414.53	97.73	419.53	97.7		
424.52	97.58	434.51	97.75	439.5	97.77	449.49	97.72	464.48	97.83		
474.46	97.74	484.45	97.93	494.44	98.07	499.44	97.9	524.41	97.9		
529.4	98.02	539.39	98.08	554.37	98.01	564.36	98.05	574.35	98.04		
579.35	98.1	589.33	97.99	599.32	98.03	604.32	98.13	609.31	98.13		
614.31	98.07	624.29	98.13	629.29	98.12	669.24	98.2	679.23	98.16		
684.23	98.35	689.22	98.26	704.2	98.33	709.2	98.31	719.19	98.39		
724.18	98.39	729.18	98.29	734.17	98.38	744.16	98.33	749.15	98.45		
754.15	98.49	764.14	98.29	774.13	98.48	789.11	98.43	794.1	98.45		
804.09	98.58	819.07	98.52	829.06	98.75	839.05	98.61	859.03	98.6		
874.01	98.74	884	98.58	889	98.69	908.97	98.7	918.96	98.64		
928.95	98.72	938.94	98.7	943.93	98.62	953.92	98.63	958.92	98.54		
978.89	98.72	988.88	98.67	993.88	98.79	998.87	98.85	1003.87	98.85		
1018.85	98.6	1023.84	98.61	1028.84	98.72	1033.83	98.75	1038.83	98.65		
1043.82	98.61	1048.82	98.62	1053.81	98.8	1058.8	98.8	1063.8	98.71		
1073.79	98.79	1083.78	98.76	1088.77	98.7	1093.76	98.76	1103.75	98.71		
1108.75	98.79	1118.74	98.75	1123.73	98.78	1128.73	98.76	1148.7	98.82		
1153.7	98.77	1163.69	98.85	1183.66	98.71	1193.65	98.84	1208.64	98.87		
1213.63	98.79	1218.62	98.78	1223.62	98.85	1248.59	99.03	1258.58	98.96		
1263.57	99.06	1268.57	99.11	1283.55	99.03	1288.55	99.05	1298.54	98.98		
1303.53	99.14	1308.52	99.36	1313.52	99.45	1318.51	99.61	1323.51	99.62		
1328.5	99.81	1333.5	100.13	1338.49	100.31	1343.48	100.96	1348.48	101.84		
1353.47	102.38	1358.47	102.46	1363.46	102.74	1373.45	103.06	1375.59	103.08		
1378.45	103.11	1383.44	102.78	1388.43	99.61	1393.43	96.56	1398.42	95.66		
1403.42	90.96	1408.41	89.29	1413.41	90.91	1418.4	96.57	1423.39	96.96		

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1428.39	101.04	1433.38	101.52	1435.6	101.51	1443.37	101.46	1448.37	101.1
1453.36	100.54	1458.36	100.35	1463.35	100.36	1468.34	100.04	1473.34	100.1
1478.33	99.97	1488.32	99.97	1493.32	99.82	1498.31	99.77	1503.31	99.87
1518.29	99.89	1533.27	99.96	1538.27	99.88	1548.25	99.93	1558.24	99.92
1568.23	99.84	1573.23	99.95	1593.2	99.97	1598.2	99.83	1608.19	99.91
1613.18	99.88	1618.18	99.97	1633.16	100.06	1643.15	99.95	1653.14	100.23
1663.13	99.98	1673.11	99.99	1683.1	100.06	1693.09	99.97	1708.08	100.01
1718.06	99.89	1723.06	99.92	1728.05	100.03	1733.05	100.06	1738.04	100.16
1748.03	100.05	1758.02	100.11	1768.01	99.98	1773	99.85	1778	99.92
1782.99	100.07	1792.98	100.01	1797.97	100.06	1807.96	100.04	1822.95	100.28
1827.94	100.22	1832.94	100.06	1837.93	100.08	1842.92	100.03	1847.92	100.03
1857.91	100.14	1862.9	99.98	1867.9	100.04	1872.89	100.04	1877.89	99.97
1882.88	99.96	1887.87	100.02	1897.86	100.08	1902.86	99.98	1912.85	100.03
1917.84	99.97	1922.83	100	1927.83	100.09	1937.82	100.1	1942.81	99.9
1947.81	100.09	1952.8	99.96	1957.8	99.93	1962.79	100.03	1967.78	99.92
1972.78	100.03	1982.77	100.06	1987.76	99.97	1992.76	99.81	1997.75	99.79
2007.74	100.03	2012.73	99.95	2022.72	99.88	2027.72	99.99	2047.69	100.01
2052.69	99.96	2062.68	100.07	2082.65	100	2087.65	100.09	2102.63	100.04
2107.63	99.97	2112.62	99.97	2117.61	100.08	2127.6	100.05	2137.59	99.86
2147.58	99.93	2157.57	100.13	2177.55	100.12	2182.54	100.07	2197.52	100.03
2207.51	100.07	2217.5	100.05	2222.5	100.18	2227.49	100.11	2237.48	100.1
2242.47	100.14	2247.47	100.06	2252.46	100.1	2257.46	100.08	2262.45	99.96
2267.44	100	2272.44	100.1	2282.43	100.16	2287.42	99.94	2302.4	99.97
2307.4	100.2	2312.39	99.81	2317.39	100	2322.38	100	2327.38	99.88
2332.37	100.08	2337.36	100.02	2347.35	100.04	2352.35	99.91	2357.34	99.97
2367.33	99.96	2372.32	100.07	2382.31	100.03	2387.31	99.95	2392.3	100.1
2397.3	100.11	2407.28	99.99	2417.27	100.12	2422.27	99.97	2427.26	100.02
2437.25	99.87	2442.24	100	2467.22	99.89	2492.19	100.06	2502.18	100.01
2512.17	100.1	2522.15	100	2532.14	100.13	2542.13	99.98	2552.12	100.15
2562.11	99.92	2567.1	100	2572.1	100.14	2577.09	100.16	2587.08	99.9
2597.07	100.11	2612.05	100.08	2622.04	99.96	2632.03	99.96		

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 1383.44 .04 1428.39 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 1383.44 1428.39 1302 1300 1298 .1 .3

Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 1375.19 102.94 F
 1436.3 2632.03 101.48 F
 Blocked obstructions num= 1
 Sta L Sta R Elev
 0 55.51 97.93

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	91.97	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-val.		0.040
w.s. Elev (ft)	91.97	Reach Len. (ft)	1302.00	1300.00
1298.00				
Crit w.s. (ft)	90.04	Flow Area (sq ft)		19.64
E.G. slope (ft/ft)	0.000041	Area (sq ft)		19.64
Q Total (cfs)	6.00	Flow (cfs)		6.00
Top width (ft)	12.01	Top width (ft)		12.01

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Vel Total (ft/s)	0.31	Avg. Vel. (ft/s)		0.31
Max Chl Dpth (ft)	2.68	Hydr. Depth (ft)		1.64
Conv. Total (cfs)	940.4	Conv. (cfs)		940.4
Length wtd. (ft)	1300.00	wetted Per. (ft)		13.42
Min Ch El (ft)	89.29	Shear (lb/sq ft)		0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	2632.03	0.00
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)		5.67
C & E Loss (ft)	0.00	Cum SA (acres)		3.05

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	92.51	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-val.		0.040
W.S. Elev (ft)	92.50	Reach Len. (ft)	1302.00	1300.00
1298.00 Crit w.s. (ft)	90.18	Flow Area (sq ft)		26.29
E.G. slope (ft/ft)	0.000040	Area (sq ft)		26.29
Q Total (cfs)	9.00	Flow (cfs)		9.00
Top width (ft)	13.04	Top width (ft)		13.04
Vel Total (ft/s)	0.34	Avg. Vel. (ft/s)		0.34
Max Chl Dpth (ft)	3.21	Hydr. Depth (ft)		2.02
Conv. Total (cfs)	1425.8	Conv. (cfs)		1425.8
Length wtd. (ft)	1300.00	wetted Per. (ft)		14.90
Min Ch El (ft)	89.29	Shear (lb/sq ft)		0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	2632.03	0.00
Frctn Loss (ft)	0.16	Cum Volume (acre-ft)		7.23
C & E Loss (ft)	0.00	Cum SA (acres)		3.42

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

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CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	93.45	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-val.		0.040
W.S. Elev (ft)	93.45	Reach Len. (ft)	1302.00	1300.00
1298.00 Crit w.s. (ft)	90.43	Flow Area (sq ft)		39.41
E.G. slope (ft/ft)	0.000046	Area (sq ft)		39.41
Q Total (cfs)	17.00	Flow (cfs)		17.00
Top width (ft)	14.87	Top width (ft)		14.87
vel Total (ft/s)	0.43	Avg. vel. (ft/s)		0.43
Max Chl Dpth (ft)	4.16	Hydr. Depth (ft)		2.65
Conv. Total (cfs)	2513.2	Conv. (cfs)		2513.2
Length wtd. (ft)	1300.00	wetted Per. (ft)		17.53
Min Ch El (ft)	89.29	Shear (lb/sq ft)		0.01
Alpha 0.00	1.00	Stream Power (lb/ft s)	2632.03	0.00
Frctn Loss (ft)	0.16	Cum volume (acre-ft)	0.77	10.78
C & E Loss (ft)	0.00	Cum SA (acres)	5.08	3.91

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	93.21	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-val.		0.040
W.S. Elev (ft)	93.21	Reach Len. (ft)	1302.00	1300.00
1298.00 Crit w.s. (ft)	90.34	Flow Area (sq ft)		35.98
E.G. slope (ft/ft)	0.000040	Area (sq ft)		35.98
Q Total (cfs)	14.00	Flow (cfs)		14.00
Top width (ft)	14.41	Top width (ft)		14.41
vel Total (ft/s)	0.39	Avg. vel. (ft/s)		0.39
Max Chl Dpth (ft)	3.92	Hydr. Depth (ft)		2.50

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Conv. Total (cfs)	2214.6	Conv. (cfs)		2214.6
Length wtd. (ft)	1300.00	wetted Per. (ft)		16.87
Min Ch El (ft)	89.29	Shear (lb/sq ft)		0.01
Alpha 0.00	1.00	Stream Power (lb/ft s)	2632.03	0.00
Frctn Loss (ft)	0.16	Cum Volume (acre-ft)	0.04	9.56
C & E Loss (ft)	0.00	Cum SA (acres)	0.90	3.78

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	93.69	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-val.		0.040
W.S. Elev (ft)	93.68	Reach Len. (ft)	1302.00	1300.00
1298.00 Crit w.s. (ft)	90.48	Flow Area (sq ft)		43.02
E.G. slope (ft/ft)	0.000045	Area (sq ft)		43.02
Q Total (cfs)	19.00	Flow (cfs)		19.00
Top width (ft)	15.33	Top width (ft)		15.33
Vel Total (ft/s)	0.44	Avg. Vel. (ft/s)		0.44
Max Chl Dpth (ft)	4.39	Hydr. Depth (ft)		2.81
Conv. Total (cfs)	2836.0	Conv. (cfs)		2836.0
Length wtd. (ft)	1300.00	wetted Per. (ft)		18.19
Min Ch El (ft)	89.29	Shear (lb/sq ft)		0.01
Alpha 0.00	1.00	Stream Power (lb/ft s)	2632.03	0.00
Frctn Loss (ft)	0.16	Cum Volume (acre-ft)	2.18	11.42
C & E Loss (ft)	0.00	Cum SA (acres)	7.86	3.98

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

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CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	94.58	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-val.		0.040
W.S. Elev (ft)	94.57	Reach Len. (ft)	1302.00	1300.00
1298.00				
Crit w.s. (ft)	90.70	Flow Area (sq ft)		57.43
E.G. slope (ft/ft)	0.000047	Area (sq ft)		57.43
Q Total (cfs)	29.00	Flow (cfs)		29.00
Top width (ft)	17.06	Top width (ft)		17.06
vel Total (ft/s)	0.50	Avg. vel. (ft/s)		0.50
Max Chl Dpth (ft)	5.28	Hydr. Depth (ft)		3.37
Conv. Total (cfs)	4215.4	Conv. (cfs)		4215.4
Length wtd. (ft)	1300.00	wetted Per. (ft)		20.68
Min Ch El (ft)	89.29	Shear (lb/sq ft)		0.01
Alpha	1.00	Stream Power (lb/ft s)	2632.03	0.00
0.00				
Frctn Loss (ft)	0.16	Cum volume (acre-ft)	12.47	15.43
C & E Loss (ft)	0.00	Cum SA (acres)	15.39	4.40

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-105

REACH: NM-105

RS: 7830

INPUT

Description:

Station Elevation Data		num= 320							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	96.32	10	96.25	19.99	96.3	24.99	96.25	34.98	96.31
79.96	96.3	94.95	96.4	104.95	96.34	114.94	96.38	134.93	96.27
144.93	96.36	154.92	96.33	174.91	96.41	179.91	96.3	184.91	96.35
189.91	96.46	199.9	96.47	204.9	96.36	209.9	96.44	214.89	96.4
219.89	96.46	239.88	96.29	249.88	96.39	254.87	96.39	259.87	96.28
264.87	96.29	269.87	96.43	274.86	96.46	279.86	96.41	289.86	96.5
324.84	96.55	364.82	96.57	369.82	96.61	374.82	96.55	379.81	96.54
394.81	96.61	409.8	96.58	414.8	96.63	419.79	96.63	424.79	96.58
434.79	96.64	444.78	96.47	454.78	96.47	474.77	96.51	484.76	96.67
489.76	96.57	499.75	96.51	519.75	96.54	524.74	96.65	529.74	96.57

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534.74	96.56	544.73	96.72	549.73	96.62	559.73	96.65	564.72	96.75
569.72	96.77	574.72	96.66	579.72	96.71	584.71	96.68	589.71	96.58
594.71	96.68	599.71	96.67	604.7	96.59	614.7	96.7	624.69	96.69
634.69	96.79	644.68	96.75	649.68	96.69	654.68	96.73	669.67	96.62
674.67	96.7	679.67	96.71	684.66	96.66	694.66	96.77	719.65	96.64
734.64	96.77	739.64	96.77	744.63	96.7	759.63	96.75	774.62	96.7
789.61	96.79	799.61	96.67	809.6	96.95	814.6	96.92	824.59	96.77
834.59	96.88	839.59	96.89	864.57	96.81	869.57	96.75	884.56	96.77
894.56	96.91	899.56	96.9	904.55	96.83	909.55	96.92	914.55	96.94
919.55	96.9	929.54	96.98	949.53	96.83	954.53	96.98	959.53	96.93
964.53	96.93	969.52	97.04	974.52	96.99	984.52	97.01	1009.5	96.8
1034.49	96.86	1039.49	96.83	1074.47	96.85	1084.47	96.84	1089.46	96.9
1094.46	96.82	1104.46	96.89	1109.45	96.81	1129.44	96.81	1134.44	96.85
1144.44	96.8	1174.42	96.97	1189.41	96.92	1194.41	96.94	1199.41	97.08
1204.41	97.09	1209.4	97.2	1214.4	97.41	1219.4	97.87	1224.4	97.92
1229.39	98.86	1234.39	99.67	1239.39	100.56	1244.39	100.6	1249.38	101.81
1254.38	102.31	1259.38	102.73	1264.36	102.76	1269.37	102.94	1274.37	101.53
1279.37	97.22	1284.37	92.2	1289.36	91.56	1294.36	89.19	1299.36	88.82
1304.36	91.95	1309.35	92.68	1314.35	97.73	1319.35	100.65	1324.35	101.14
1324.36	101.14	1329.34	101.17	1334.34	100.91	1339.34	100.06	1344.34	99.36
1354.33	99.05	1364.33	99.1	1369.33	99.02	1374.32	99.03	1384.32	98.85
1389.32	98.87	1394.31	98.78	1399.31	98.78	1404.31	98.84	1424.3	98.72
1439.29	98.85	1449.29	98.79	1454.28	98.83	1459.28	98.81	1464.28	98.71
1479.27	98.74	1484.27	98.65	1489.27	98.78	1499.26	98.72	1504.26	98.74
1509.26	98.82	1539.24	98.81	1549.24	98.67	1554.23	98.85	1559.23	98.85
1569.23	98.69	1579.22	98.72	1584.22	98.63	1589.22	98.85	1604.21	98.85
1609.21	98.79	1619.2	98.79	1624.2	98.84	1629.2	98.96	1634.19	98.79
1639.19	98.73	1644.19	98.74	1649.19	98.85	1654.18	98.85	1659.18	98.94
1664.18	98.97	1669.18	98.86	1684.17	98.72	1689.17	98.82	1694.16	98.79
1704.16	99.08	1709.16	98.93	1714.16	98.9	1729.15	99.11	1739.14	98.95
1754.14	99	1759.13	99.08	1769.13	99.05	1774.13	99.13	1779.12	99.12
1784.12	99.03	1789.12	99.15	1794.12	99.2	1804.11	99.12	1814.11	99.39
1819.1	99.32	1824.1	99.3	1829.1	99.51	1844.09	99.61	1849.09	99.74
1859.08	99.82	1874.08	100.39	1879.07	100.4	1884.07	100.47	1894.07	100.79
1899.06	101.15	1904.06	101.13	1909.06	100.85	1914.06	101.3	1924.05	101.32
1929.05	101.46	1934.05	101.25	1939.04	101.47	1944.04	101.48	1954.04	101.39
1974.03	101.39	1984.02	101.25	1989.02	101.4	1994.02	101.35	1999.01	101.51
2004.01	101.42	2009.01	101.38	2014.01	101.47	2019	101.46	2034	101.56
2038.99	101.55	2048.99	101.61	2053.99	101.48	2063.98	101.58	2068.98	101.54
2073.98	101.6	2083.97	101.57	2088.97	101.48	2098.96	101.38	2103.96	101.38
2108.96	101.44	2113.96	101.38	2123.95	101.49	2128.95	101.46	2133.95	101.55
2148.94	101.69	2168.93	101.63	2173.93	101.81	2178.93	101.86	2188.92	101.81
2203.91	101.95	2208.91	102.05	2213.91	101.98	2218.91	102.23	2223.9	102.24
2238.9	102.47	2248.89	102.52	2258.89	102.74	2263.88	102.79	2268.88	102.79
2273.88	102.95	2283.87	103.07	2288.87	103.07	2293.87	103.12	2298.87	103.34
2303.86	103.27	2308.86	103.25	2318.86	103.3	2323.85	103.42	2338.85	103.5
2343.84	103.46	2358.84	103.51	2363.83	103.48	2378.83	103.53	2388.82	103.64
2393.82	103.62	2403.81	103.44	2413.81	103.64	2423.8	103.56	2428.8	103.67
2433.8	103.68	2438.8	103.56	2443.79	103.65	2448.79	103.65	2453.79	103.55
2458.79	103.61	2463.79	103.57	2468.78	103.58	2473.78	103.64	2483.78	103.5
2488.77	103.38	2493.77	103.32	2498.77	103.18	2503.77	103.15	2513.76	102.78
2518.76	102.73	2523.76	102.76	2528.75	103.01	2533.75	102.95	2538.75	102.27
2543.75	102.22	2548.74	102.23	2553.74	102.35	2558.74	102.32	2563.74	102.43
2568.73	102.46	2573.73	102.66	2578.73	102.01	2583.73	101.74	2588.72	101.74

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 1274.37 .04 1319.35 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 1274.37 1319.35 1231 1232 1232 .1 .3
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent

NM105 OUTPUT REPORT.TXT

0 1264.76 102.71
 1329.01 2588.72 101.14
 Blocked Obstructions num= 1
 Sta L Sta R Elev
 2479.3 2588.72 103.31

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	91.83	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	wt. n-Val.		0.040
W.S. Elev (ft)	91.83	Reach Len. (ft)	1231.00	1232.00
1232.00				
Crit w.s. (ft)	89.70	Flow Area (sq ft)		28.85
E.G. slope (ft/ft)	0.000171	Area (sq ft)		28.85
Q Total (cfs)	19.00	Flow (cfs)		19.00
Top width (ft)	16.87	Top width (ft)		16.87
Vel Total (ft/s)	0.66	Avg. Vel. (ft/s)		0.66
Max Chl Dpth (ft)	3.01	Hydr. Depth (ft)		1.71
Conv. Total (cfs)	1451.4	Conv. (cfs)		1451.4
Length wtd. (ft)	1232.00	wetted Per. (ft)		18.30
Min Ch El (ft)	88.82	Shear (lb/sq ft)		0.02
Alpha	1.00	Stream Power (lb/ft s)	2588.72	0.00
0.00				
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)		4.94
C & E Loss (ft)	0.00	Cum SA (acres)		2.62

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	92.34	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	wt. n-Val.		0.040
W.S. Elev (ft)	92.34	Reach Len. (ft)	1231.00	1232.00
1232.00				
Crit w.s. (ft)	89.90	Flow Area (sq ft)		39.00
E.G. slope (ft/ft)	0.000214	Area (sq ft)		39.00
Q Total (cfs)	29.00	Flow (cfs)		29.00

NM105 OUTPUT REPORT.TXT				
Top width (ft)	22.76	Top width (ft)		22.76
Vel Total (ft/s)	0.74	Avg. Vel. (ft/s)		0.74
Max Chl Dpth (ft)	3.52	Hydr. Depth (ft)		1.71
Conv. Total (cfs)	1984.3	Conv. (cfs)		1984.3
Length wtd. (ft)	1232.00	Wetted Per. (ft)		24.33
Min Ch El (ft)	88.82	Shear (lb/sq ft)		0.02
Alpha	1.00	Stream Power (lb/ft s)	2588.72	0.00
0.00				
Frctn Loss (ft)	0.15	Cum Volume (acre-ft)		6.25
C & E Loss (ft)	0.00	Cum SA (acres)		2.88

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	93.29	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	wt. n-val.		0.040
W.S. Elev (ft)	93.28	Reach Len. (ft)	1231.00	1232.00
1232.00				
Crit w.s. (ft)	90.30	Flow Area (sq ft)		62.88
E.G. Slope (ft/ft)	0.000189	Area (sq ft)		62.88
Q Total (cfs)	54.00	Flow (cfs)		54.00
Top width (ft)	26.65	Top width (ft)		26.65
Vel Total (ft/s)	0.86	Avg. Vel. (ft/s)		0.86
Max Chl Dpth (ft)	4.46	Hydr. Depth (ft)		2.36
Conv. Total (cfs)	3923.3	Conv. (cfs)		3923.3
Length wtd. (ft)	1232.00	wetted Per. (ft)		28.88
Min Ch El (ft)	88.82	Shear (lb/sq ft)		0.03
Alpha	1.00	Stream Power (lb/ft s)	2588.72	0.00
0.00				
Frctn Loss (ft)	0.18	Cum Volume (acre-ft)	0.77	9.25
C & E Loss (ft)	0.00	Cum SA (acres)	5.08	3.29

NM105 OUTPUT REPORT.TXT

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	93.05	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.040
W.S. Elev (ft)	93.04	Reach Len. (ft)	1231.00	1232.00
1232.00 Crit w.s. (ft)	90.22	Flow Area (sq ft)		56.58
E.G. Slope (ft/ft)	0.000206	Area (sq ft)		56.58
Q Total (cfs)	48.00	Flow (cfs)		48.00
Top width (ft)	26.17	Top width (ft)		26.17
Vel Total (ft/s)	0.85	Avg. Vel. (ft/s)		0.85
Max Chl Dpth (ft)	4.22	Hydr. Depth (ft)		2.16
Conv. Total (cfs)	3342.7	Conv. (cfs)		3342.7
Length wtd. (ft)	1232.00	wetted Per. (ft)		28.21
Min Ch El (ft)	88.82	Shear (lb/sq ft)		0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	2588.72	0.00
Frctn Loss (ft)	0.18	Cum Volume (acre-ft)	0.04	8.18
C & E Loss (ft)	0.00	Cum SA (acres)	0.90	3.17

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	93.52	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.040
W.S. Elev (ft)	93.51	Reach Len. (ft)	1231.00	1232.00
1232.00 Crit w.s. (ft)	90.42	Flow Area (sq ft)		69.17
E.G. Slope (ft/ft)	0.000193	Area (sq ft)		69.17
Q Total (cfs)	63.00	Flow (cfs)		63.00
Top width (ft)	27.11	Top width (ft)		27.11
Vel Total (ft/s)	0.91	Avg. Vel. (ft/s)		0.91
Max Chl Dpth (ft)	4.69	Hydr. Depth (ft)		2.55

NM105 OUTPUT REPORT.TXT				
Conv. Total (cfs)	4530.6	Conv. (cfs)		4530.6
Length wtd. (ft)	1232.00	Wetted Per. (ft)		29.54
Min Ch El (ft)	88.82	Shear (lb/sq ft)		0.03
Alpha	1.00	Stream Power (lb/ft s)	2588.72	0.00
0.00				
Frctn Loss (ft)	0.19	Cum Volume (acre-ft)	2.18	9.74
C & E Loss (ft)	0.00	Cum SA (acres)	7.86	3.35

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	94.41	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	wt. n-Val.		0.040
W.S. Elev (ft)	94.40	Reach Len. (ft)	1231.00	1232.00
1232.00				
Crit w.s. (ft)	90.82	Flow Area (sq ft)		93.95
E.G. Slope (ft/ft)	0.000188	Area (sq ft)		93.95
Q Total (cfs)	98.00	Flow (cfs)		98.00
Top width (ft)	28.87	Top width (ft)		28.87
Vel Total (ft/s)	1.04	Avg. Vel. (ft/s)		1.04
Max Chl Dpth (ft)	5.58	Hydr. Depth (ft)		3.25
Conv. Total (cfs)	7150.0	Conv. (cfs)		7150.0
Length wtd. (ft)	1232.00	wetted Per. (ft)		32.04
Min Ch El (ft)	88.82	Shear (lb/sq ft)		0.03
Alpha	1.00	Stream Power (lb/ft s)	2588.72	0.00
0.00				
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	12.47	13.17
C & E Loss (ft)	0.00	Cum SA (acres)	15.39	3.71

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-105
 REACH: NM-105

RS: 6599

NM105 OUTPUT REPORT.TXT

INPUT

Description:

Station Elevation Data		num= 347									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	96.49	4.99	96.6	14.98	96.2	24.96	95.85	34.94	95.9		
39.94	95.82	44.93	95.66	49.92	95.6	54.91	95.6	59.9	95.5		
69.89	95.15	74.88	95.14	84.86	95.32	89.86	95.28	94.85	95.16		
99.84	95.12	109.82	95.16	119.81	94.97	129.79	95.04	134.78	94.93		
139.78	94.99	144.77	95	154.75	94.72	159.75	94.68	164.74	94.69		
169.73	94.81	174.72	94.61	179.71	94.18	189.7	94.4	194.69	94.39		
199.68	94.51	209.67	94.5	214.66	94.28	219.65	94.27	229.63	94.37		
234.63	94.26	239.62	94.29	244.61	94.21	254.59	94.21	259.59	94.11		
264.58	94.09	274.56	94.13	279.55	94.03	289.54	93.74	299.52	93.69		
304.51	93.73	314.5	93.66	324.48	93.7	334.47	93.61	339.46	93.61		
349.44	93.47	359.43	93.53	414.34	93.12	419.33	93.01	429.31	93.07		
439.3	92.96	449.28	92.96	459.27	93.06	464.26	92.92	469.25	92.96		
474.24	93.07	484.23	92.88	494.21	92.94	504.19	92.83	514.18	92.84		
519.17	92.77	529.16	92.81	539.14	92.95	559.11	92.9	564.1	93.01		
584.07	93.03	594.05	93.13	599.04	93.14	604.04	93.21	614.02	93.18		
624	93.3	633.99	93.21	638.98	93.25	648.96	93.2	653.96	93.23		
663.94	93.39	678.92	93.46	683.91	93.53	713.86	93.66	743.81	93.9		
748.8	93.83	753.8	93.83	758.79	93.91	763.78	94.06	768.77	94.01		
773.76	94.08	783.75	94.08	788.74	94.19	803.72	94.2	808.71	94.24		
813.7	94.35	818.69	94.3	828.68	94.37	833.67	94.48	843.65	94.52		
848.64	94.59	863.62	94.65	868.61	94.75	888.58	94.81	893.57	94.73		
898.56	94.93	903.56	95.05	908.55	95.09	913.54	95.05	918.53	95.16		
933.51	95.13	938.5	95.18	943.49	95.42	948.49	95.56	953.48	95.45		
958.47	95.39	963.46	95.43	973.45	95.45	988.42	95.66	993.41	95.67		
998.41	95.73	1003.4	95.73	1013.38	95.83	1018.37	95.94	1023.37	95.98		
1033.35	95.98	1038.34	96.03	1048.33	96.19	1063.3	96.23	1068.29	96.21		
1073.29	96.27	1088.26	96.27	1098.25	96.4	1123.21	96.39	1128.2	96.54		
1133.19	96.54	1138.18	96.69	1148.17	96.63	1158.15	96.75	1163.14	96.77		
1168.13	96.89	1173.13	96.78	1178.12	96.92	1198.09	96.89	1203.08	97.1		
1208.07	97.09	1213.06	96.92	1218.06	97.06	1228.04	96.99	1233.03	97.02		
1238.02	97.13	1248.01	97.11	1253	97.14	1257.99	96.94	1262.98	97.34		
1267.98	97.17	1272.97	97.13	1282.95	97.37	1297.93	97.42	1307.91	97.75		
1312.9	97.82	1317.9	98.51	1322.89	99.28	1327.88	99.99	1332.87	100.26		
1337.86	100.62	1347.85	101.67	1352.84	102.09	1355.51	102.16	1357.83	102.23		
1362.82	101.44	1367.82	97.77	1372.81	91.73	1377.8	88.34	1382.79	88.5		
1387.78	89.71	1392.78	92.75	1397.77	95.41	1402.76	97.79	1407.75	101.64		
1412.74	103.01	1415.51	103.11	1417.74	103.19	1422.73	102.95	1427.72	101.84		
1432.71	100.25	1437.7	99.57	1442.7	99.39	1452.68	99.38	1457.67	99.85		
1462.66	100.16	1467.66	100.07	1472.65	99.79	1477.64	99.93	1482.63	99.67		
1492.62	99.75	1497.61	100.12	1502.6	99.82	1507.59	99.83	1512.59	99.59		
1517.58	99.59	1532.55	99.72	1537.55	99.87	1542.54	99.89	1557.51	99.66		
1572.49	99.67	1577.48	99.73	1582.47	100.12	1587.47	99.99	1592.46	99.97		
1602.44	99.75	1607.43	99.57	1612.43	99.55	1617.42	99.61	1622.41	99.81		
1627.4	99.82	1637.39	99.77	1642.38	99.83	1647.37	99.79	1652.36	99.62		
1657.35	99.56	1662.35	99.63	1667.34	99.82	1677.32	99.65	1687.31	99.79		
1692.3	99.9	1697.29	99.94	1702.28	99.83	1712.27	99.9	1717.26	99.86		
1727.24	99.93	1737.23	100.07	1742.22	100.03	1747.21	100.1	1757.2	100.36		
1762.19	100.41	1772.17	100.14	1782.16	100.16	1792.14	100.33	1797.13	100.37		
1802.12	100.27	1807.12	100.31	1817.1	100.21	1822.09	100.3	1827.08	100.51		
1842.06	100.35	1847.05	100.43	1857.04	100.4	1862.03	100.47	1867.02	100.66		
1877	100.69	1886.99	100.65	1891.98	100.81	1896.97	100.78	1901.96	100.59		
1906.96	100.86	1916.94	100.76	1921.93	100.63	1926.92	100.72	1936.91	100.65		
1941.9	100.68	1946.89	100.77	1951.88	100.8	1956.88	100.75	1966.86	100.93		
1971.85	100.8	1976.84	100.95	1981.84	101.02	1991.82	101.04	1996.81	101.16		
2006.8	101.25	2011.79	101.22	2021.77	101.09	2031.76	101.09	2036.75	100.98		
2041.74	101.03	2046.73	101.03	2051.73	100.95	2056.72	101.13	2061.71	101.18		
2066.7	101.11	2071.69	101.16	2081.68	101.17	2096.65	101.35	2106.64	101.19		
2121.61	101.13	2131.6	101.17	2136.59	101.1	2156.56	101.11	2161.55	101.17		
2166.54	101.16	2181.52	101.24	2191.5	101.18	2196.5	101.19	2201.49	101.31		

NM105 OUTPUT REPORT.TXT

2206.48	101.31	2211.47	101.26	2216.46	101.45	2221.46	101.51	2226.45	101.5
2231.44	101.38	2241.42	101.43	2246.42	101.52	2251.41	101.49	2256.4	101.56
2261.39	101.54	2271.38	101.57	2276.37	101.5	2281.36	101.65	2301.33	101.77
2311.31	101.67	2316.31	101.81	2321.3	101.68	2326.29	101.72	2331.28	101.82
2336.27	101.84	2346.26	101.77	2356.24	101.84	2371.22	102.02	2381.2	102.05
2396.18	101.96	2401.17	101.88	2406.16	101.92	2411.16	102.05	2426.13	102.18
2436.12	102.08	2441.11	101.94	2446.1	102.02	2451.09	102.15	2466.07	102.15
2486.04	102.3	2491.03	102.4	2501.01	102.2	2506.01	102.25	2515.99	102.44
2530.97	102.34	2535.96	102.39	2540.95	102.16	2545.94	102.06	2550.93	102.09
2555.93	102.18	2560.92	102.47	2565.91	102.66	2570.9	102.66	2575.9	102.72
2580.89	103.23	2585.88	103.44						

Manning's n Values num= 3
 Sta n Val Sta n Val
 0 .06 1362.82 .04 1407.75 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 1362.82 1407.75 1284 1283 1282 .1 .3
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 1355.43 102.15 F
 1417.67 2585.88 103.08 F

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	91.72	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-Val.		0.040
w.s. Elev (ft)	91.71	Reach Len. (ft)	1284.00	1283.00
1282.00				
Crit w.s. (ft)	89.10	Flow Area (sq ft)		41.10
E.G. Slope (ft/ft)	0.000059	Area (sq ft)		41.10
Q Total (cfs)	19.00	Flow (cfs)		19.00
Top width (ft)	18.24	Top width (ft)		18.24
Vel Total (ft/s)	0.46	Avg. Vel. (ft/s)		0.46
Max Chl Dpth (ft)	3.37	Hydr. Depth (ft)		2.25
Conv. Total (cfs)	2469.8	Conv. (cfs)		2469.8
Length wtd. (ft)	1283.00	wetted Per. (ft)		19.98
Min Ch El (ft)	88.34	Shear (lb/sq ft)		0.01
Alpha	1.00	Stream Power (lb/ft s)	2585.88	0.00
0.00				
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)		3.96
C & E Loss (ft)	0.00	Cum SA (acres)		2.12

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

NM105 OUTPUT REPORT.TXT

E.G. Elev (ft)	92.19	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-val.		0.040
W.S. Elev (ft)	92.19	Reach Len. (ft)	1284.00	1283.00
1282.00 Crit w.s. (ft)	89.29	Flow Area (sq ft)		50.06
E.G. Slope (ft/ft)	0.000079	Area (sq ft)		50.06
Q Total (cfs)	29.00	Flow (cfs)		29.00
Top width (ft)	19.42	Top width (ft)		19.42
Vel Total (ft/s)	0.58	Avg. Vel. (ft/s)		0.58
Max chl Dpth (ft)	3.85	Hydr. Depth (ft)		2.58
Conv. Total (cfs)	3264.3	Conv. (cfs)		3264.3
Length wtd. (ft)	1283.00	wetted Per. (ft)		21.52
Min ch El (ft)	88.34	Shear (lb/sq ft)		0.01
Alpha 0.00	1.00	Stream Power (lb/ft s)	2585.88	0.00
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)		4.99
C & E Loss (ft)	0.00	Cum SA (acres)		2.29

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	93.11	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-val.		0.040
W.S. Elev (ft)	93.10	Reach Len. (ft)	1284.00	1283.00
1282.00 Crit w.s. (ft)	89.66	Flow Area (sq ft)		68.87
E.G. Slope (ft/ft)	0.000113	Area (sq ft)	26.84	68.87
Q Total (cfs)	54.00	Flow (cfs)		54.00
Top width (ft)	197.88	Top width (ft)	176.12	21.76
Vel Total (ft/s)	0.78	Avg. Vel. (ft/s)		0.78
Max chl Dpth (ft)	4.76	Hydr. Depth (ft)		3.16
Conv. Total (cfs)	5090.1	Conv. (cfs)		5090.1
Length wtd. (ft)	1283.00	wetted Per. (ft)		24.54

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Min Ch El (ft)	88.34	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	2585.88	0.00
Frctn Loss (ft)	0.18	Cum Volume (acre-ft)	0.40	7.39
C & E Loss (ft)	0.00	Cum SA (acres)	2.60	2.61

Warning: Divided flow computed for this cross-section.
 Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	92.87	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.040
W.S. Elev (ft)	92.86	Reach Len. (ft)	1284.00	1283.00
1282.00 Crit w.s. (ft)	89.58	Flow Area (sq ft)		63.67
E.G. Slope (ft/ft)	0.000110	Area (sq ft)	1.34	63.67
Q Total (cfs)	48.00	Flow (cfs)		48.00
Top width (ft)	52.29	Top width (ft)	31.19	21.11
Vel Total (ft/s)	0.75	Avg. Vel. (ft/s)		0.75
Max Chl Dpth (ft)	4.52	Hydr. Depth (ft)		3.02
Conv. Total (cfs)	4569.5	Conv. (cfs)		4569.5
Length wtd. (ft)	1283.00	wetted Per. (ft)		23.71
Min Ch El (ft)	88.34	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	2585.88	0.00
Frctn Loss (ft)	0.18	Cum Volume (acre-ft)	0.02	6.48
C & E Loss (ft)	0.00	Cum SA (acres)	0.46	2.50

Warning: Divided flow computed for this cross-section.
 Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	93.33	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.040
W.S. Elev (ft)	93.32	Reach Len. (ft)	1284.00	1283.00

NM105 OUTPUT REPORT.TXT

1282.00				
Crit w.s. (ft)	89.76	Flow Area (sq ft)		73.72
E.G. Slope (ft/ft)	0.000127	Area (sq ft)	75.64	73.72
Q Total (cfs)	63.00	Flow (cfs)		63.00
Top width (ft)	294.74	Top width (ft)	272.38	22.36
Vel Total (ft/s)	0.85	Avg. Vel. (ft/s)		0.85
Max Chl Dpth (ft)	4.98	Hydr. Depth (ft)		3.30
Conv. Total (cfs)	5587.5	Conv. (cfs)		5587.5
Length wtd. (ft)	1283.00	wetted Per. (ft)		25.29
Min Ch El (ft)	88.34	Shear (lb/sq ft)		0.02
Alpha	1.00	Stream Power (lb/ft s)	2585.88	0.00
0.00				
Frctn Loss (ft)	0.20	Cum volume (acre-ft)	1.11	7.72
C & E Loss (ft)	0.00	Cum SA (acres)	4.01	2.65

Warning: Divided flow computed for this cross-section.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	94.20	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	wt. n-Val.		0.040
w.s. Elev (ft)	94.19	Reach Len. (ft)	1284.00	1283.00
1282.00				
Crit w.s. (ft)	90.10	Flow Area (sq ft)		94.02
E.G. Slope (ft/ft)	0.000158	Area (sq ft)	432.05	94.02
Q Total (cfs)	98.00	Flow (cfs)		98.00
Top width (ft)	557.66	Top width (ft)	532.97	24.69
Vel Total (ft/s)	1.04	Avg. Vel. (ft/s)		1.04
Max Chl Dpth (ft)	5.85	Hydr. Depth (ft)		3.81
Conv. Total (cfs)	7786.5	Conv. (cfs)		7786.5
Length wtd. (ft)	1283.00	wetted Per. (ft)		28.25
Min Ch El (ft)	88.34	Shear (lb/sq ft)		0.03
Alpha	1.00	Stream Power (lb/ft s)	2585.88	0.00
0.00				
Frctn Loss (ft)	0.24	Cum Volume (acre-ft)	6.37	10.52

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-105
REACH: NM-105

RS: 5316

INPUT

Description:

Station Elevation Data		num= 340									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	98.26	4.99	97.7	9.98	97.74	14.98	97.96	19.97	98		
29.95	97.44	34.95	97.08	39.94	96.98	44.93	97.89	49.92	98.99		
54.91	99.15	59.91	99.1	64.9	99.11	69.89	99.65	74.88	100.14		
79.88	99.55	84.87	99.29	89.86	99.33	94.85	99.69	99.84	99.41		
104.84	98.99	109.83	99.16	114.82	99.39	119.81	99.51	129.8	99.6		
134.79	99.88	139.78	99.91	144.77	99.87	154.76	99.04	159.75	99.73		
164.74	100.17	169.73	100.21	179.72	99.81	184.71	99.77	189.7	99.88		
194.7	99.73	199.69	99.49	204.68	99.32	209.67	99.36	214.66	99.3		
224.65	99.43	229.64	99.45	239.63	98.85	244.62	98.8	249.61	98.89		
254.6	98.73	259.59	98.65	264.59	98.73	269.58	98.74	279.56	98.52		
289.55	98.81	294.54	99.08	299.53	99.11	304.52	99.42	309.52	99.35		
319.5	99.01	324.49	98.99	329.48	98.79	334.48	98.86	339.47	98.77		
344.46	98.75	349.45	98.86	359.44	98.78	364.43	98.65	379.41	98.53		
384.4	98.44	389.39	98.41	394.38	98.31	404.37	98.29	409.36	98.5		
414.35	98.87	419.34	99.11	424.34	99.15	434.32	99.02	444.31	98.96		
454.29	98.73	459.28	98.68	464.27	98.77	469.27	99.05	474.26	99.07		
484.24	99.37	494.23	99.07	499.22	99	509.2	99.06	514.2	98.93		
519.19	98.9	534.16	98.66	539.16	98.43	544.15	98.45	549.14	98.52		
554.13	98.52	559.13	98.38	564.12	98.35	569.11	98.42	574.1	98.58		
579.09	98.59	584.09	98.77	589.08	98.85	594.07	99.03	599.06	99.02		
604.06	99.07	619.03	98.98	624.02	98.86	629.02	98.82	648.99	98.48		
663.96	98.4	678.94	98.43	688.92	98.32	693.92	98.43	698.91	98.65		
708.89	98.87	713.88	99.05	723.87	99.09	728.86	99.01	738.85	98.71		
758.81	98.51	768.8	98.57	778.78	98.43	788.77	98.4	798.75	98.3		
803.74	98.35	818.72	98.22	838.69	98.22	843.68	98.09	848.67	98.01		
853.67	98.23	858.66	98.23	863.65	98.33	873.64	98.38	883.62	98.2		
888.61	98.25	893.6	98.35	898.6	98.4	908.58	98.34	913.57	98.39		
918.57	98.28	928.55	98.27	943.53	98.09	948.52	98.14	953.51	98.14		
963.49	98.26	968.49	98.28	973.48	98.25	978.47	98.33	983.46	98.33		
988.46	98.26	993.45	98.25	1003.43	98.08	1008.42	98.07	1018.41	98.14		
1028.39	98.08	1033.39	98.1	1043.37	98.3	1058.35	98.37	1063.34	98.29		
1073.32	98.43	1088.3	98.56	1093.29	98.65	1108.27	98.67	1123.24	98.5		
1133.23	98.47	1138.22	98.58	1148.21	98.51	1158.19	98.65	1163.18	98.53		
1178.16	98.53	1183.15	98.4	1188.14	98.52	1193.14	98.52	1203.12	98.74		
1208.11	98.78	1213.1	98.75	1218.1	98.8	1223.09	98.96	1228.08	99.06		
1238.07	99	1243.06	99.04	1253.04	99.5	1263.03	99.54	1273.01	99.92		
1278	99.97	1282.99	100.09	1287.99	100.41	1292.98	100.54	1297.97	100.55		
1302.96	100.76	1307.96	101.11	1312.95	101.6	1317.94	101.85	1322.93	101.79		
1327.92	101.57	1332.92	101.53	1337.91	101.67	1342.9	101.76	1347.89	101.95		
1352.88	102.22	1362.87	101.82	1367.86	101.88	1370.35	101.8	1372.85	101.73		
1377.85	99.8	1382.84	96.6	1387.83	94.86	1392.82	90.29	1397.81	89.13		
1402.81	89.01	1407.8	90.25	1412.79	95.4	1417.78	99.11	1422.78	99.89		
1427.77	99.89	1430.36	99.86	1432.76	99.83	1437.75	99.88	1442.74	99.85		
1447.74	99.92	1452.73	99.91	1457.72	99.67	1462.71	99.38	1467.7	99.22		

NM105 OUTPUT REPORT.TXT

1472.7	99.22	1477.69	99.38	1482.68	99.37	1487.67	99.21	1492.67	99.21
1507.64	99.37	1517.63	99.43	1522.62	99.33	1527.61	99.37	1562.56	99.38
1567.55	99.35	1572.54	99.43	1577.53	99.45	1582.53	99.38	1592.51	99.52
1602.49	99.48	1607.49	99.41	1612.48	99.44	1617.47	99.54	1622.46	99.57
1632.45	99.43	1657.41	99.52	1662.4	99.59	1672.38	99.46	1682.37	99.44
1692.35	99.53	1697.35	99.43	1707.33	99.49	1722.31	99.53	1737.28	99.39
1742.27	99.48	1752.26	99.5	1757.25	99.37	1762.24	99.33	1767.24	99.55
1782.21	99.5	1792.2	99.72	1797.19	99.7	1802.18	99.34	1812.17	99.58
1817.16	99.6	1822.15	99.68	1827.14	99.52	1832.13	99.63	1837.13	99.67
1842.12	99.64	1847.11	99.69	1867.08	99.6	1882.06	99.64	1892.04	99.5
1902.02	99.7	1907.02	99.67	1912.01	99.56	1926.99	99.75	1951.95	99.56
1961.93	99.66	1981.9	99.49	1986.89	99.57	2001.87	99.59	2006.86	99.48
2021.84	99.52	2026.83	99.48	2036.81	99.49	2041.81	99.58	2056.78	99.51
2061.77	99.53	2066.77	99.45	2071.76	99.51	2076.75	99.51	2086.74	99.63
2106.7	99.6	2111.7	99.5	2136.66	99.6	2146.64	99.57	2151.63	99.67
2161.62	99.56	2171.6	99.65	2191.57	99.58	2196.56	99.68	2201.55	99.73
2221.52	99.5	2231.51	99.64	2251.48	99.56	2276.44	99.56	2296.4	99.7
2306.39	99.58	2316.37	99.5	2321.36	99.57	2346.33	99.7	2366.29	99.63
2371.29	99.77	2376.28	99.79	2381.27	100.01	2386.26	99.97	2391.25	100.15
2396.25	100.16	2401.24	100.26	2416.22	100.26	2421.21	100.18	2426.2	99.95
2431.19	99.99	2441.18	99.97	2446.17	99.91	2451.16	99.72	2456.15	99.65
2461.14	99.64	2471.13	99.51	2501.08	99.42	2506.07	99.51	2516.06	99.41
2521.05	99.43	2531.03	99.57	2541.02	99.57	2551	99.67	2560.99	99.6
2565.98	99.51	2575.96	99.48	2585.95	99.69	2610.91	99.51	2625.88	99.51

Manning's n Values num= 3
 Sta n Val Sta n Val
 0 .06 1377.85 .04 1417.78 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 1377.85 1417.78 66 66 66 .1 .3

Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 1354.11 101.86 F
 1425.51 2625.88 99.89 F

Blocked Obstructions num= 2
 Sta L Sta R Elev Sta L Sta R Elev
 0 166.52 100.06 2407.93 2625.88 100.18

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	91.62	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-val.		0.040
W.S. Elev (ft)	91.61	Reach Len. (ft)	66.00	66.00
66.00				
Crit W.S. (ft)	89.71	Flow Area (sq ft)		33.94
E.G. Slope (ft/ft)	0.000106	Area (sq ft)		33.94
Q Total (cfs)	19.00	Flow (cfs)		19.00
Top width (ft)	17.74	Top width (ft)		17.74
Vel Total (ft/s)	0.56	Avg. vel. (ft/s)		0.56
Max Chl Dpth (ft)	2.60	Hydr. Depth (ft)		1.91
Conv. Total (cfs)	1848.4	Conv. (cfs)		1848.4
Length wtd. (ft)	66.00	wetted Per. (ft)		19.12

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Min Ch El (ft)	89.01	Shear (lb/sq ft)		0.01
Alpha 0.00	1.00	Stream Power (lb/ft s)	2625.88	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)		2.85
C & E Loss (ft)	0.00	Cum SA (acres)		1.59

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	92.06	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.040
W.S. Elev (ft)	92.06	Reach Len. (ft)	66.00	66.00
66.00 Crit w.s. (ft)	89.87	Flow Area (sq ft)		42.05
E.G. Slope (ft/ft)	0.000131	Area (sq ft)		42.05
Q Total (cfs)	29.00	Flow (cfs)		29.00
Top width (ft)	18.66	Top width (ft)		18.66
Vel Total (ft/s)	0.69	Avg. Vel. (ft/s)		0.69
Max Chl Dpth (ft)	3.05	Hydr. Depth (ft)		2.25
Conv. Total (cfs)	2530.1	Conv. (cfs)		2530.1
Length wtd. (ft)	66.00	wetted Per. (ft)		20.40
Min Ch El (ft)	89.01	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	2625.88	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)		3.64
C & E Loss (ft)	0.00	Cum SA (acres)		1.73

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	92.93	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.040
W.S. Elev (ft)	92.92	Reach Len. (ft)	66.00	66.00
66.00				

NM105 OUTPUT REPORT.TXT				
Crit w.s. (ft)	90.20	Flow Area (sq ft)		58.95
E.G. Slope (ft/ft)	0.000172	Area (sq ft)		58.95
Q Total (cfs)	54.00	Flow (cfs)		54.00
Top width (ft)	20.44	Top width (ft)		20.44
Vel Total (ft/s)	0.92	Avg. Vel. (ft/s)		0.92
Max Chl Dpth (ft)	3.91	Hydr. Depth (ft)		2.88
Conv. Total (cfs)	4115.3	Conv. (cfs)		4115.3
Length wtd. (ft)	66.00	Wetted Per. (ft)		22.88
Min Ch El (ft)	89.01	Shear (lb/sq ft)		0.03
Alpha	1.00	Stream Power (lb/ft s)	2625.88	0.00
0.00				
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)		5.50
C & E Loss (ft)	0.00	Cum SA (acres)		1.99

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	92.69	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	wt. n-Val.		0.040
W.S. Elev (ft)	92.68	Reach Len. (ft)	66.00	66.00
66.00				
Crit w.s. (ft)	90.13	Flow Area (sq ft)		54.07
E.G. Slope (ft/ft)	0.000174	Area (sq ft)		54.07
Q Total (cfs)	48.00	Flow (cfs)		48.00
Top width (ft)	19.94	Top width (ft)		19.94
Vel Total (ft/s)	0.89	Avg. Vel. (ft/s)		0.89
Max Chl Dpth (ft)	3.67	Hydr. Depth (ft)		2.71
Conv. Total (cfs)	3637.7	Conv. (cfs)		3637.7
Length wtd. (ft)	66.00	Wetted Per. (ft)		22.19
Min Ch El (ft)	89.01	Shear (lb/sq ft)		0.03
Alpha	1.00	Stream Power (lb/ft s)	2625.88	0.00
0.00				
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)		4.75
C & E Loss (ft)	0.00	Cum SA (acres)		1.90

NM105 OUTPUT REPORT.TXT

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	93.13	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-val.		0.040
W.S. Elev (ft)	93.12	Reach Len. (ft)	66.00	66.00
66.00 Crit w.s. (ft)	90.29	Flow Area (sq ft)		63.00
E.G. Slope (ft/ft)	0.000194	Area (sq ft)		63.00
Q Total (cfs)	63.00	Flow (cfs)		63.00
Top width (ft)	20.85	Top width (ft)		20.85
Vel Total (ft/s)	1.00	Avg. Vel. (ft/s)		1.00
Max Chl Dpth (ft)	4.11	Hydr. Depth (ft)		3.02
Conv. Total (cfs)	4523.5	Conv. (cfs)		4523.5
Length wtd. (ft)	66.00	wetted Per. (ft)		23.45
Min Ch El (ft)	89.01	Shear (lb/sq ft)		0.03
Alpha	1.00	Stream Power (lb/ft s)	2625.88	0.00
0.00 Frctn Loss (ft)	0.01	Cum Volume (acre-ft)		5.71
C & E Loss (ft)	0.00	Cum SA (acres)		2.01

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	93.96	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-val.		0.040
W.S. Elev (ft)	93.93	Reach Len. (ft)	66.00	66.00
66.00 Crit w.s. (ft)	90.58	Flow Area (sq ft)		80.70
E.G. Slope (ft/ft)	0.000234	Area (sq ft)		80.70
Q Total (cfs)	98.00	Flow (cfs)		98.00
Top width (ft)	22.53	Top width (ft)		22.53
Vel Total (ft/s)	1.21	Avg. Vel. (ft/s)		1.21

NM105 OUTPUT REPORT.TXT

Max Chl Dpth (ft)	4.92	Hydr. Depth (ft)	3.58
Conv. Total (cfs)	6413.1	Conv. (cfs)	6413.1
Length wtd. (ft)	66.00	Wetted Per. (ft)	25.79
Min Ch El (ft)	89.01	Shear (lb/sq ft)	0.05
Alpha 0.00	1.00	Stream Power (lb/ft s)	2625.88
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	7.94
C & E Loss (ft)	0.00	Cum SA (acres)	2.26

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-105
REACH: NM-105

RS: 5250

INPUT

Description:

Station	Elevation	Data	num=	408	Sta	Elev	Sta	Elev	Sta	Elev
0	97.56	4.99	97.57	9.98	97.74	19.97	97.78	24.96	97.69	
29.95	97.8	34.95	97.74	39.94	97.31	44.93	97.08	49.92	97.05	
54.91	97.08	64.9	97.24	69.89	97.16	74.88	96.95	84.87	96.98	
89.86	96.94	94.85	96.84	104.84	96.86	109.83	96.93	119.81	96.87	
129.8	97.08	139.78	97.07	144.77	96.96	159.75	97.09	169.73	97.13	
179.72	97.3	204.68	97.46	209.67	97.46	219.66	97.25	224.65	97.21	
229.64	97.08	244.62	96.87	249.61	96.91	254.6	96.88	264.59	96.7	
269.58	96.65	274.57	96.7	279.56	96.9	284.56	97.19	289.55	97.28	
294.54	97.32	299.53	97.6	304.52	97.97	309.52	97.77	314.51	97.72	
319.5	97.37	324.49	97.16	334.48	97.31	339.47	97.43	344.46	97.47	
359.44	97.44	364.43	97.31	369.42	97.35	374.41	97.12	379.41	97.1	
384.4	97.34	389.39	97.07	394.38	97.42	404.37	97.54	409.36	97.15	
414.35	96.94	419.34	96.92	424.34	97.14	429.33	97.77	434.32	98.09	
439.31	97.88	444.31	97.86	449.3	97.66	454.29	97.51	464.27	97.55	
469.27	97.53	479.25	97.64	484.24	97.79	489.24	98.13	494.23	98.23	
499.22	97.66	504.21	97.37	509.2	97.21	514.2	96.97	519.19	96.92	
529.17	97.12	544.15	97.15	549.14	97.12	554.13	97.21	564.12	97.75	
569.11	97.88	574.1	97.75	579.09	97.45	589.08	97.34	594.07	97.41	
599.06	97.63	604.06	97.74	614.04	97.48	624.02	97.93	629.02	97.6	
634.01	97.41	643.99	97.59	648.99	97.61	653.98	98.04	658.97	98.24	
663.96	97.92	668.95	97.89	673.95	97.78	678.94	97.76	683.93	97.93	
688.92	98.29	693.92	97.93	698.91	98	703.9	97.79	718.88	97.54	
723.87	97.54	728.86	97.6	738.85	98.06	743.84	98.1	748.83	98.02	
763.81	98.07	773.79	97.52	783.78	97.37	788.77	97.53	793.76	97.59	
803.74	97.58	808.74	97.62	813.73	97.54	818.72	97.56	823.71	97.66	
828.71	97.56	833.7	97.64	838.69	97.78	843.68	97.99	848.67	98.13	
853.67	98.35	858.66	98.72	863.65	98.32	868.64	97.65	873.63	97.68	
878.63	97.56	888.61	97.18	893.6	97.04	898.6	97.12	903.59	97.36	
908.58	97.79	913.57	98.3	918.56	98.35	923.56	97.79	928.55	97.67	
933.54	97.89	938.53	97.96	943.53	98.4	948.52	98.46	953.51	97.87	
958.5	97.89	963.49	98.11	973.48	97.64	978.47	98.29	983.46	98.3	
988.46	97.87	998.44	97.62	1003.43	97.57	1008.42	97.63	1013.42	97.64	

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1018.41	97.51	1023.4	97.89	1028.39	97.6	1033.39	97.58	1038.38	97.25
1043.37	97.13	1048.36	97.12	1053.35	97.17	1063.34	97.18	1068.33	97.06
1073.32	97.01	1078.32	97.01	1083.31	97.13	1098.28	97.12	1103.28	97.24
1108.27	97.06	1113.26	96.99	1118.25	97.05	1143.21	97.04	1173.17	97.25
1183.15	97.19	1188.14	97.25	1198.13	97.21	1203.12	97.38	1213.1	97.6
1218.1	97.55	1223.09	97.57	1228.08	97.54	1233.07	97.41	1243.06	97.44
1248.05	97.69	1253.04	97.78	1258.03	98.1	1263.03	98.32	1278	98.58
1282.99	98.42	1287.99	98.36	1292.98	98.36	1297.97	98.26	1302.96	98.41
1307.96	98.72	1312.95	98.8	1317.94	99.36	1322.93	100	1332.92	100.56
1337.91	100.62	1342.9	100.81	1352.88	101.34	1357.88	101.38	1362.87	101.36
1367.86	101.48	1372.85	101.67	1373.41	101.68	1377.85	101.72	1382.84	100.29
1387.83	96.35	1392.82	90.89	1397.81	88.91	1402.81	88.43	1407.8	90.79
1412.79	96.54	1417.78	99.28	1422.78	100.2	1427.77	100.91	1432.76	100.72
1433.42	100.67	1437.75	100.38	1442.74	100.22	1447.74	100.15	1457.72	99.73
1467.7	99.73	1477.69	99.39	1482.68	99.26	1487.67	99.29	1492.67	99.21
1507.64	99.15	1517.63	99.06	1522.62	98.88	1527.61	98.75	1532.6	98.76
1542.59	98.91	1557.56	99.05	1567.55	98.97	1577.53	99.01	1587.52	98.99
1592.51	99.02	1602.49	99.17	1607.49	99.13	1612.48	98.98	1617.47	99
1622.46	98.89	1627.45	98.9	1632.45	98.84	1637.44	98.86	1642.43	99.02
1667.39	98.96	1677.38	98.88	1687.36	98.68	1692.35	98.75	1712.32	98.83
1717.31	98.74	1732.29	98.74	1737.28	98.78	1742.27	98.92	1752.26	98.8
1757.25	98.84	1762.24	98.81	1772.23	98.94	1777.22	98.79	1782.21	98.56
1797.19	98.42	1807.17	98.68	1812.17	98.74	1817.16	98.75	1822.15	98.71
1827.14	98.5	1832.13	98.56	1837.13	98.49	1842.12	98.48	1847.11	98.62
1857.09	98.8	1862.09	98.85	1867.08	98.77	1872.07	98.56	1877.06	98.66
1882.06	98.68	1887.05	98.85	1892.04	98.79	1897.03	98.78	1902.02	98.36
1912.01	98.13	1921.99	98.24	1926.99	98.43	1931.98	98.39	1936.97	98.45
1941.96	98.36	1946.95	98.2	1956.94	98.14	1966.92	98.72	1976.91	98.5
1986.89	98.54	1991.88	98.61	1996.88	98.97	2001.87	99.18	2006.86	99.2
2011.85	99.07	2016.84	98.74	2026.83	98.49	2031.82	98.5	2046.8	98.93
2051.79	98.99	2056.78	98.89	2061.77	98.68	2076.75	98.41	2086.73	98.52
2091.73	98.53	2096.72	98.47	2101.71	98.51	2106.7	98.48	2116.69	98.65
2121.68	98.9	2126.67	99.03	2131.66	99.11	2136.66	98.8	2141.65	98.43
2146.64	98.53	2151.63	99.05	2161.62	99.2	2166.61	99.08	2176.59	99.08
2181.59	98.91	2186.58	98.97	2191.57	99.32	2196.56	99.42	2201.55	99.69
2206.55	99.35	2211.54	98.9	2221.52	98.88	2226.51	99.1	2231.51	99.2
2241.49	99.3	2246.48	99.12	2251.47	98.85	2256.47	98.72	2261.46	98.72
2266.45	99.06	2271.44	99.35	2276.44	99.35	2281.43	99.4	2286.42	99.19
2291.41	98.88	2301.4	98.99	2306.39	99.23	2311.38	99.61	2316.37	99.82
2321.36	99.45	2326.36	99.18	2331.35	99.01	2336.34	99	2341.33	99.31
2346.33	99.51	2351.32	99.51	2356.31	99.44	2366.29	98.94	2371.29	98.93
2376.28	99.05	2386.26	100.04	2391.25	100.07	2396.25	99.97	2406.23	99.64
2411.22	99.37	2416.21	99.55	2421.21	99.8	2426.2	99.96	2431.19	100
2436.18	99.88	2441.18	99.61	2446.17	99.55	2451.16	99.35	2456.15	99.43
2461.14	99.7	2466.14	99.76	2471.13	100.03	2476.12	99.91	2481.11	99.84
2491.1	99.94	2501.08	100.67	2511.07	100.84	2516.06	100.13	2521.05	99.62
2526.04	99.86	2531.03	99.95	2536.03	100.22	2541.02	100.25	2546.01	100.63
2551	100.74	2560.99	100.58	2565.98	100.77	2570.97	100.82	2575.96	100.59
2580.95	100.45	2585.95	100.61	2595.93	100.76	2600.92	100.76	2610.91	100.1
2615.9	100.02	2620.89	100.58	2625.88	100.89				

Manning's n values num= 3
 Sta n Val Sta n Val
 0 .06 1382.84 .04 1422.78 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 1382.84 1422.78 1221 1221 1221 .1 .3

Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 1371 101.35 F
 1429.57 2625.88 100.79 F

Blocked obstructions num= 2
 Sta L Sta R Elev

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0 853.74 98.45 2503.08 2625.88 100.81

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	91.61	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	Wt. n-Val.		0.040
W.S. Elev (ft)	91.60	Reach Len. (ft)	1221.00	1221.00
1221.00 Crit w.s. (ft)	89.34	Flow Area (sq ft)		33.66
E.G. Slope (ft/ft)	0.000100	Area (sq ft)		33.66
Q Total (cfs)	19.00	Flow (cfs)		19.00
Top width (ft)	16.34	Top width (ft)		16.34
Vel Total (ft/s)	0.56	Avg. Vel. (ft/s)		0.56
Max chl Dpth (ft)	3.17	Hydr. Depth (ft)		2.06
Conv. Total (cfs)	1900.6	Conv. (cfs)		1900.6
Length wtd. (ft)	1221.00	wetted Per. (ft)		17.96
Min Ch El (ft)	88.43	Shear (lb/sq ft)		0.01
Alpha 0.00	1.00	Stream Power (lb/ft s)	2625.88	0.00
Frctn Loss (ft)	0.50	Cum Volume (acre-ft)		2.80
C & E Loss (ft)	0.01	Cum SA (acres)		1.56

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	92.06	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.		0.040
W.S. Elev (ft)	92.05	Reach Len. (ft)	1221.00	1221.00
1221.00 Crit w.s. (ft)	89.54	Flow Area (sq ft)		41.08
E.G. Slope (ft/ft)	0.000131	Area (sq ft)		41.08
Q Total (cfs)	29.00	Flow (cfs)		29.00
Top width (ft)	17.13	Top width (ft)		17.13
Vel Total (ft/s)	0.71	Avg. Vel. (ft/s)		0.71

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Max Chl Dpth (ft)	3.62	Hydr. Depth (ft)		2.40
Conv. Total (cfs)	2538.5	Conv. (cfs)		2538.5
Length Wtd. (ft)	1221.00	Wetted Per. (ft)		19.15
Min Ch El (ft)	88.43	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	2625.88	0.00
Frctn Loss (ft)	0.64	Cum Volume (acre-ft)		3.57
C & E Loss (ft)	0.02	Cum SA (acres)		1.70

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	92.92	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.040
W.S. Elev (ft)	92.91	Reach Len. (ft)	1221.00	1221.00
1221.00 Crit w.s. (ft)	89.92	Flow Area (sq ft)		56.48
E.G. Slope (ft/ft)	0.000182	Area (sq ft)		56.48
Q Total (cfs)	54.00	Flow (cfs)		54.00
Top width (ft)	18.66	Top width (ft)		18.66
Vel Total (ft/s)	0.96	Avg. Vel. (ft/s)		0.96
Max Chl Dpth (ft)	4.48	Hydr. Depth (ft)		3.03
Conv. Total (cfs)	4000.3	Conv. (cfs)		4000.3
Length Wtd. (ft)	1221.00	Wetted Per. (ft)		21.45
Min Ch El (ft)	88.43	Shear (lb/sq ft)		0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	2625.88	0.00
Frctn Loss (ft)	0.99	Cum Volume (acre-ft)		5.42
C & E Loss (ft)	0.05	Cum SA (acres)		1.96

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

NM105 OUTPUT REPORT.TXT

This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	92.68	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-val.		0.040
W.S. Elev (ft)	92.67	Reach Len. (ft)	1221.00	1221.00
1221.00 Crit w.s. (ft)	89.84	Flow Area (sq ft)		52.03
E.G. slope (ft/ft)	0.000182	Area (sq ft)		52.03
Q Total (cfs)	48.00	Flow (cfs)		48.00
Top width (ft)	18.23	Top width (ft)		18.23
vel Total (ft/s)	0.92	Avg. vel. (ft/s)		0.92
Max Chl Dpth (ft)	4.24	Hydr. Depth (ft)		2.85
Conv. Total (cfs)	3560.7	Conv. (cfs)		3560.7
Length wtd. (ft)	1221.00	wetted Per. (ft)		20.81
Min Ch El (ft)	88.43	Shear (lb/sq ft)		0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	2625.88	0.00
Frctn Loss (ft)	0.90	Cum volume (acre-ft)		4.67
C & E Loss (ft)	0.03	Cum SA (acres)		1.87

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	93.12	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-val.		0.040
W.S. Elev (ft)	93.10	Reach Len. (ft)	1221.00	1221.00
1221.00 Crit w.s. (ft)	90.03	Flow Area (sq ft)		60.14
E.G. slope (ft/ft)	0.000208	Area (sq ft)		60.14
Q Total (cfs)	63.00	Flow (cfs)		63.00

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Top width (ft)	19.01	Top width (ft)	19.01
Vel Total (ft/s)	1.05	Avg. Vel. (ft/s)	1.05
Max Chl Dpth (ft)	4.67	Hydr. Depth (ft)	3.16
Conv. Total (cfs)	4371.3	Conv. (cfs)	4371.3
Length wtd. (ft)	1221.00	wetted Per. (ft)	21.97
Min Ch El (ft)	88.43	Shear (lb/sq ft)	0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	2625.88
Frctn Loss (ft)	1.06	Cum volume (acre-ft)	5.62
C & E Loss (ft)	0.06	Cum SA (acres)	1.98

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
 Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	93.94	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	wt. n-val.		0.040
W.S. Elev (ft)	93.91	Reach Len. (ft)	1221.00	1221.00
1221.00 Crit w.s. (ft)	90.41	Flow Area (sq ft)		76.15
E.G. Slope (ft/ft)	0.000259	Area (sq ft)		76.15
Q Total (cfs)	98.00	Flow (cfs)		98.00
Top width (ft)	20.46	Top width (ft)		20.46
Vel Total (ft/s)	1.29	Avg. Vel. (ft/s)		1.29
Max Chl Dpth (ft)	5.48	Hydr. Depth (ft)		3.72
Conv. Total (cfs)	6084.0	Conv. (cfs)		6084.0
Length wtd. (ft)	1221.00	wetted Per. (ft)		24.15
Min Ch El (ft)	88.43	Shear (lb/sq ft)		0.05
Alpha 0.00	1.00	Stream Power (lb/ft s)	2625.88	0.00
Frctn Loss (ft)	1.30	Cum volume (acre-ft)		7.82

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C & E Loss (ft) 0.07 Cum SA (acres) 2.23

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
 Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.
 Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
 Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-105
 REACH: NM-105 RS: 4029

INPUT

Description:

Station	Elevation	Data	num=	342	Sta	Elev	Sta	Elev	Sta	Elev
0	94.36	4.99	94.44	9.98	94.88	14.98	94.94	19.97	94.82	
24.96	94.27	29.95	94.34	34.95	94.27	39.94	94.25	44.93	94.36	
49.92	94.36	54.91	94.52	59.91	94.42	64.9	94.93	69.89	94.95	
74.88	95.07	79.88	94.95	84.87	94.75	89.86	94.7	94.85	94.58	
99.84	94.57	104.84	94.63	134.79	94.53	139.78	94.63	144.77	94.66	
154.76	94.6	164.74	94.49	169.73	94.49	184.71	94.59	219.66	94.32	
224.65	94.4	234.63	94.47	239.63	94.46	244.62	94.36	264.59	94.34	
269.58	94.42	279.56	94.32	284.56	94.49	289.55	94.44	294.54	94.29	
304.52	94.19	309.52	94.33	314.51	94.39	324.49	94.44	329.48	94.28	
344.46	94.45	354.45	94.75	359.44	94.76	364.43	94.91	369.42	95.12	
394.38	95.01	399.38	95.06	404.37	95.05	409.36	95.15	419.34	95.05	
424.34	95.08	434.32	94.76	444.31	94.76	454.29	94.18	464.27	94.16	
474.26	94.35	479.25	94.29	489.24	94.52	494.23	94.52	514.2	94.64	
524.18	94.54	539.16	94.61	544.15	94.67	564.12	94.57	569.11	94.58	
574.1	94.64	584.09	94.57	589.08	94.65	594.07	94.57	599.06	94.56	
619.03	94.69	624.02	94.68	629.02	94.49	634.01	94.63	639	94.65	
643.99	94.86	653.98	94.79	658.97	94.86	668.95	94.92	673.95	94.9	
678.94	94.56	688.92	94.52	698.91	94.66	703.9	94.66	708.89	94.81	
718.88	94.97	733.85	95.01	738.85	95.16	743.84	94.99	748.83	94.91	
753.82	95.11	758.81	95.19	763.81	95	773.79	94.82	778.78	94.78	
788.77	94.86	798.75	94.72	803.74	94.69	818.72	94.76	823.71	94.84	
833.7	94.75	838.69	94.82	843.68	94.96	848.67	94.99	853.67	94.95	
858.66	95.04	863.65	95.2	873.63	95.1	878.63	95.12	883.62	95.21	
908.58	95.31	913.57	95.27	923.56	95.41	928.55	95.53	943.53	95.63	
948.52	95.81	953.51	95.6	963.49	95.62	968.49	95.76	973.48	95.95	
978.47	96	988.46	95.97	993.45	96.09	1003.43	96.03	1008.42	96.12	
1013.42	96.01	1018.41	95.55	1028.39	95.59	1033.39	95.83	1048.36	95.9	
1053.35	95.56	1058.35	95.38	1063.34	95.35	1088.3	95.35	1093.29	95.32	
1103.28	95.34	1113.26	95.28	1118.25	95.36	1123.25	95.34	1128.24	95.22	
1138.22	95.25	1153.2	95.44	1163.18	95.4	1168.17	95.55	1173.17	95.64	
1183.15	95.52	1188.14	95.69	1193.14	95.76	1208.11	95.8	1218.1	95.68	
1223.09	95.72	1233.07	95.97	1243.06	95.99	1253.04	96.24	1278	96.29	
1282.99	96.39	1287.99	96.39	1292.98	96.7	1297.97	97.28	1302.96	98.07	
1307.96	98.18	1312.95	98.68	1322.2	98.69	1327.92	98.75	1332.92	98.93	
1337.91	97.21	1342.9	91.79	1347.89	90.14	1352.89	89.48	1357.88	92.91	
1362.87	95.12	1367.86	95.77	1372.85	95.91	1382.22	96.05	1382.84	96.06	

NM105 OUTPUT REPORT.TXT

1397.82	95.89	1407.8	95.65	1422.78	95.69	1432.76	95.6	1442.74	95.72
1467.71	95.66	1472.7	95.7	1502.65	95.67	1512.64	95.59	1522.62	95.58
1527.61	95.42	1532.6	95.36	1537.6	95.51	1542.59	95.52	1547.58	95.64
1562.56	95.66	1567.55	95.9	1572.54	95.77	1577.53	95.78	1582.53	95.73
1587.52	95.77	1592.51	95.68	1602.49	95.74	1607.49	95.67	1612.48	95.88
1617.47	95.93	1622.46	95.75	1627.46	95.76	1632.45	95.63	1637.44	95.59
1642.43	95.6	1647.42	95.75	1652.42	95.55	1662.4	95.64	1667.39	95.59
1697.35	95.55	1702.34	95.49	1712.32	95.07	1727.3	95.03	1732.29	95.18
1737.28	95.39	1742.28	95.42	1757.25	95.32	1777.22	95.4	1782.21	95.28
1787.21	95.21	1797.19	95.31	1822.15	95.11	1827.14	95.11	1832.14	95.17
1842.12	95.21	1847.11	95.18	1852.1	95.27	1862.09	95.21	1867.08	95.34
1872.07	95.24	1877.07	95.24	1882.06	95.31	1887.05	95.21	1897.03	95.24
1902.03	95.21	1907.02	95.27	1931.98	95.2	1936.97	95.24	1946.96	95.18
1951.95	95.19	1956.94	95.27	1966.92	95.31	1971.92	95.19	1981.9	95.21
1991.89	95.02	2006.86	95.08	2011.85	95.05	2016.85	95.16	2021.84	95.42
2031.82	95.55	2041.81	95.97	2046.8	96.04	2051.79	95.95	2056.78	95.47
2061.78	95.08	2071.76	95.4	2076.75	95.63	2081.74	95.71	2101.71	95.77
2111.7	95.64	2116.69	95.66	2121.68	95.74	2126.67	95.71	2131.67	95.79
2141.65	95.77	2146.64	95.63	2151.63	95.72	2156.63	95.72	2161.62	95.77
2166.61	95.59	2171.6	95.74	2181.59	95.74	2186.58	95.81	2201.56	95.83
2206.55	95.8	2211.54	95.71	2216.53	95.79	2221.52	95.8	2226.52	95.89
2236.5	95.75	2241.49	95.74	2251.48	95.87	2266.45	95.78	2271.44	95.89
2286.42	95.87	2291.41	95.94	2306.39	95.91	2311.38	96.06	2316.37	96.01
2321.37	95.88	2326.36	95.9	2336.34	96.05	2366.3	96.04	2376.28	96.14
2381.27	96.13	2386.26	96.06	2391.26	96.16	2396.25	96.09	2401.24	95.91
2406.23	95.91	2421.21	96.05	2426.2	95.99	2431.19	96.1	2436.18	96.09
2441.18	96.15	2446.17	96.07	2451.16	95.94	2456.15	96.12	2466.14	96.1
2471.13	96.13	2476.12	96.62	2481.11	96.62	2486.11	96.78	2491.1	96.58
2496.09	96.58	2506.07	96.51	2521.05	96.59	2526.04	96.67	2531.04	96.83
2536.03	96.76	2541.02	96.51	2546.01	96.4	2551	96.51	2556	96.73
2560.99	96.73	2570.97	96.61	2575.96	96.43	2580.96	96.59	2585.95	96.69
2590.94	96.49	2600.92	96.59	2605.92	96.55	2610.91	96.85	2615.9	97.2
2620.89	97.31	2625.89	97.15						

Manning's n Values	num=	3
Sta n Val	Sta n Val	Sta n Val
0 .06 1337.91	.04 1367.86	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.	Expan.
1337.91	1367.86	160	160	160	.1	.3	

Ineffective Flow	num=	2	
Sta L	Sta R	Elev	Permanent
0 1323.24	98.67	F	
1383.73	2625.89	96.04	F

Blocked Obstructions	num=	2			
Sta L	Sta R	Elev	Sta L	Sta R	Elev
0 988.55	95.96	2048.46	2625.89	95.95	

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	91.09	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.14	wt. n-Val.		0.040
W.S. Elev (ft)	90.95	Reach Len. (ft)	160.00	160.00
160.00				
Crit w.s. (ft)	90.63	Flow Area (sq ft)		8.27
E.G. slope (ft/ft)	0.008784	Area (sq ft)		8.27
Q Total (cfs)	25.00	Flow (cfs)		25.00

NM105 OUTPUT REPORT.TXT				
Top width (ft)	9.59	Top width (ft)		9.59
Vel Total (ft/s)	3.02	Avg. Vel. (ft/s)		3.02
Max Chl Dpth (ft)	1.47	Hydr. Depth (ft)		0.86
Conv. Total (cfs)	266.7	Conv. (cfs)		266.7
Length wtd. (ft)	160.00	wetted Per. (ft)		10.22
Min Ch El (ft)	89.48	Shear (lb/sq ft)		0.44
Alpha 0.00	1.00	Stream Power (lb/ft s)	2625.89	0.00
Frctn Loss (ft)	2.34	Cum Volume (acre-ft)		2.21
C & E Loss (ft)	0.01	Cum SA (acres)		1.20

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the

need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	91.40	Element	Left OB	Channel
Right OB Vel Head (ft)	0.19	wt. n-Val.		0.040
W.S. Elev (ft)	91.22	Reach Len. (ft)	160.00	160.00
160.00 Crit w.s. (ft)	90.86	Flow Area (sq ft)		10.98
E.G. Slope (ft/ft)	0.009268	Area (sq ft)		10.98
Q Total (cfs)	38.00	Flow (cfs)		38.00
Top width (ft)	10.78	Top width (ft)		10.78
Vel Total (ft/s)	3.46	Avg. Vel. (ft/s)		3.46
Max Chl Dpth (ft)	1.74	Hydr. Depth (ft)		1.02
Conv. Total (cfs)	394.7	Conv. (cfs)		394.7
Length wtd. (ft)	160.00	wetted Per. (ft)		11.54
Min Ch El (ft)	89.48	Shear (lb/sq ft)		0.55
Alpha 0.00	1.00	Stream Power (lb/ft s)	2625.89	0.00
Frctn Loss (ft)	2.37	Cum Volume (acre-ft)		2.84
C & E Loss (ft)	0.02	Cum SA (acres)		1.31

NM105 OUTPUT REPORT.TXT

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the

need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	91.88	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.54	wt. n-Val.		0.040
W.S. Elev (ft)	91.34	Reach Len. (ft)	160.00	160.00
160.00				
Crit w.s. (ft)	91.34	Flow Area (sq ft)		12.38
E.G. Slope (ft/ft)	0.024601	Area (sq ft)		12.38
Q Total (cfs)	73.00	Flow (cfs)		73.00
Top width (ft)	11.35	Top width (ft)		11.35
Vel Total (ft/s)	5.90	Avg. Vel. (ft/s)		5.90
Max Chl Dpth (ft)	1.86	Hydr. Depth (ft)		1.09
Conv. Total (cfs)	465.4	Conv. (cfs)		465.4
Length wtd. (ft)	160.00	wetted Per. (ft)		12.17
Min Ch El (ft)	89.48	Shear (lb/sq ft)		1.56
Alpha	1.00	Stream Power (lb/ft s)	2625.89	0.00
0.00				
Frctn Loss (ft)	1.94	Cum Volume (acre-ft)		4.45
C & E Loss (ft)	0.10	Cum SA (acres)		1.54

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for

the water surface and continued on with the calculations.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the

need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water

surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted

to critical depth.

Note: Multiple critical depths were found at this location. The critical depth

with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	91.75	Element	Left OB	Channel
Right OB Vel Head (ft)	0.36	Wt. n-Val.		0.040
W.S. Elev (ft)	91.39	Reach Len. (ft)	160.00	160.00
160.00 Crit w.s. (ft)	91.20	Flow Area (sq ft)		12.90
E.G. Slope (ft/ft)	0.015868	Area (sq ft)		12.90
Q Total (cfs)	62.00	Flow (cfs)		62.00
Top width (ft)	11.55	Top width (ft)		11.55
Vel Total (ft/s)	4.81	Avg. Vel. (ft/s)		4.81
Max chl Dpth (ft)	1.91	Hydr. Depth (ft)		1.12
Conv. Total (cfs)	492.2	Conv. (cfs)		492.2
Length wtd. (ft)	160.00	wetted Per. (ft)		12.39
Min Ch El (ft)	89.48	Shear (lb/sq ft)		1.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	2625.89	0.00
Frctn Loss (ft)	2.25	Cum Volume (acre-ft)		3.76
C & E Loss (ft)	0.03	Cum SA (acres)		1.45

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	92.00	Element	Left OB	Channel
Right OB Vel Head (ft)	0.57	Wt. n-Val.		0.040
W.S. Elev (ft)	91.43	Reach Len. (ft)	160.00	160.00
160.00 Crit w.s. (ft)	91.43	Flow Area (sq ft)		13.34
E.G. Slope (ft/ft)	0.024724	Area (sq ft)		13.34
Q Total (cfs)	81.00	Flow (cfs)		81.00
Top width (ft)	11.72	Top width (ft)		11.72
Vel Total (ft/s)	6.07	Avg. Vel. (ft/s)		6.07

NM105 OUTPUT REPORT.TXT				
Max Chl Dpth (ft)	1.95	Hydr. Depth (ft)		1.14
Conv. Total (cfs)	515.1	Conv. (cfs)		515.1
Length Wtd. (ft)	160.00	wetted Per. (ft)		12.57
Min Ch El (ft)	89.48	Shear (lb/sq ft)		1.64
Alpha 0.00	1.00	Stream Power (lb/ft s)	2625.89	0.00
Frctn Loss (ft)	1.73	Cum Volume (acre-ft)		4.59
C & E Loss (ft)	0.11	Cum SA (acres)		1.55

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	92.58	Element	Left OB	Channel
Right OB Vel Head (ft)	0.70	wt. n-val.		0.040
W.S. Elev (ft)	91.87	Reach Len. (ft)	160.00	160.00
160.00 Crit W.S. (ft)	91.87	Flow Area (sq ft)		19.00
E.G. slope (ft/ft)	0.023223	Area (sq ft)		19.00
Q Total (cfs)	128.00	Flow (cfs)		128.00
Top width (ft)	13.54	Top width (ft)		13.54
Vel Total (ft/s)	6.74	Avg. Vel. (ft/s)		6.74
Max Chl Dpth (ft)	2.39	Hydr. Depth (ft)		1.40
Conv. Total (cfs)	839.9	Conv. (cfs)		839.9
Length Wtd. (ft)	160.00	wetted Per. (ft)		14.63
Min Ch El (ft)	89.48	Shear (lb/sq ft)		1.88
Alpha 0.00	1.00	Stream Power (lb/ft s)	2625.89	0.00

NM105 OUTPUT REPORT.TXT

Frctn Loss (ft)	0.94	Cum Volume (acre-ft)	6.49
C & E Loss (ft)	0.17	Cum SA (acres)	1.75

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-105
 REACH: NM-105 RS: 3868

INPUT

Description:

Station	Elevation	Data	num=	354						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	
0	94.48	9.98	94.46	14.98	94.31	19.97	94.38	24.96	94.25	
34.95	94.39	39.94	94.24	44.93	94.64	49.92	94.48	54.91	94.45	
64.9	94.05	69.89	93.76	74.88	93.68	84.87	93.78	89.86	93.65	
99.84	93.56	104.84	93.31	109.83	93.15	119.81	93.04	129.8	93.04	
139.78	93.18	149.77	93.29	154.76	93.39	159.75	93.39	164.74	93.5	
174.73	94.34	179.72	94.35	184.71	94.24	189.7	94.23	194.7	94.54	
199.69	94.71	204.68	94.59	214.66	94.49	219.66	94.35	224.65	94.04	
234.63	93.9	239.63	93.42	244.62	93.34	249.61	93.35	264.59	93.7	
269.58	93.66	274.57	93.54	279.56	93.56	284.56	93.49	299.53	93.49	
309.52	93.61	314.51	93.63	319.5	93.58	324.49	93.48	329.48	93.62	
339.47	93.68	344.46	93.58	349.45	93.62	359.44	93.56	369.42	93.56	
379.41	93.67	384.4	93.56	389.39	93.5	404.37	93.63	419.34	93.6	
429.33	93.48	444.31	93.58	454.29	93.54	469.27	93.73	474.26	93.91	
479.25	94.29	484.24	94.46	494.23	94.52	499.22	94.62	504.21	94.66	
519.19	94.54	529.17	94.38	534.16	94.13	544.15	93.46	554.13	93.44	
564.12	93.54	569.11	93.27	579.09	93.26	584.09	93.61	589.08	94.01	
594.07	93.97	599.06	94	604.06	94.12	609.05	94.01	614.04	93.98	
619.03	94.22	624.02	94.23	634.01	94.08	639	93.81	643.99	93.75	
648.99	93.88	658.97	93.84	663.96	93.9	668.95	93.86	678.94	93.96	
683.93	93.92	688.92	93.83	698.91	93.93	703.9	94.02	713.88	93.88	
718.88	93.87	723.87	93.79	733.85	93.87	743.84	93.8	753.82	93.99	
768.8	93.98	778.78	94.02	788.77	94.01	798.75	94.07	803.74	94.05	
818.72	94.12	823.71	94.19	833.7	94.17	838.69	94.09	843.68	94.08	
848.67	94.15	863.65	94.14	868.64	94.08	873.63	94.1	878.63	94.03	
883.62	94.17	888.61	94.54	893.6	94.59	898.6	94.46	913.57	94.39	
918.56	94.4	923.56	94.3	938.53	94.23	943.53	94.39	948.52	94.67	
953.51	94.34	958.5	94.26	963.49	94.3	968.49	94.42	973.48	94.36	

NM105 OUTPUT REPORT.TXT

978.47	94.35	983.46	94.39	988.46	94.28	998.44	94.42	1013.42	94.4
1033.39	94.49	1043.37	94.61	1048.36	94.5	1053.35	94.47	1058.35	94.55
1078.32	94.53	1083.31	94.46	1093.29	94.62	1103.28	94.55	1108.27	94.63
1113.26	94.6	1128.24	94.73	1138.22	94.71	1143.21	94.75	1148.21	94.54
1153.2	94.54	1158.19	94.68	1163.18	94.74	1168.17	94.65	1178.16	94.63
1183.15	94.75	1188.14	94.69	1218.1	94.78	1223.09	94.75	1228.08	94.85
1243.06	94.93	1248.05	94.86	1253.04	95.01	1258.03	95.06	1263.03	94.95
1282.99	95.12	1287.99	95.3	1292.98	95.4	1297.97	95.75	1302.96	96.37
1307.96	96.92	1312.95	97.09	1317.94	97.35	1322.93	97.74	1327.92	98.04
1332.92	98.17	1342.44	98.06	1342.9	98.05	1352.89	97.92	1357.88	97.19
1362.87	94.14	1367.86	89.54	1372.85	87.45	1377.85	87.89	1382.84	89.01
1387.83	92.63	1392.82	95.8	1397.82	95.91	1402.45	95.76	1402.81	95.75
1407.8	95.4	1417.78	95.19	1422.78	95.21	1432.76	95.37	1437.75	95.26
1442.74	95.24	1452.73	95.06	1462.71	95.23	1477.69	95.26	1482.68	95.31
1487.67	95.3	1497.66	95.11	1507.64	95.08	1517.63	95.23	1542.59	95.34
1547.58	95.26	1562.56	95.22	1567.55	95.37	1572.54	95.4	1577.53	95.33
1592.51	95.33	1597.5	95.29	1622.46	95.31	1627.46	95.46	1632.45	95.52
1637.44	95.45	1647.42	95.6	1662.4	95.37	1672.39	94.98	1677.38	94.95
1682.37	94.87	1687.36	94.73	1692.35	94.64	1697.35	94.62	1702.34	94.82
1707.33	95.18	1712.32	95.23	1722.31	95.17	1727.3	95.07	1742.28	95.05
1747.27	95.08	1752.26	95.16	1762.24	95.08	1767.24	95.08	1772.23	95.21
1777.22	95.39	1782.21	95.25	1787.21	95.28	1797.19	95.8	1802.18	95.67
1807.17	95.66	1812.17	95.39	1822.15	95.2	1827.14	95.27	1832.14	95.27
1837.13	95.07	1847.11	95.25	1857.1	95.29	1867.08	95.13	1877.07	95.06
1882.06	94.97	1897.03	95.09	1917	95.04	1921.99	94.91	1926.99	94.95
1936.97	94.83	1941.96	94.82	1946.96	95.12	1951.95	95.66	1956.94	95.91
1966.92	95.93	1971.92	95.89	1976.91	95.9	1981.9	95.73	1986.89	95.41
1991.89	95.25	2001.87	95.14	2011.85	95.18	2021.84	95.1	2026.83	95.13
2036.82	95.28	2046.8	95.25	2051.79	95.18	2056.78	95.31	2066.77	95.33
2071.76	95.4	2076.75	95.22	2081.74	95.39	2086.74	95.37	2091.73	95.4
2096.72	95.38	2101.71	95.3	2106.7	95.38	2116.69	95.36	2126.67	95.16
2141.65	95.18	2146.64	95.79	2151.63	95.87	2156.63	95.42	2161.62	95.15
2171.6	95.11	2176.59	95.19	2181.59	95.61	2186.58	95.8	2191.57	95.71
2201.56	95.64	2206.55	95.53	2221.52	95.66	2226.52	95.61	2241.49	95.34
2246.48	95.19	2256.47	95.27	2261.46	95.25	2266.45	95.34	2276.44	95.26
2286.42	95.33	2291.41	95.45	2296.41	95.49	2316.37	95.41	2331.35	95.54
2346.33	95.44	2351.32	95.37	2356.31	95.35	2366.3	95.17	2371.29	95.14
2376.28	95.18	2381.27	95.27	2386.26	95.24	2391.26	95.27	2396.25	95.66
2401.24	95.81	2406.23	95.68	2416.22	95.6	2421.21	95.28	2436.18	95.31
2441.18	95.13	2446.17	95.08	2451.16	95.15	2476.12	95.25	2481.11	95.31
2506.07	95.28	2511.07	95.21	2516.06	95.19	2521.05	95.26	2526.04	95.19
2531.04	95.3	2536.03	95.33	2541.02	95.28	2546.01	95.28	2556	95.34
2565.98	95.28	2585.95	94.93	2590.94	94.91	2595.93	94.95	2600.92	94.91
2605.92	94.95	2610.91	95.08	2615.9	95.35	2625.89	96.36		

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 1357.88 .04 1392.82 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 1357.88 1392.82 1263 1263 1264 .1 .3

Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 1334.42 98.07 F
 1398.01 2625.89 95.87 F

Blocked obstructions num= 2
 Sta L Sta R Elev Sta L Sta R Elev
 0 499.56 94.63 1966.52 2625.89 95.91

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft) 88.74 Element Left OB Channel
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Right OB				
Vel Head (ft)	0.29	wt. n-Val.		0.040
W.S. Elev (ft)	88.45	Reach Len. (ft)	1263.00	1263.00
1264.00				
Crit w.s. (ft)	88.45	Flow Area (sq ft)		5.77
E.G. slope (ft/ft)	0.028909	Area (sq ft)		5.77
Q Total (cfs)	25.00	Flow (cfs)		25.00
Top width (ft)	9.87	Top width (ft)		9.87
Vel Total (ft/s)	4.33	Avg. Vel. (ft/s)		4.33
Max chl Dpth (ft)	1.00	Hydr. Depth (ft)		0.58
Conv. Total (cfs)	147.0	Conv. (cfs)		147.0
Length wtd. (ft)	1263.00	wetted Per. (ft)		10.15
Min ch El (ft)	87.45	Shear (lb/sq ft)		1.03
Alpha	1.00	Stream Power (lb/ft s)	2625.89	0.00
0.00				
Frctn Loss (ft)	0.91	Cum Volume (acre-ft)		2.19
C & E Loss (ft)	0.08	Cum SA (acres)		1.16

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	89.01	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.35	wt. n-Val.		0.040
W.S. Elev (ft)	88.65	Reach Len. (ft)	1263.00	1263.00
1264.00				
Crit w.s. (ft)	88.65	Flow Area (sq ft)		7.96
E.G. slope (ft/ft)	0.027362	Area (sq ft)		7.96
Q Total (cfs)	38.00	Flow (cfs)		38.00

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Top width (ft)	11.29	Top width (ft)	11.29
Vel Total (ft/s)	4.77	Avg. Vel. (ft/s)	4.77
Max Chl Dpth (ft)	1.20	Hydr. Depth (ft)	0.71
Conv. Total (cfs)	229.7	Conv. (cfs)	229.7
Length wtd. (ft)	1263.00	wetted Per. (ft)	11.63
Min Ch El (ft)	87.45	Shear (lb/sq ft)	1.17
Alpha 0.00	1.00	Stream Power (lb/ft s)	2625.89
Frctn Loss (ft)	1.00	Cum Volume (acre-ft)	2.81
C & E Loss (ft)	0.10	Cum SA (acres)	1.27

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	89.74	Element	Left OB	Channel
Right OB Vel Head (ft)	0.20	wt. n-val.		0.040
W.S. Elev (ft)	89.54	Reach Len. (ft)	1263.00	1263.00
1264.00 Crit W.S. (ft)	89.07	Flow Area (sq ft)		20.17
E.G. Slope (ft/ft)	0.007223	Area (sq ft)		20.17
Q Total (cfs)	73.00	Flow (cfs)		73.00
Top width (ft)	15.70	Top width (ft)		15.70
Vel Total (ft/s)	3.62	Avg. Vel. (ft/s)		3.62
Max Chl Dpth (ft)	2.09	Hydr. Depth (ft)		1.28
Conv. Total (cfs)	859.0	Conv. (cfs)		859.0
Length wtd. (ft)	1263.00	wetted Per. (ft)		16.44

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Min Ch El (ft)	87.45	Shear (lb/sq ft)		0.55
Alpha 0.00	1.00	Stream Power (lb/ft s)	2625.89	0.00
Frctn Loss (ft)	0.93	Cum Volume (acre-ft)		4.39
C & E Loss (ft)	0.05	Cum SA (acres)		1.49

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	89.46	Element	Left OB	Channel
Right OB Vel Head (ft)	0.27	wt. n-Val.		0.040
W.S. Elev (ft)	89.19	Reach Len. (ft)	1263.00	1263.00
1264.00 Crit w.s. (ft)	88.95	Flow Area (sq ft)		14.90
E.G. Slope (ft/ft)	0.012590	Area (sq ft)		14.90
Q Total (cfs)	62.00	Flow (cfs)		62.00
Top width (ft)	14.38	Top width (ft)		14.38
Vel Total (ft/s)	4.16	Avg. Vel. (ft/s)		4.16
Max Chl Dpth (ft)	1.74	Hydr. Depth (ft)		1.04
Conv. Total (cfs)	552.6	Conv. (cfs)		552.6
Length wtd. (ft)	1263.00	wetted Per. (ft)		14.93
Min Ch El (ft)	87.45	Shear (lb/sq ft)		0.78
Alpha 0.00	1.00	Stream Power (lb/ft s)	2625.89	0.00
Frctn Loss (ft)	1.10	Cum Volume (acre-ft)		3.71
C & E Loss (ft)	0.07	Cum SA (acres)		1.40

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	89.91	Element	Left OB	Channel
Right OB Vel Head (ft)	0.19	wt. n-Val.		0.040
W.S. Elev (ft)	89.72	Reach Len. (ft)	1263.00	1263.00
1264.00 Crit w.s. (ft)	89.14	Flow Area (sq ft)		22.99
E.G. Slope (ft/ft)	0.006013	Area (sq ft)		22.99
Q Total (cfs)	81.00	Flow (cfs)		81.00
Top width (ft)	16.14	Top width (ft)		16.14
Vel Total (ft/s)	3.52	Avg. Vel. (ft/s)		3.52
Max Chl Dpth (ft)	2.27	Hydr. Depth (ft)		1.42
Conv. Total (cfs)	1044.6	Conv. (cfs)		1044.6
Length wtd. (ft)	1263.00	wetted Per. (ft)		17.00
Min Ch El (ft)	87.45	Shear (lb/sq ft)		0.51
Alpha 0.00	1.00	Stream Power (lb/ft s)	2625.89	0.00
Frctn Loss (ft)	1.00	Cum Volume (acre-ft)		4.52
C & E Loss (ft)	0.05	Cum SA (acres)		1.50

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	90.94	Element	Left OB	Channel
Right OB Vel Head (ft)	0.15	wt. n-Val.		0.040
W.S. Elev (ft)	90.79	Reach Len. (ft)	1263.00	1263.00
1264.00 Crit w.s. (ft)	89.52	Flow Area (sq ft)		41.83
E.G. Slope (ft/ft)	0.002609	Area (sq ft)		41.83
Q Total (cfs)	128.00	Flow (cfs)		128.00
Top width (ft)	18.80	Top width (ft)		18.80
Vel Total (ft/s)	3.06	Avg. Vel. (ft/s)		3.06

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Max Chl Dpth (ft)	3.34	Hydr. Depth (ft)	2.23
Conv. Total (cfs)	2505.9	Conv. (cfs)	2505.9
Length wtd. (ft)	1263.00	Wetted Per. (ft)	20.43
Min Ch El (ft)	87.45	Shear (lb/sq ft)	0.33
Alpha 0.00	1.00	Stream Power (lb/ft s)	2625.89
Frctn Loss (ft)	0.86	Cum Volume (acre-ft)	6.38
C & E Loss (ft)	0.03	Cum SA (acres)	1.69

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-105
REACH: NM-105

RS: 2605

INPUT

Description:

Station Elevation Data		num= 374									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	91.4	4.99	91.4	9.98	91.52	14.97	91.8	19.96	91.73		
24.95	91.72	29.95	91.49	34.94	91.53	39.93	92.22	44.92	92.34		
49.91	92.33	54.9	92.19	59.89	91.97	64.88	91.44	69.87	91.45		
74.86	92.17	79.85	92.34	84.84	92.25	89.83	92.22	94.83	92.33		
99.82	92.25	104.81	92.02	109.8	91.96	134.75	91.96	139.74	92		
144.73	91.98	149.72	92.08	154.72	92.13	159.71	92.25	164.7	92.47		
169.69	92.59	174.68	92.58	184.66	92.35	199.63	92.35	204.62	92.39		
224.59	92.24	234.57	92.48	239.56	92.49	244.55	92.42	249.54	92.29		
254.53	92.26	259.52	92.18	269.5	92.18	289.47	92.29	294.46	92.4		
304.44	92.43	314.42	92.88	319.41	92.89	324.4	92.84	334.38	92.92		
339.38	93.09	344.37	93.18	349.36	93.18	359.34	93.3	364.33	92.85		
369.32	92.82	374.31	92.67	379.3	92.67	384.29	92.77	389.28	92.81		
399.27	92.65	404.26	92.69	409.25	92.87	424.22	93.18	449.17	93.14		
454.16	93.19	469.14	93.06	474.13	93.1	484.11	93.01	494.09	93.15		
504.07	93.03	509.06	93.04	514.05	93.1	519.05	93.22	524.04	93.39		
529.03	93.47	539.01	93.46	548.99	93.21	553.98	93.22	558.97	93.3		
563.96	93.33	573.94	93.31	593.91	93.55	598.9	93.57	608.88	93.8		
613.87	94	618.86	93.98	623.85	93.84	628.84	93.57	633.83	93.43		
638.82	93.44	643.82	93.67	653.8	93.89	663.78	93.9	668.77	93.77		
673.76	93.69	678.75	93.56	683.74	93.53	688.73	93.44	693.72	93.51		
698.71	93.81	703.71	93.86	713.69	93.71	723.67	93.79	728.66	93.88		
733.65	93.92	748.62	94.3	758.6	94.02	768.59	94.06	773.58	94.16		
778.57	94.21	783.56	94.14	793.54	94.13	798.53	94.02	803.52	93.85		
813.5	93.69	818.49	93.71	823.48	93.84	833.47	93.98	838.46	94.15		
843.45	94.22	848.44	94.11	863.41	94.06	868.4	94.13	873.39	94.07		
883.37	94.09	888.36	94.15	893.36	94.12	898.35	94.22	903.34	94.37		
913.32	94.06	918.31	94.09	923.3	94.31	928.29	94.23	943.26	94.23		
948.26	94.18	953.25	94.19	958.24	94.04	963.23	94.03	968.22	94.2		
983.19	94.36	993.17	94.18	1003.15	94.22	1008.14	94.33	1013.14	94.31		

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1018.13	94.12	1023.12	94.06	1028.11	94.09	1033.1	94.17	1038.09	94.12
1043.08	93.96	1048.07	93.9	1053.06	93.92	1058.05	94.1	1063.04	94.19
1068.03	94.2	1078.02	94.09	1092.99	94.36	1097.98	94.5	1107.96	94.64
1117.94	94.65	1122.93	94.41	1127.92	94.11	1142.9	94.14	1152.88	93.8
1157.87	94.03	1162.86	94.34	1167.85	94.14	1172.84	94.35	1177.83	94.33
1187.81	94.45	1192.8	94.37	1197.79	94.34	1202.79	94.2	1207.78	94.21
1217.76	94.11	1222.75	94.1	1227.74	93.99	1232.73	94	1242.71	94.12
1247.7	93.96	1252.69	93.93	1257.68	94.38	1262.68	94.33	1267.67	94.36
1277.65	94.26	1282.64	94.27	1287.63	94.21	1307.59	94.16	1312.58	94.22
1317.57	94.49	1322.56	94.4	1327.56	94.36	1332.55	94.38	1337.54	94.63
1342.53	94.98	1347.52	95.08	1352.51	95.36	1357.5	95.75	1362.49	96.24
1367.48	96.42	1377.46	97.04	1382.45	97.27	1387.44	97.37	1391.48	97.41
1392.44	97.42	1397.43	97.63	1402.42	97.79	1412.4	93.73	1417.39	90.85
1422.38	86.14	1427.37	84.08	1432.36	83.89	1437.35	87.45	1442.34	93.83
1447.33	96.72	1451.49	97.21	1452.33	97.31	1457.32	97.29	1462.31	96.95
1467.3	96.08	1472.29	95.57	1477.28	95.49	1482.27	95.19	1487.26	94.8
1492.25	94.22	1497.24	93.82	1507.22	93.91	1517.21	93.72	1522.2	93.69
1532.18	93.51	1537.17	93.47	1547.15	93.53	1557.13	93.44	1562.12	93.44
1567.11	93.52	1572.1	93.75	1577.1	94.06	1587.08	94.03	1592.07	93.88
1597.06	93.89	1602.05	93.98	1607.04	94	1612.03	94.16	1617.02	94.13
1622.01	93.89	1631.99	93.78	1636.98	93.77	1641.98	93.96	1646.97	94.02
1656.95	93.61	1661.94	93.57	1671.92	93.65	1676.91	93.59	1686.89	93.62
1696.87	93.52	1716.84	93.57	1726.82	93.65	1746.78	93.63	1756.76	93.77
1766.75	93.64	1771.74	93.7	1781.72	93.74	1786.71	93.81	1796.69	93.65
1806.67	93.61	1811.66	93.69	1821.64	93.61	1826.64	93.51	1836.62	93.7
1841.61	93.68	1846.6	93.47	1861.57	93.5	1866.56	93.58	1871.55	93.53
1881.53	93.58	1886.52	93.49	1891.52	93.54	1896.51	93.54	1906.49	93.64
1916.47	93.59	1921.46	93.49	1926.45	93.55	1936.43	93.47	1941.42	93.47
1951.41	93.55	1961.39	93.42	1971.37	93.65	1981.35	93.57	2001.31	93.5
2011.29	93.63	2021.28	93.39	2031.26	93.51	2036.25	93.48	2046.23	93.64
2056.21	93.64	2066.19	93.53	2071.18	93.53	2076.18	93.58	2086.16	93.75
2091.15	93.71	2096.14	93.62	2116.1	93.38	2136.06	93.41	2141.06	93.48
2146.05	93.32	2151.04	93.41	2156.03	93.41	2161.02	93.53	2166.01	93.37
2171	93.34	2175.99	93.36	2185.97	93.53	2190.96	93.74	2195.95	93.76
2200.95	93.47	2205.94	93.79	2210.93	94.03	2215.92	93.85	2220.91	93.84
2225.9	93.78	2230.89	93.8	2235.88	93.92	2245.86	94	2255.84	93.84
2260.84	93.83	2265.83	93.72	2270.82	93.67	2285.79	93.69	2295.77	93.67
2300.76	93.79	2305.75	93.83	2310.74	93.77	2320.73	94.04	2325.72	94.02
2330.71	94.12	2335.7	94.17	2340.69	94.17	2355.66	94.38	2360.65	94.31
2380.62	94.21	2390.6	94.39	2400.58	94.33	2405.57	94.41	2415.55	94.33
2420.54	94.39	2430.52	94.45	2435.51	94.4	2440.51	94.22	2450.49	94.06
2455.48	94.03	2460.47	93.79	2465.46	93.78	2470.45	93.91	2510.38	94.02
2515.37	94.12	2520.36	94.15	2525.35	94.08	2530.34	94.12	2535.33	93.99
2545.31	93.96	2550.3	94.12	2560.29	94.23	2565.28	94.24	2585.24	94.07
2605.2	94.13	2620.18	94.03	2625.17	94.06	2630.16	94.29	2635.15	94.46
2640.14	94.45	2645.13	94.39	2655.11	94.46	2660.1	94.44		

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 1402.42 .04 1447.33 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 1402.42 1447.33 1143 1144 1145 .1 .3

Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 1398.25 97.51 F
 1454.92 2660.1 97.28 F

Blocked Obstructions num= 2
 Sta L Sta R Elev Sta L Sta R Elev
 0 748.02 94.22 2355.07 2660.1 94.35

CROSS SECTION OUTPUT Profile #EX 10Y

NM105 OUTPUT REPORT.TXT

E.G. Elev (ft)	86.96	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-val.		0.040
W.S. Elev (ft)	86.95	Reach Len. (ft)	1143.00	1144.00
1145.00 Crit w.s. (ft)	84.82	Flow Area (sq ft)		30.91
E.G. slope (ft/ft)	0.000211	Area (sq ft)		30.91
Q Total (cfs)	25.00	Flow (cfs)		25.00
Top width (ft)	15.13	Top width (ft)		15.13
Vel Total (ft/s)	0.81	Avg. vel. (ft/s)		0.81
Max Chl Dpth (ft)	3.06	Hydr. Depth (ft)		2.04
Conv. Total (cfs)	1720.7	Conv. (cfs)		1720.7
Length wtd. (ft)	1144.00	wetted Per. (ft)		16.85
Min Ch El (ft)	83.89	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	2660.10	0.00
Frctn Loss (ft)	0.22	Cum volume (acre-ft)		1.65
C & E Loss (ft)	0.00	Cum SA (acres)		0.80

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	87.54	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-val.		0.040
W.S. Elev (ft)	87.52	Reach Len. (ft)	1143.00	1144.00
1145.00 Crit w.s. (ft)	85.05	Flow Area (sq ft)		39.99
E.G. slope (ft/ft)	0.000236	Area (sq ft)		39.99
Q Total (cfs)	38.00	Flow (cfs)		38.00
Top width (ft)	16.50	Top width (ft)		16.50
Vel Total (ft/s)	0.95	Avg. vel. (ft/s)		0.95
Max Chl Dpth (ft)	3.63	Hydr. Depth (ft)		2.42
Conv. Total (cfs)	2471.5	Conv. (cfs)		2471.5
Length wtd. (ft)	1144.00	wetted Per. (ft)		18.63
Min Ch El (ft)	83.89	Shear (lb/sq ft)		0.03

NM105 OUTPUT REPORT.TXT

Alpha 0.00	1.00	Stream Power (lb/ft s)	2660.10	0.00
Frctn Loss (ft)	0.25	Cum Volume (acre-ft)		2.11
C & E Loss (ft)	0.00	Cum SA (acres)		0.86

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	88.75	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-val.		0.040
W.S. Elev (ft)	88.73	Reach Len. (ft)	1143.00	1144.00
1145.00 Crit w.s. (ft)	85.53	Flow Area (sq ft)		61.26
E.G. slope (ft/ft)	0.000262	Area (sq ft)		61.26
Q Total (cfs)	73.00	Flow (cfs)		73.00
Top width (ft)	18.72	Top width (ft)		18.72
vel Total (ft/s)	1.19	Avg. vel. (ft/s)		1.19
Max Chl Dpth (ft)	4.84	Hydr. Depth (ft)		3.27
Conv. Total (cfs)	4513.5	Conv. (cfs)		4513.5
Length wtd. (ft)	1144.00	wetted Per. (ft)		21.93
Min Ch El (ft)	83.89	Shear (lb/sq ft)		0.05
Alpha 0.00	1.00	Stream Power (lb/ft s)	2660.10	0.00
Frctn Loss (ft)	0.27	Cum volume (acre-ft)		3.21
C & E Loss (ft)	0.00	Cum SA (acres)		0.99

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	88.28	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-val.		0.040
W.S. Elev (ft)	88.26	Reach Len. (ft)	1143.00	1144.00
1145.00 Crit w.s. (ft)	85.39	Flow Area (sq ft)		52.62

NM105 OUTPUT REPORT.TXT			
E.G. Slope (ft/ft)	0.000289	Area (sq ft)	52.62
Q Total (cfs)	62.00	Flow (cfs)	62.00
Top width (ft)	17.85	Top width (ft)	17.85
Vel Total (ft/s)	1.18	Avg. Vel. (ft/s)	1.18
Max Chl Dpth (ft)	4.37	Hydr. Depth (ft)	2.95
Conv. Total (cfs)	3647.9	Conv. (cfs)	3647.9
Length wtd. (ft)	1144.00	wetted Per. (ft)	20.64
Min Ch El (ft)	83.89	Shear (lb/sq ft)	0.05
Alpha 0.00	1.00	Stream Power (lb/ft s)	2660.10
Frctn Loss (ft)	0.31	Cum volume (acre-ft)	2.73
C & E Loss (ft)	0.00	Cum SA (acres)	0.94

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	88.86	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	wt. n-val.		0.040
W.S. Elev (ft)	88.83	Reach Len. (ft)	1143.00	1144.00
1145.00 Crit w.s. (ft)	85.62	Flow Area (sq ft)		63.07
E.G. slope (ft/ft)	0.000297	Area (sq ft)		63.07
Q Total (cfs)	81.00	Flow (cfs)		81.00
Top width (ft)	18.90	Top width (ft)		18.90
Vel Total (ft/s)	1.28	Avg. Vel. (ft/s)		1.28
Max Chl Dpth (ft)	4.94	Hydr. Depth (ft)		3.34
Conv. Total (cfs)	4701.6	Conv. (cfs)		4701.6
Length wtd. (ft)	1144.00	wetted Per. (ft)		22.19
Min Ch El (ft)	83.89	Shear (lb/sq ft)		0.05
Alpha 0.00	1.00	Stream Power (lb/ft s)	2660.10	0.00
Frctn Loss (ft)	0.31	Cum volume (acre-ft)		3.27
C & E Loss (ft)	0.00	Cum SA (acres)		0.99

NM105 OUTPUT REPORT.TXT

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	90.04	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	wt. n-val.		0.040
W.S. Elev (ft)	90.01	Reach Len. (ft)	1143.00	1144.00
1145.00 Crit w.s. (ft)	86.09	Flow Area (sq ft)		86.69
E.G. slope (ft/ft)	0.000308	Area (sq ft)		86.69
Q Total (cfs)	128.00	Flow (cfs)		128.00
Top width (ft)	21.07	Top width (ft)		21.07
vel Total (ft/s)	1.48	Avg. vel. (ft/s)		1.48
Max Chl Dpth (ft)	6.12	Hydr. Depth (ft)		4.11
Conv. Total (cfs)	7297.4	Conv. (cfs)		7297.4
Length wtd. (ft)	1144.00	wetted Per. (ft)		25.41
Min Ch El (ft)	83.89	Shear (lb/sq ft)		0.07
Alpha 0.00	1.00	Stream Power (lb/ft s)	2660.10	0.00
Frctn Loss (ft)	0.31	Cum volume (acre-ft)		4.51
C & E Loss (ft)	0.00	Cum SA (acres)		1.11

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-105

REACH: NM-105

RS: 1461

INPUT

Description:

Station Elevation Data		num= 356							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	91.25	4.99	91.34	9.98	91.63	14.97	91.79	19.96	91.64
24.95	91.54	29.94	91.58	39.93	91.84	44.92	91.9	59.89	91.89
64.88	91.83	74.86	91.96	79.85	91.87	99.82	91.88	104.81	91.94
114.79	91.87	119.78	91.76	124.77	91.72	129.76	91.88	134.75	91.9
139.74	92	144.73	92.04	149.72	91.89	159.7	91.74	164.69	91.83
169.69	92.02	174.68	92.05	179.67	91.84	219.59	91.9	234.57	92.11
254.53	92.33	259.52	92.35	264.51	92.15	269.5	91.88	279.48	91.77
284.47	91.76	289.46	91.86	294.45	91.84	299.45	92.03	304.44	92.11
309.43	92.04	319.41	92.15	324.4	92.15	344.36	91.96	349.35	91.95
369.32	92.1	379.3	92.08	389.28	92.16	394.27	92.16	404.25	92.24

NM105 OUTPUT REPORT.TXT

419.22	92.22	439.19	92.33	444.18	92.25	454.16	92.24	464.14	92.31
469.13	92.28	474.12	92.2	479.11	92.19	484.1	92.29	499.08	92.3
504.07	92.34	519.04	92.25	524.03	92.16	529.02	92.19	543.99	92.13
548.98	92.06	558.96	92.17	563.96	92.17	568.95	92.12	573.94	92.12
578.93	92.27	588.91	92.23	593.9	92.26	598.89	92.58	603.88	92.62
613.86	92.46	623.84	92.56	628.84	92.48	633.83	92.13	638.82	92.08
643.81	92.18	653.79	92.27	658.78	92.11	663.77	92.11	668.76	92.2
673.75	92.17	678.74	91.84	683.73	91.32	688.72	91.08	693.71	91
703.7	91.03	708.69	90.98	718.67	91.16	728.65	91.16	738.63	91.21
758.59	91.18	768.58	91.27	773.57	91.23	783.55	91.25	788.54	91.2
798.52	91.19	803.51	91.13	808.5	91.16	813.49	91.34	818.48	91.37
823.47	91.46	828.47	91.26	833.46	91.21	843.44	91.24	848.43	91.33
853.42	91.24	863.4	91.25	873.38	91.35	883.36	91.37	888.35	91.31
893.35	91.34	903.33	91.23	908.32	91.35	928.28	91.27	933.27	91.3
938.26	91.39	948.24	91.4	953.23	91.35	963.22	91.48	968.21	91.49
973.2	91.41	993.16	91.37	998.15	91.43	1013.12	91.39	1023.1	91.54
1033.09	91.54	1038.08	91.63	1043.07	91.64	1048.06	91.57	1053.05	91.57
1063.03	91.49	1073.01	91.47	1078	91.98	1082.99	92.98	1087.98	93.13
1092.98	92.85	1097.97	93.02	1102.96	92.98	1107.95	92.77	1112.94	92.88
1117.93	92.68	1122.92	92.66	1127.91	92.59	1147.87	92.65	1152.87	92.73
1157.86	92.93	1162.85	93.25	1167.84	93.32	1172.83	93.16	1182.81	92.58
1187.8	92.49	1192.79	92.82	1197.78	92.77	1202.77	92.67	1207.76	93.01
1212.75	92.91	1217.75	92.92	1222.74	93.22	1227.73	92.91	1232.72	92.99
1237.71	93.01	1242.7	93.39	1247.69	93.52	1257.67	93.47	1262.66	92.75
1267.65	92.46	1272.64	92.48	1277.64	93.09	1282.63	93.21	1287.62	92.44
1292.61	91.94	1297.6	91.84	1302.59	91.83	1307.58	92.26	1312.57	93.11
1317.56	93.86	1322.55	94.08	1327.54	94.59	1332.53	95.15	1337.52	95.59
1352.5	96.11	1352.53	96.11	1357.49	96.39	1367.47	95.23	1372.46	92.88
1377.45	88.52	1382.44	85.03	1387.43	83.78	1392.42	84.18	1397.41	86.72
1402.41	91.02	1407.4	93.41	1412.39	93.27	1412.53	93.26	1422.37	92.57
1427.36	92.42	1442.33	92.57	1477.27	92.71	1482.26	92.76	1487.25	92.74
1492.24	92.85	1497.23	92.88	1507.21	92.81	1512.2	92.84	1517.19	92.82
1527.17	92.52	1532.17	92.5	1537.16	92.62	1542.15	92.68	1547.14	93.51
1552.13	94.17	1557.12	94.29	1572.09	94.24	1587.06	94.26	1607.03	94.17
1612.02	94.09	1617.01	93.9	1622	93.82	1626.99	93.08	1631.98	92.78
1636.97	92.67	1646.95	92.78	1651.94	92.68	1656.94	92.68	1661.93	92.78
1666.92	92.82	1671.91	92.66	1676.9	92.65	1681.89	92.84	1686.88	92.92
1691.87	92.81	1696.86	93.06	1701.85	93.48	1706.84	93.7	1711.83	93.83
1721.82	93.54	1736.79	93.75	1741.78	93.77	1751.76	93.54	1756.75	93.53
1761.74	93.41	1771.72	93.07	1776.71	93	1781.71	92.79	1786.7	92.67
1796.68	92.61	1801.67	92.65	1811.65	93.1	1816.64	92.91	1821.63	92.96
1831.61	93.25	1836.6	93.27	1841.59	93.23	1851.58	92.91	1856.57	92.82
1866.55	92.76	1871.54	92.61	1876.53	92.78	1886.51	92.8	1891.5	92.66
1896.49	92.91	1906.47	92.92	1911.47	92.84	1916.46	92.82	1926.44	92.9
1936.42	92.87	1941.41	93.01	1946.4	93.04	1951.39	93.18	1956.38	93.42
1961.37	93.75	1971.36	93.86	2001.3	93.33	2021.26	93.22	2031.25	92.98
2036.24	92.92	2041.23	92.91	2056.2	93.18	2061.19	93.39	2066.18	93.41
2071.17	93.34	2076.16	93.33	2081.15	93.27	2086.14	93.26	2091.13	93.32
2101.12	93.29	2106.11	93.2	2131.06	93.38	2146.03	93.31	2151.02	93.38
2156.01	93.57	2180.97	93.38	2225.89	93.42	2235.87	93.49	2245.85	93.4
2250.84	93.04	2255.83	92.79	2260.82	93.04	2265.81	92.92	2275.79	92.91
2280.78	92.86	2285.78	92.92	2290.77	92.93	2295.76	92.86	2315.72	92.87
2320.71	92.92	2330.69	92.87	2335.68	92.72	2340.67	93.07	2345.66	93.1
2350.66	93.02	2355.65	93	2360.64	93.08	2375.61	93.16	2395.57	92.91
2400.56	92.9	2405.55	93.04	2410.55	93.11	2415.54	93.08	2420.53	92.98
2425.52	93.01	2430.51	93.19	2435.5	93.25	2445.48	93.24	2450.47	93.19
2455.46	93.08	2460.45	93.02	2465.44	93.1	2470.43	93.28	2480.42	93.3
2485.41	93.27	2490.4	93.18	2495.39	93.21	2500.38	93.31	2510.36	93.42
2525.33	93.18	2545.3	93.28	2550.29	93.35	2555.28	93.6	2560.27	93.56
2565.26	93.17	2570.25	93.24	2575.24	93.48	2580.23	93.45	2585.22	93.55
2590.21	93.48	2595.2	93.58	2600.2	93.6	2610.18	93.34	2615.17	93.4
2620.16	93.65								

NM105 OUTPUT REPORT.TXT

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 1367.47 .04 1407.4 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 1367.47 1407.4 243 243 244 .1 .3

Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 1355.61 96.1 F
 1407.4 2620.16 93.41 F

Blocked Obstructions num= 2
 Sta L Sta R Elev Sta L Sta R Elev
 0 605.29 92.54 1974.45 2620.16 93.86

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	86.74	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	wt. n-Val.		0.040
W.S. Elev (ft)	86.73	Reach Len. (ft)	243.00	243.00
244.00				
Crit w.s. (ft)	84.72	Flow Area (sq ft)		33.76
E.G. Slope (ft/ft)	0.000181	Area (sq ft)		33.76
Q Total (cfs)	25.00	Flow (cfs)		25.00
Top width (ft)	17.41	Top width (ft)		17.41
Vel Total (ft/s)	0.74	Avg. Vel. (ft/s)		0.74
Max chl Dpth (ft)	2.95	Hydr. Depth (ft)		1.94
Conv. Total (cfs)	1857.8	Conv. (cfs)		1857.8
Length wtd. (ft)	243.00	wetted Per. (ft)		18.73
Min Ch El (ft)	83.78	Shear (lb/sq ft)		0.02
Alpha	1.00	Stream Power (lb/ft s)	2620.16	0.00
0.00				
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)		0.80
C & E Loss (ft)	0.00	Cum SA (acres)		0.37

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	87.29	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	wt. n-Val.		0.040

NM105 OUTPUT REPORT.TXT				
W.S. Elev (ft)	87.28	Reach Len. (ft)	243.00	243.00
244.00 Crit W.S. (ft)	84.93	Flow Area (sq ft)		43.71
E.G. Slope (ft/ft)	0.000200	Area (sq ft)		43.71
Q Total (cfs)	38.00	Flow (cfs)		38.00
Top width (ft)	18.83	Top width (ft)		18.83
Vel Total (ft/s)	0.87	Avg. Vel. (ft/s)		0.87
Max Chl Dpth (ft)	3.50	Hydr. Depth (ft)		2.32
Conv. Total (cfs)	2687.9	Conv. (cfs)		2687.9
Length wtd. (ft)	243.00	wetted Per. (ft)		20.53
Min Ch El (ft)	83.78	Shear (lb/sq ft)		0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	2620.16	0.00
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)		1.01
C & E Loss (ft)	0.00	Cum SA (acres)		0.40

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	88.48	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-Val.		0.040
W.S. Elev (ft)	88.47	Reach Len. (ft)	243.00	243.00
244.00 Crit W.S. (ft)	85.34	Flow Area (sq ft)		67.90
E.G. Slope (ft/ft)	0.000214	Area (sq ft)		67.90
Q Total (cfs)	73.00	Flow (cfs)		73.00
Top width (ft)	21.91	Top width (ft)		21.91
Vel Total (ft/s)	1.08	Avg. Vel. (ft/s)		1.08
Max Chl Dpth (ft)	4.69	Hydr. Depth (ft)		3.10
Conv. Total (cfs)	4987.5	Conv. (cfs)		4987.5
Length wtd. (ft)	243.00	wetted Per. (ft)		24.42
Min Ch El (ft)	83.78	Shear (lb/sq ft)		0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	2620.16	0.00
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)		1.52

NM105 OUTPUT REPORT.TXT

Vel Total (ft/s)	1.17	Avg. Vel. (ft/s)		1.17
Max Chl Dpth (ft)	4.74	Hydr. Depth (ft)		3.13
Conv. Total (cfs)	5111.8	Conv. (cfs)		5111.8
Length Wtd. (ft)	243.00	Wetted Per. (ft)		24.60
Min Ch El (ft)	83.78	Shear (lb/sq ft)		0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	2620.16	0.00
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)		1.54
C & E Loss (ft)	0.00	Cum SA (acres)		0.46

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	89.73	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	wt. n-Val.		0.040
w.s. Elev (ft)	89.70	Reach Len. (ft)	243.00	243.00
244.00 Crit w.s. (ft)	85.82	Flow Area (sq ft)		96.79
E.G. Slope (ft/ft)	0.000245	Area (sq ft)		96.79
Q Total (cfs)	128.00	Flow (cfs)		128.00
Top width (ft)	24.78	Top width (ft)		24.78
Vel Total (ft/s)	1.32	Avg. Vel. (ft/s)		1.32
Max Chl Dpth (ft)	5.92	Hydr. Depth (ft)		3.91
Conv. Total (cfs)	8179.6	Conv. (cfs)		8179.6
Length Wtd. (ft)	243.00	Wetted Per. (ft)		28.21
Min Ch El (ft)	83.78	Shear (lb/sq ft)		0.05
Alpha 0.00	1.00	Stream Power (lb/ft s)	2620.16	0.00
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)		2.11
C & E Loss (ft)	0.00	Cum SA (acres)		0.51

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

NM105 OUTPUT REPORT.TXT

RIVER: N-NM-105
 REACH: NM-105

RS: 1218

INPUT

Description:

Station	Elevation	Data	num=	366							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	91.3	5	91.15	10	91.08	14.99	91.11	24.99	91.34		
29.99	91.55	34.98	91.56	39.98	91.44	44.98	91.52	54.97	91.54		
59.97	91.36	69.97	91.08	74.96	91.11	79.96	91.22	84.96	91.22		
89.96	91.12	94.96	91.22	99.95	91.24	104.95	91.14	109.95	91.14		
114.95	91.3	124.94	91.34	129.94	91.43	134.94	91.21	139.93	91.23		
154.93	91.75	159.92	91.78	164.92	91.63	169.92	91.8	179.92	91.7		
184.91	91.69	189.91	91.76	194.91	91.72	199.91	91.76	209.9	91.75		
214.9	91.87	224.89	91.87	229.89	91.74	239.89	91.25	244.88	91.17		
254.88	91.18	259.88	91.23	264.88	91.44	269.87	91.54	274.87	91.4		
284.87	91.47	289.86	91.44	299.86	91.2	319.85	91.27	324.85	91.2		
329.84	91.2	334.84	91.25	339.84	91.19	354.83	91.15	359.83	91.19		
374.82	91.5	384.82	91.61	394.81	91.43	399.81	91.39	404.81	91.27		
409.81	91.08	424.8	90.93	429.8	91	434.79	91.29	439.79	91.33		
444.79	91.55	449.79	91.68	454.79	91.47	464.78	91.46	469.78	91.41		
479.77	91.6	489.77	91.56	494.77	91.66	499.76	91.46	504.76	91.45		
509.76	91.37	514.76	91.48	519.75	91.69	524.75	91.66	534.75	91.18		
539.75	91.27	544.74	91.14	549.74	91.11	554.74	91.3	559.74	91.31		
564.73	91.24	569.73	91.25	594.72	91.12	604.71	91.37	614.71	91.47		
619.71	91.39	624.71	91.5	639.7	91.49	644.7	91.8	649.69	92.16		
654.69	92.27	664.69	92.59	669.68	92.64	679.68	92.5	684.68	92.48		
694.67	92.72	699.67	92.79	704.67	92.81	719.66	92.68	729.66	92.87		
739.65	92.82	754.64	92.92	759.64	92.92	769.64	92.84	779.63	92.89		
789.63	92.73	799.62	92.69	804.62	92.74	809.62	92.69	819.61	92.69		
829.61	92.56	839.6	92.54	849.6	92.63	854.6	93.14	859.59	93.04		
864.59	92.16	869.59	92.43	874.59	91.73	879.59	91.68	884.58	91.25		
889.58	91.16	894.58	91.14	904.57	91.25	919.57	91.11	929.56	91.07		
934.56	90.97	944.56	90.96	949.55	90.88	954.55	90.85	964.55	90.86		
974.54	91.24	979.54	91.3	994.53	91.25	1004.53	91.48	1009.52	91.54		
1019.52	91.44	1024.52	91.58	1029.52	91.64	1034.51	91.51	1039.51	91.46		
1044.51	91.62	1049.51	91.72	1059.5	91.38	1069.5	91.41	1074.49	91.52		
1079.49	91.71	1084.49	91.82	1099.48	91.54	1104.48	91.68	1109.48	91.87		
1119.47	91.85	1134.47	91.63	1144.46	91.77	1169.45	91.82	1179.44	91.61		
1204.43	91.55	1209.43	91.59	1214.43	91.69	1224.42	91.72	1229.42	91.87		
1234.42	91.75	1239.42	91.8	1249.41	91.76	1254.41	91.58	1259.41	91.69		
1264.4	91.63	1279.4	91.65	1284.39	91.74	1289.39	91.72	1294.39	91.77		
1299.39	91.92	1304.38	91.79	1314.38	91.75	1319.38	91.87	1324.38	92.11		
1329.37	92.13	1334.37	92.3	1339.37	92.73	1349.36	94.22	1354.36	94.32		
1359.36	94.79	1364.36	95.2	1369.35	95.75	1374.35	95.82	1377.2	95.95		
1379.35	96.05	1384.35	96.01	1389.34	94.82	1394.34	94.38	1399.34	90.59		
1404.34	86.09	1409.34	83.84	1414.33	83.49	1419.33	83.77	1424.33	88.07		
1429.33	92.12	1434.32	93.15	1437.21	93.13	1439.32	93.13	1449.32	92.41		
1454.31	92.32	1464.31	92.28	1474.3	92.4	1484.3	92.37	1494.29	92.24		
1499.29	92.25	1504.29	92.15	1509.29	91.88	1514.29	91.67	1519.28	91.63		
1524.28	91.66	1529.28	91.55	1534.28	91.5	1539.27	91.54	1544.27	91.44		
1549.27	91.46	1559.26	91.7	1579.25	91.74	1584.25	91.7	1594.25	91.7		
1604.24	91.5	1614.24	91.54	1619.24	91.7	1634.23	91.85	1639.23	91.74		
1644.22	91.44	1649.22	91.24	1659.22	91.27	1664.21	91.37	1669.21	91.59		
1674.21	91.61	1679.21	91.97	1689.2	91.62	1694.2	91.55	1699.2	91.72		
1704.2	91.36	1709.19	91.29	1719.19	91.33	1729.18	91.19	1734.18	91.28		
1739.18	91.28	1744.18	91.42	1749.17	91.49	1759.17	91.47	1804.15	91.82		
1809.15	91.9	1814.14	92.07	1824.14	92.19	1839.13	92.52	1844.13	92.55		
1854.12	92.74	1874.11	92.76	1879.11	92.82	1899.1	92.68	1909.1	93.05		
1929.09	92.59	1939.08	93	1949.08	92.21	1954.08	92.28	1959.07	92.27		
1964.07	92.09	1974.07	91.81	1984.06	92.29	1989.06	91.87	1994.06	91.6		

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1999.06	91.76	2009.05	92.99	2014.05	93.37	2019.05	93.32	2024.04	93.03
2029.04	92.85	2034.04	93.04	2039.04	93	2049.03	92.62	2054.03	92.53
2064.02	92.49	2084.02	92.52	2094.01	92.68	2099.01	92.62	2104.01	92.62
2109	92.52	2114	92.48	2119	92.59	2124	92.95	2128.99	93.23
2133.99	93.26	2148.98	92.69	2158.98	92.67	2163.98	92.87	2168.97	92.98
2173.97	93.17	2178.97	93.2	2183.97	93.33	2188.97	93.13	2193.96	92.8
2198.96	92.73	2203.96	92.81	2208.96	92.82	2213.95	93.01	2218.95	93.1
2228.95	92.69	2233.94	92.63	2238.94	92.45	2243.94	92.36	2278.92	92.74
2308.91	92.64	2313.91	92.75	2323.9	93.46	2333.9	93.63	2338.89	93.64
2343.89	93.57	2348.89	93.27	2353.89	93.29	2358.89	93.26	2363.88	93
2368.88	92.91	2378.88	92.85	2383.87	92.97	2388.87	93.04	2393.87	93.01
2398.87	92.9	2403.86	92.74	2408.86	92.83	2413.86	92.81	2418.86	92.93
2423.85	93.18	2433.85	93.56	2438.85	93.61	2443.85	93.49	2448.84	93
2463.84	93.12	2468.83	93.04	2473.83	93.15	2478.83	93.17	2488.82	92.98
2493.82	92.82	2498.82	92.82	2503.82	92.75	2508.81	92.91	2513.81	92.94
2518.81	93.1	2523.81	93.1	2528.8	92.95	2538.8	92.87	2543.8	92.89
2553.79	92.82	2558.79	92.73	2583.78	92.62	2593.77	92.71	2598.77	92.83
2618.76	92.79	2623.76	92.91	2633.75	93.06	2638.75	93.32	2643.75	93.4
2648.75	93.37	2653.75	93.12	2658.74	93.03	2663.74	93.25	2668.74	93.38
2688.73	93.36								

Manning's n Values num= 3

Sta	n	Val	Sta	n	Val	Sta	n	Val
0		.06	1394.34		.04	1434.32		.06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

1394.34	1434.32	620	620	621	.1	.3
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Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	1380.06	95.83	F
1434.32	2688.73	93.15	F

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
0	745.37	92.84	1913.66	2688.73	93.01

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	86.71	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-Val.		0.040
w.s. Elev (ft)	86.70	Reach Len. (ft)	620.00	620.00
621.00				
Crit w.s. (ft)	84.22	Flow Area (sq ft)		44.42
E.G. Slope (ft/ft)	0.000084	Area (sq ft)		44.42
Q Total (cfs)	25.00	Flow (cfs)		25.00
Top width (ft)	19.08	Top width (ft)		19.08
Vel Total (ft/s)	0.56	Avg. Vel. (ft/s)		0.56
Max Chl Dpth (ft)	3.21	Hydr. Depth (ft)		2.33
Conv. Total (cfs)	2727.1	Conv. (cfs)		2727.1
Length wtd. (ft)	620.00	wetted Per. (ft)		20.91
Min ch El (ft)	83.49	Shear (lb/sq ft)		0.01
Alpha	1.00	Stream Power (lb/ft s)	2688.73	0.00

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0.00			
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)	0.59
C & E Loss (ft)	0.00	Cum SA (acres)	0.27

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	87.25	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	wt. n-Val.		0.040
W.S. Elev (ft)	87.25	Reach Len. (ft)	620.00	620.00
621.00				
Crit w.s. (ft)	84.41	Flow Area (sq ft)		55.14
E.G. Slope (ft/ft)	0.000104	Area (sq ft)		55.14
Q Total (cfs)	38.00	Flow (cfs)		38.00
Top width (ft)	20.32	Top width (ft)		20.32
Vel Total (ft/s)	0.69	Avg. Vel. (ft/s)		0.69
Max Chl Dpth (ft)	3.76	Hydr. Depth (ft)		2.71
Conv. Total (cfs)	3717.7	Conv. (cfs)		3717.7
Length wtd. (ft)	620.00	wetted Per. (ft)		22.56
Min Ch El (ft)	83.49	Shear (lb/sq ft)		0.02
Alpha	1.00	Stream Power (lb/ft s)	2688.73	0.00
0.00				
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)		0.74
C & E Loss (ft)	0.00	Cum SA (acres)		0.29

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	88.44	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	wt. n-Val.		0.040
W.S. Elev (ft)	88.43	Reach Len. (ft)	620.00	620.00
621.00				
Crit w.s. (ft)	84.79	Flow Area (sq ft)		80.75
E.G. Slope (ft/ft)	0.000132	Area (sq ft)		80.75

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Q Total (cfs)	73.00	Flow (cfs)	73.00
Top width (ft)	23.03	Top width (ft)	23.03
Vel Total (ft/s)	0.90	Avg. Vel. (ft/s)	0.90
Max Chl Dpth (ft)	4.94	Hydr. Depth (ft)	3.51
Conv. Total (cfs)	6360.2	Conv. (cfs)	6360.2
Length wtd. (ft)	620.00	wetted Per. (ft)	26.15
Min Ch El (ft)	83.49	Shear (lb/sq ft)	0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	2688.73
Frctn Loss (ft)	0.15	Cum Volume (acre-ft)	1.10
C & E Loss (ft)	0.00	Cum SA (acres)	0.33

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	87.93	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.040
W.S. Elev (ft)	87.91	Reach Len. (ft)	620.00	620.00
621.00 Crit W.S. (ft)	84.67	Flow Area (sq ft)		69.18
E.G. Slope (ft/ft)	0.000146	Area (sq ft)		69.18
Q Total (cfs)	62.00	Flow (cfs)		62.00
Top width (ft)	21.83	Top width (ft)		21.83
Vel Total (ft/s)	0.90	Avg. Vel. (ft/s)		0.90
Max Chl Dpth (ft)	4.42	Hydr. Depth (ft)		3.17
Conv. Total (cfs)	5124.4	Conv. (cfs)		5124.4
Length wtd. (ft)	620.00	wetted Per. (ft)		24.57
Min Ch El (ft)	83.49	Shear (lb/sq ft)		0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	2688.73	0.00
Frctn Loss (ft)	0.15	Cum Volume (acre-ft)		0.94
C & E Loss (ft)	0.00	Cum SA (acres)		0.31

Note: Multiple critical depths were found at this location. The critical depth
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with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	88.49	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-Val.		0.040
W.S. Elev (ft)	88.48	Reach Len. (ft)	620.00	620.00
621.00 Crit w.s. (ft)	84.86	Flow Area (sq ft)		81.87
E.G. Slope (ft/ft)	0.000156	Area (sq ft)		81.87
Q Total (cfs)	81.00	Flow (cfs)		81.00
Top width (ft)	23.15	Top width (ft)		23.15
Vel Total (ft/s)	0.99	Avg. Vel. (ft/s)		0.99
Max chl Dpth (ft)	4.99	Hydr. Depth (ft)		3.54
Conv. Total (cfs)	6483.5	Conv. (cfs)		6483.5
Length wtd. (ft)	620.00	wetted Per. (ft)		26.30
Min Ch El (ft)	83.49	Shear (lb/sq ft)		0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	2688.73	0.00
Frctn Loss (ft)	0.16	Cum Volume (acre-ft)		1.12
C & E Loss (ft)	0.00	Cum SA (acres)		0.33

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	89.68	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-Val.		0.040
W.S. Elev (ft)	89.66	Reach Len. (ft)	620.00	620.00
621.00 Crit w.s. (ft)	85.26	Flow Area (sq ft)		110.83
E.G. Slope (ft/ft)	0.000169	Area (sq ft)		110.83
Q Total (cfs)	128.00	Flow (cfs)		128.00
Top width (ft)	25.92	Top width (ft)		25.92
Vel Total (ft/s)	1.15	Avg. Vel. (ft/s)		1.15
Max chl Dpth (ft)	6.17	Hydr. Depth (ft)		4.28
Conv. Total (cfs)	9851.4	Conv. (cfs)		9851.4

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Length Wtd. (ft)	620.00	Wetted Per. (ft)	29.94
Min Ch El (ft)	83.49	Shear (lb/sq ft)	0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	2688.73
Frctn Loss (ft)	0.16	Cum Volume (acre-ft)	1.53
C & E Loss (ft)	0.00	Cum SA (acres)	0.37

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-105
 REACH: NM-105 RS: 598

INPUT

Description:

Station	Elevation	Data	num=	370							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	92.21	14.98	92.07	19.98	92.06	24.97	91.97	29.96	91.61		
34.96	91.74	39.95	91.98	49.94	92.05	59.93	91.61	64.92	91.71		
74.91	92.09	84.9	92.13	94.88	92.04	99.88	92.05	104.87	92.18		
109.87	92.18	119.85	92.01	134.84	92.07	149.82	92	159.81	91.88		
164.8	91.89	169.79	91.85	174.79	91.89	179.78	91.6	189.77	91.47		
194.76	91.49	199.76	91.62	209.74	91.34	214.74	91.34	229.72	91.51		
254.69	91.5	259.68	91.45	264.68	91.5	274.66	91.35	299.63	91.5		
319.61	91.4	324.6	91.43	329.6	91.36	339.59	91.34	344.58	91.24		
349.57	91.3	359.56	91.22	364.56	91.23	369.55	91.3	374.54	91.43		
394.52	91.12	404.51	91.23	409.5	91.2	414.49	91.31	419.49	91.33		
424.48	91.27	429.48	91.3	449.45	91.15	464.43	91.19	479.41	91		
494.4	91.05	499.39	91.13	504.38	91.16	524.36	91.05	534.35	91.1		
539.34	91.06	549.33	89.97	554.32	89.87	559.32	89.92	564.31	90.17		
569.31	90.67	574.3	90.73	579.29	90.74	584.29	90.88	589.28	91.12		
594.27	91.31	609.26	91.31	614.25	91.23	619.24	91.21	624.24	91.34		
629.23	91.27	634.23	91.3	639.22	91.21	644.21	91.21	654.2	91.11		
659.2	90.94	664.19	90.94	674.18	90.62	684.17	90.59	689.16	90.33		
694.15	89.98	699.15	90.09	704.14	90.13	709.13	90.08	714.13	89.94		
724.12	90.65	729.11	90.74	734.1	90.71	744.09	90.73	754.08	90.68		
759.07	90.73	769.06	90.65	779.05	90.8	784.04	90.92	794.03	91		
804.02	91.19	814.01	91.12	819	90.95	824	90.71	828.99	90.58		
833.98	90.58	848.96	90.43	853.96	90.32	868.94	90.29	873.93	90.21		
878.93	90.33	883.92	90.52	893.91	90.55	898.9	90.63	908.89	90.63		
928.87	90.33	933.86	90.34	938.86	90.26	943.85	90.29	948.84	90.4		
953.84	90.29	958.83	90.42	968.82	90.46	973.81	90.32	993.79	90.35		
998.78	90.25	1008.77	90.23	1013.76	90.37	1018.76	90.19	1023.75	90.17		
1028.75	90.03	1038.73	90.06	1043.73	90.13	1048.72	90.06	1053.72	90.58		
1058.71	90.63	1063.7	90.61	1068.7	90.43	1073.69	90.36	1078.68	90.47		
1083.68	90.45	1088.67	90.56	1098.66	90.96	1103.65	90.99	1108.65	91.18		
1113.64	91.22	1143.6	91.17	1148.6	91.22	1158.59	90.98	1168.57	91.16		
1173.57	90.83	1178.56	90.38	1183.56	90.08	1188.55	90.01	1193.54	90.19		
1198.54	90.6	1203.53	90.83	1208.53	90.85	1218.51	90.55	1223.51	90.57		
1228.5	90.64	1233.49	90.65	1243.48	90.59	1283.43	90.71	1288.43	90.69		
1293.42	90.77	1298.42	90.78	1308.4	90.92	1323.38	90.95	1328.38	91.14		
1333.37	91.24	1338.37	91.23	1343.36	91.37	1348.35	92	1353.35	92.89		
1358.34	93.35	1363.34	93.49	1368.33	94.4	1373.32	95.58	1378.32	95.76		

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1383.31	95.76	1388.31	95.9	1392.52	95.83	1393.3	95.81	1398.29	94.75
1403.29	94.46	1408.28	90.58	1413.27	86.38	1418.27	84.29	1423.26	84.21
1428.26	83.4	1433.25	87.31	1438.24	91.96	1443.24	92.77	1448.23	92.78
1452.53	92.84	1453.23	92.85	1458.22	92.56	1463.21	92.03	1468.21	92
1473.2	91.6	1478.19	91.51	1483.19	91.76	1488.18	91.77	1493.18	91.71
1498.17	91.92	1508.16	92.03	1513.15	92.21	1518.15	92.01	1528.13	91.53
1533.13	91.47	1538.12	91.52	1543.12	91.51	1548.11	91.76	1553.1	91.86
1558.1	91.74	1563.09	91.57	1573.08	91.94	1578.07	91.76	1583.07	91.44
1588.06	91.26	1593.05	91.21	1603.04	91	1613.03	91.17	1618.02	91.11
1623.02	91.11	1633.01	91.34	1638	91.37	1652.98	91.27	1662.97	91.32
1667.96	91.6	1672.96	91.98	1677.95	92.22	1682.94	92.11	1687.94	91.87
1692.93	91.84	1702.92	91.92	1707.91	91.88	1712.91	91.77	1717.9	91.76
1722.89	91.86	1737.88	91.77	1747.86	91.94	1752.86	92.13	1757.85	92.11
1762.85	91.86	1767.84	91.83	1772.83	91.67	1782.82	91.59	1792.81	91.65
1797.8	91.72	1802.8	91.6	1812.78	91.57	1817.78	91.51	1827.77	91.67
1837.75	91.71	1842.75	91.59	1847.74	91.72	1862.72	91.76	1867.72	91.88
1872.71	91.83	1877.71	91.66	1887.69	91.57	1897.68	91.6	1902.67	91.71
1907.67	91.68	1912.66	91.59	1917.66	91.61	1927.64	91.75	1937.63	91.66
1947.62	91.78	1957.61	91.78	1962.6	91.9	1967.59	91.97	1972.59	92.45
1977.58	92.36	1982.58	92.16	1992.56	92.4	2002.55	92.51	2007.55	92.47
2012.54	92.57	2017.53	93.2	2022.53	93.6	2027.52	93.23	2032.52	92.5
2037.51	91.99	2042.5	91.83	2047.5	91.81	2057.48	91.68	2072.47	91.64
2077.46	91.66	2087.45	91.76	2097.44	91.71	2102.43	91.75	2117.41	91.58
2127.4	91.76	2142.38	91.76	2152.37	91.86	2157.36	91.86	2162.36	91.91
2177.34	91.79	2182.33	91.88	2187.33	92.06	2197.31	92.03	2202.31	92.09
2207.3	92.02	2212.29	91.86	2217.29	91.9	2227.28	91.86	2232.27	91.97
2237.26	91.99	2247.25	92.16	2252.25	92.16	2257.24	92.29	2267.23	92.36
2272.22	92.26	2282.21	92.28	2287.2	92.13	2292.2	92.17	2297.19	92.32
2302.18	92.34	2312.17	92.45	2317.17	92.38	2332.15	92.36	2337.14	92.43
2342.14	92.57	2347.13	92.62	2357.12	92.82	2367.1	92.71	2377.09	92.91
2382.09	92.89	2387.08	92.69	2392.07	92.37	2397.07	92.22	2407.06	92.29
2422.04	92.47	2437.02	92.8	2447.01	92.9	2452	92.85	2456.99	92.67
2461.99	92.63	2466.98	92.67	2481.96	92.98	2486.96	92.98	2491.95	92.9
2496.95	92.73	2501.94	92.84	2506.93	92.85	2516.92	92.52	2521.91	92.31
2531.9	92.22	2536.9	92.07	2541.89	92.01	2561.87	92.16	2566.86	92.01
2576.85	91.99	2581.84	91.92	2586.83	91.99	2596.82	91.96	2601.82	92
2606.81	91.93	2611.8	91.99	2616.8	91.98	2621.79	92.02	2626.79	91.96
2631.78	92.05	2636.77	92.05	2641.77	91.95	2646.76	91.93	2651.76	92.08

Manning's n Values num= 3
 Sta n Val Sta n Val
 0 .06 1403.29 .04 1438.24 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 1403.29 1438.24 600 598 595 .1 .3

Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 1388.82 95.76 F
 1449.44 2651.76 92.77 F

Blocked obstructions num= 2
 Sta L Sta R Elev Sta L Sta R Elev
 0 803.52 91.15 2027.31 2651.76 92.7

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	86.59	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-Val.		0.040
w.s. Elev (ft)	86.57	Reach Len. (ft)		
Crit w.s. (ft)	84.77	Flow Area (sq ft)		37.97

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E.G. Slope (ft/ft)	0.000400	Area (sq ft)	37.97
Q Total (cfs)	42.00	Flow (cfs)	42.00
Top width (ft)	19.26	Top width (ft)	19.26
Vel Total (ft/s)	1.11	Avg. Vel. (ft/s)	1.11
Max Chl Dpth (ft)	3.17	Hydr. Depth (ft)	1.97
Conv. Total (cfs)	2099.7	Conv. (cfs)	2099.7
Length wtd. (ft)		wetted Per. (ft)	20.90
Min Ch El (ft)	83.40	Shear (lb/sq ft)	0.05
Alpha 0.00	1.00	Stream Power (lb/ft s)	2651.76
Frctn Loss (ft)		Cum Volume (acre-ft)	0.00
C & E Loss (ft)		Cum SA (acres)	

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	87.12	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-Val.		0.040
w.s. Elev (ft)	87.10	Reach Len. (ft)		
Crit w.s. (ft)	84.97	Flow Area (sq ft)		48.51
E.G. Slope (ft/ft)	0.000400	Area (sq ft)		48.51
Q Total (cfs)	60.00	Flow (cfs)		60.00
Top width (ft)	20.56	Top width (ft)		20.56
Vel Total (ft/s)	1.24	Avg. Vel. (ft/s)		1.24
Max Chl Dpth (ft)	3.70	Hydr. Depth (ft)		2.36
Conv. Total (cfs)	2999.7	Conv. (cfs)		2999.7
Length wtd. (ft)		wetted Per. (ft)		22.58
Min Ch El (ft)	83.40	Shear (lb/sq ft)		0.05
Alpha 0.00	1.00	Stream Power (lb/ft s)	2651.76	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)		
C & E Loss (ft)		Cum SA (acres)		

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Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

		Element	Left OB	Channel
E.G. Elev (ft)	88.29			
Right OB				
Vel Head (ft)	0.03	wt. n-Val.		0.040
W.S. Elev (ft)	88.26	Reach Len. (ft)		
Crit w.s. (ft)	85.41	Flow Area (sq ft)		73.93
E.G. Slope (ft/ft)	0.000401	Area (sq ft)		73.93
Q Total (cfs)	110.00	Flow (cfs)		110.00
Top width (ft)	23.23	Top width (ft)		23.23
Vel Total (ft/s)	1.49	Avg. Vel. (ft/s)		1.49
Max chl Dpth (ft)	4.86	Hydr. Depth (ft)		3.18
Conv. Total (cfs)	5495.0	Conv. (cfs)		5495.0
Length wtd. (ft)		wetted Per. (ft)		26.12
Min Ch El (ft)	83.40	Shear (lb/sq ft)		0.07
Alpha	1.00	Stream Power (lb/ft s)	2651.76	0.00
0.00		Cum Volume (acre-ft)		
Frctn Loss (ft)		Cum SA (acres)		
C & E Loss (ft)				

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

		Element	Left OB	Channel
E.G. Elev (ft)	87.77			
Right OB				
Vel Head (ft)	0.03	wt. n-Val.		0.040
W.S. Elev (ft)	87.74	Reach Len. (ft)		
Crit w.s. (ft)	85.21	Flow Area (sq ft)		62.24
E.G. Slope (ft/ft)	0.000400	Area (sq ft)		62.24
Q Total (cfs)	86.00	Flow (cfs)		86.00
Top width (ft)	22.06	Top width (ft)		22.06
Vel Total (ft/s)	1.38	Avg. Vel. (ft/s)		1.38

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Max Chl Dpth (ft)	4.34	Hydr. Depth (ft)		2.82
Conv. Total (cfs)	4297.7	Conv. (cfs)		4297.7
Length Wtd. (ft)		Wetted Per. (ft)		24.56
Min Ch El (ft)	83.40	Shear (lb/sq ft)		0.06
Alpha 0.00	1.00	Stream Power (lb/ft s)	2651.76	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)		
C & E Loss (ft)		Cum SA (acres)		

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	88.33	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	wt. n-Val.		0.040
W.S. Elev (ft)	88.30	Reach Len. (ft)		
Crit W.S. (ft)	85.42	Flow Area (sq ft)		74.87
E.G. Slope (ft/ft)	0.000401	Area (sq ft)		74.87
Q Total (cfs)	112.00	Flow (cfs)		112.00
Top width (ft)	23.32	Top width (ft)		23.32
Vel Total (ft/s)	1.50	Avg. Vel. (ft/s)		1.50
Max Chl Dpth (ft)	4.90	Hydr. Depth (ft)		3.21
Conv. Total (cfs)	5594.5	Conv. (cfs)		5594.5
Length Wtd. (ft)		Wetted Per. (ft)		26.24
Min Ch El (ft)	83.40	Shear (lb/sq ft)		0.07
Alpha 0.00	1.00	Stream Power (lb/ft s)	2651.76	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)		
C & E Loss (ft)		Cum SA (acres)		

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	89.51	Element	Left OB	Channel
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Right OB				
Vel Head (ft)	0.05	wt. n-val.		0.040
w.S. Elev (ft)	89.47	Reach Len. (ft)		
Crit w.S. (ft)	85.88	Flow Area (sq ft)		103.65
E.G. slope (ft/ft)	0.000400	Area (sq ft)		103.65
Q Total (cfs)	177.00	Flow (cfs)		177.00
Top width (ft)	25.96	Top width (ft)		25.96
Vel Total (ft/s)	1.71	Avg. Vel. (ft/s)		1.71
Max chl Dpth (ft)	6.07	Hydr. Depth (ft)		3.99
Conv. Total (cfs)	8845.0	Conv. (cfs)		8845.0
Length wtd. (ft)		wetted Per. (ft)		29.77
Min ch El (ft)	83.40	Shear (lb/sq ft)		0.09
Alpha	1.00	Stream Power (lb/ft s)	2651.76	0.00
0.00		Cum Volume (acre-ft)		
Frctn Loss (ft)		Cum SA (acres)		
C & E Loss (ft)				

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

SUMMARY OF MANNING'S N VALUES

River:N-NM-105

Reach	River Sta.	n1	n2	n3
NM-105	13424	.06	.04	.06
NM-105	12607	.06	.04	.06
NM-105	11996	.06	.04	.06
NM-105	11711	.06	.04	.06
NM-105	10512	.06	.04	.06
NM-105	9303	.06	.04	.06
NM-105	9131	.06	.04	.06
NM-105	7830	.06	.04	.06
NM-105	6599	.06	.04	.06
NM-105	5316	.06	.04	.06
NM-105	5250	.06	.04	.06
NM-105	4029	.06	.04	.06
NM-105	3868	.06	.04	.06
NM-105	2605	.06	.04	.06
NM-105	1461	.06	.04	.06
NM-105	1218	.06	.04	.06
NM-105	598	.06	.04	.06

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SUMMARY OF REACH LENGTHS

River: N-NM-105

Reach	River Sta.	Left	Channel	Right
NM-105	13424	818	817	815
NM-105	12607	608	611	615
NM-105	11996	285	285	285
NM-105	11711	1200	1199	1197
NM-105	10512	1205	1209	1213
NM-105	9303	173	173	173
NM-105	9131	1302	1300	1298
NM-105	7830	1231	1232	1232
NM-105	6599	1284	1283	1282
NM-105	5316	66	66	66
NM-105	5250	1221	1221	1221
NM-105	4029	160	160	160
NM-105	3868	1263	1263	1264
NM-105	2605	1143	1144	1145
NM-105	1461	243	243	244
NM-105	1218	620	620	621
NM-105	598	600	598	595

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS

River: N-NM-105

Reach	River Sta.	Contr.	Expan.
NM-105	13424	.1	.3
NM-105	12607	.1	.3
NM-105	11996	.1	.3
NM-105	11711	.1	.3
NM-105	10512	.1	.3
NM-105	9303	.1	.3
NM-105	9131	.1	.3
NM-105	7830	.1	.3
NM-105	6599	.1	.3
NM-105	5316	.1	.3
NM-105	5250	.1	.3
NM-105	4029	.1	.3
NM-105	3868	.1	.3
NM-105	2605	.1	.3
NM-105	1461	.1	.3
NM-105	1218	.1	.3
NM-105	598	.1	.3

Profile Output Table - Table 1

Reach	River Sta	Profile	Q Total	w.S. Elev	E.G. Elev	Min Ch El
Vel Chnl	Flow Area	Top Width	Volume	(ft)	(ft)	(ft)
(ft/s)	(sq ft)	(ft)	(acre-ft)			
NM-105	598	EX 10Y	42.00	86.57	86.59	83.40

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1.11	37.97	19.26				
NM-105	598	EX 25Y	60.00	87.10	87.12	83.40
1.24	48.51	20.56				
NM-105	598	EX 100Y	110.00	88.26	88.29	83.40
1.49	73.93	23.23				
NM-105	598	ULT 10Y	86.00	87.74	87.77	83.40
1.38	62.24	22.06				
NM-105	598	ULT 25Y	112.00	88.30	88.33	83.40
1.50	74.87	23.32				
NM-105	598	ULT 100Y	177.00	89.47	89.51	83.40
1.71	103.65	25.96				
NM-105	1218	EX 10Y	25.00	86.70	86.71	83.49
0.56	44.42	19.08	0.59			
NM-105	1218	EX 25Y	38.00	87.25	87.25	83.49
0.69	55.14	20.32	0.74			
NM-105	1218	EX 100Y	73.00	88.43	88.44	83.49
0.90	80.75	23.03	1.10			
NM-105	1218	ULT 10Y	62.00	87.91	87.93	83.49
0.90	69.18	21.83	0.94			
NM-105	1218	ULT 25Y	81.00	88.48	88.49	83.49
0.99	81.87	23.15	1.12			
NM-105	1218	ULT 100Y	128.00	89.66	89.68	83.49
1.15	110.83	25.92	1.53			
NM-105	1461	EX 10Y	25.00	86.73	86.74	83.78
0.74	33.76	17.41	0.80			
NM-105	1461	EX 25Y	38.00	87.28	87.29	83.78
0.87	43.71	18.83	1.01			
NM-105	1461	EX 100Y	73.00	88.47	88.48	83.78
1.08	67.90	21.91	1.52			
NM-105	1461	ULT 10Y	62.00	87.95	87.97	83.78
1.09	57.05	20.59	1.29			
NM-105	1461	ULT 25Y	81.00	88.52	88.54	83.78
1.17	69.11	22.05	1.54			
NM-105	1461	ULT 100Y	128.00	89.70	89.73	83.78
1.32	96.79	24.78	2.11			
NM-105	2605	EX 10Y	25.00	86.95	86.96	83.89
0.81	30.91	15.13	1.65			
NM-105	2605	EX 25Y	38.00	87.52	87.54	83.89
0.95	39.99	16.50	2.11			
NM-105	2605	EX 100Y	73.00	88.73	88.75	83.89
1.19	61.26	18.72	3.21			
NM-105	2605	ULT 10Y	62.00	88.26	88.28	83.89
1.18	52.62	17.85	2.73			
NM-105	2605	ULT 25Y	81.00	88.83	88.86	83.89
1.28	63.07	18.90	3.27			
NM-105	2605	ULT 100Y	128.00	90.01	90.04	83.89
1.48	86.69	21.07	4.51			
NM-105	3868	EX 10Y	25.00	88.45	88.74	87.45
4.33	5.77	9.87	2.19			
NM-105	3868	EX 25Y	38.00	88.65	89.01	87.45
4.77	7.96	11.29	2.81			
NM-105	3868	EX 100Y	73.00	89.54	89.74	87.45
3.62	20.17	15.70	4.39			
NM-105	3868	ULT 10Y	62.00	89.19	89.46	87.45
4.16	14.90	14.38	3.71			

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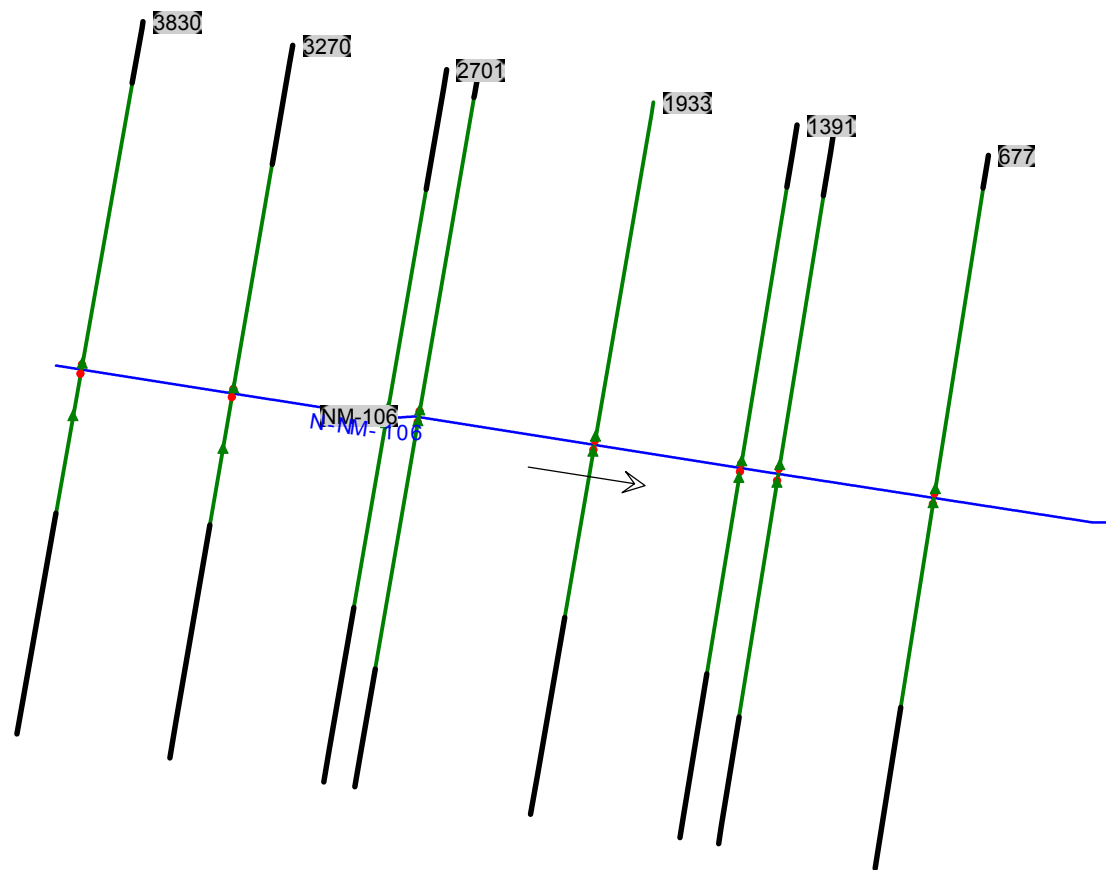
NM-105	3868	ULT 25Y	81.00	89.72	89.91	87.45
3.52	22.99	16.14	4.52			
NM-105	3868	ULT 100Y	128.00	90.79	90.94	87.45
3.06	41.83	18.80	6.38			
NM-105	4029	EX 10Y	25.00	90.95	91.09	89.48
3.02	8.27	9.59	2.21			
NM-105	4029	EX 25Y	38.00	91.22	91.40	89.48
3.46	10.98	10.78	2.84			
NM-105	4029	EX 100Y	73.00	91.34	91.88	89.48
5.90	12.38	11.35	4.45			
NM-105	4029	ULT 10Y	62.00	91.39	91.75	89.48
4.81	12.90	11.55	3.76			
NM-105	4029	ULT 25Y	81.00	91.43	92.00	89.48
6.07	13.34	11.72	4.59			
NM-105	4029	ULT 100Y	128.00	91.87	92.58	89.48
6.74	19.00	13.54	6.49			
NM-105	5250	EX 10Y	19.00	91.60	91.61	88.43
0.56	33.66	16.34	2.80			
NM-105	5250	EX 25Y	29.00	92.05	92.06	88.43
0.71	41.08	17.13	3.57			
NM-105	5250	EX 100Y	54.00	92.91	92.92	88.43
0.96	56.48	18.66	5.42			
NM-105	5250	ULT 10Y	48.00	92.67	92.68	88.43
0.92	52.03	18.23	4.67			
NM-105	5250	ULT 25Y	63.00	93.10	93.12	88.43
1.05	60.14	19.01	5.62			
NM-105	5250	ULT 100Y	98.00	93.91	93.94	88.43
1.29	76.15	20.46	7.82			
NM-105	5316	EX 10Y	19.00	91.61	91.62	89.01
0.56	33.94	17.74	2.85			
NM-105	5316	EX 25Y	29.00	92.06	92.06	89.01
0.69	42.05	18.66	3.64			
NM-105	5316	EX 100Y	54.00	92.92	92.93	89.01
0.92	58.95	20.44	5.50			
NM-105	5316	ULT 10Y	48.00	92.68	92.69	89.01
0.89	54.07	19.94	4.75			
NM-105	5316	ULT 25Y	63.00	93.12	93.13	89.01
1.00	63.00	20.85	5.71			
NM-105	5316	ULT 100Y	98.00	93.93	93.96	89.01
1.21	80.70	22.53	7.94			
NM-105	6599	EX 10Y	19.00	91.71	91.72	88.34
0.46	41.10	18.24	3.96			
NM-105	6599	EX 25Y	29.00	92.19	92.19	88.34
0.58	50.06	19.42	4.99			
NM-105	6599	EX 100Y	54.00	93.10	93.11	88.34
0.78	68.87	197.88	7.78			
NM-105	6599	ULT 10Y	48.00	92.86	92.87	88.34
0.75	63.67	52.29	6.50			
NM-105	6599	ULT 25Y	63.00	93.32	93.33	88.34
0.85	73.72	294.74	8.84			
NM-105	6599	ULT 100Y	98.00	94.19	94.20	88.34
1.04	94.02	557.66	16.88			
NM-105	7830	EX 10Y	19.00	91.83	91.83	88.82

NM105 OUTPUT REPORT.TXT

0.66	28.85	16.87	4.94			
NM-105	7830	EX 25Y	29.00	92.34	92.34	88.82
0.74	39.00	22.76	6.25			
NM-105	7830	EX 100Y	54.00	93.28	93.29	88.82
0.86	62.88	26.65	10.02			
NM-105	7830	ULT 10Y	48.00	93.04	93.05	88.82
0.85	56.58	26.17	8.22			
NM-105	7830	ULT 25Y	63.00	93.51	93.52	88.82
0.91	69.17	27.11	11.93			
NM-105	7830	ULT 100Y	98.00	94.40	94.41	88.82
1.04	93.95	28.87	25.65			
NM-105	9131	EX 10Y	6.00	91.97	91.97	89.29
0.31	19.64	12.01	5.67			
NM-105	9131	EX 25Y	9.00	92.50	92.51	89.29
0.34	26.29	13.04	7.23			
NM-105	9131	EX 100Y	17.00	93.45	93.45	89.29
0.43	39.41	14.87	11.55			
NM-105	9131	ULT 10Y	14.00	93.21	93.21	89.29
0.39	35.98	14.41	9.60			
NM-105	9131	ULT 25Y	19.00	93.68	93.69	89.29
0.44	43.02	15.33	13.60			
NM-105	9131	ULT 100Y	29.00	94.57	94.58	89.29
0.50	57.43	17.06	27.90			
NM-105	9303	EX 10Y	6.00	91.98	91.98	89.25
0.18	32.68	16.82	5.77			
NM-105	9303	EX 25Y	9.00	92.51	92.51	89.25
0.21	41.90	17.87	7.36			
NM-105	9303	EX 100Y	17.00	93.45	93.45	89.25
0.29	59.62	19.75	11.75			
NM-105	9303	ULT 10Y	14.00	93.22	93.22	89.25
0.25	55.03	19.28	9.78			
NM-105	9303	ULT 25Y	19.00	93.69	93.69	89.25
0.30	64.39	20.22	13.81			
NM-105	9303	ULT 100Y	29.00	94.58	94.58	89.25
0.35	83.19	21.99	28.18			
NM-105	10512	EX 10Y	6.00	92.43	92.57	91.91
2.99	2.01	7.00	6.25			
NM-105	10512	EX 25Y	9.00	92.52	92.70	91.91
3.42	2.63	7.39	7.98			
NM-105	10512	EX 100Y	17.00	93.50	93.53	91.91
1.35	12.59	15.95	12.75			
NM-105	10512	ULT 10Y	14.00	93.25	93.28	91.91
1.51	9.26	10.73	10.67			
NM-105	10512	ULT 25Y	19.00	93.74	93.76	91.91
1.15	16.50	16.59	14.94			
NM-105	10512	ULT 100Y	29.00	94.63	94.64	91.91
0.90	32.38	18.98	29.79			
NM-105	11711	EX 10Y	6.00	95.00	95.01	93.93
0.73	8.22	11.88	6.39			
NM-105	11711	EX 25Y	9.00	95.20	95.21	93.93
0.85	10.65	12.62	8.16			
NM-105	11711	EX 100Y	17.00	95.39	95.41	93.93
1.30	13.06	13.31	13.10			
NM-105	11711	ULT 10Y	14.00	95.26	95.29	93.93
1.22	11.45	12.85	10.96			

NM105 OUTPUT REPORT.TXT						
NM-105	11711	ULT 25Y	19.00	95.35	95.39	93.93
1.51	12.58	13.17	15.34			
NM-105	11711	ULT 100Y	29.00	95.46	95.53	93.93
2.06	14.08	13.58	30.43			
NM-105	11996	EX 10Y	6.00	106.10	106.17	105.87
2.10	2.86	27.73	6.43			
NM-105	11996	EX 25Y	9.00	106.15	106.23	105.87
2.38	3.78	30.16	8.21			
NM-105	11996	EX 100Y	17.00	106.24	106.37	105.87
2.86	5.94	43.49	13.17			
NM-105	11996	ULT 10Y	14.00	106.21	106.32	105.87
2.72	5.16	34.15	11.02			
NM-105	11996	ULT 25Y	19.00	106.26	106.40	105.87
3.00	6.34	49.09	15.41			
NM-105	11996	ULT 100Y	29.00	106.36	106.53	105.87
3.38	8.58	105.19	30.53			
NM-105	12607	EX 10Y	6.00	107.11	107.11	106.25
0.56	10.80	18.62	6.53			
NM-105	12607	EX 25Y	9.00	107.26	107.26	106.25
0.66	13.67	19.73	8.34			
NM-105	12607	EX 100Y	17.00	107.55	107.56	106.25
0.87	19.64	21.35	13.36			
NM-105	12607	ULT 10Y	14.00	107.45	107.46	106.25
0.79	17.66	21.00	11.19			
NM-105	12607	ULT 25Y	19.00	107.61	107.62	106.25
0.91	20.94	21.57	15.61			
NM-105	12607	ULT 100Y	29.00	107.86	107.88	106.25
1.09	26.49	22.50	30.82			
NM-105	13424	EX 10Y	6.00	107.23	107.23	105.89
0.30	19.98	19.65	6.82			
NM-105	13424	EX 25Y	9.00	107.41	107.41	105.89
0.38	23.66	20.55	8.69			
NM-105	13424	EX 100Y	17.00	107.77	107.77	105.89
0.54	31.29	22.21	13.84			
NM-105	13424	ULT 10Y	14.00	107.65	107.65	105.89
0.49	28.72	21.71	11.62			
NM-105	13424	ULT 25Y	19.00	107.84	107.84	105.89
0.58	32.93	22.53	16.12			
NM-105	13424	ULT 100Y	29.00	108.15	108.16	105.89
0.72	40.12	23.86	31.45			

APPENDIX D
HEC-RAS HYDRAULIC OUTPUT
NM-106 BASE CONDITION

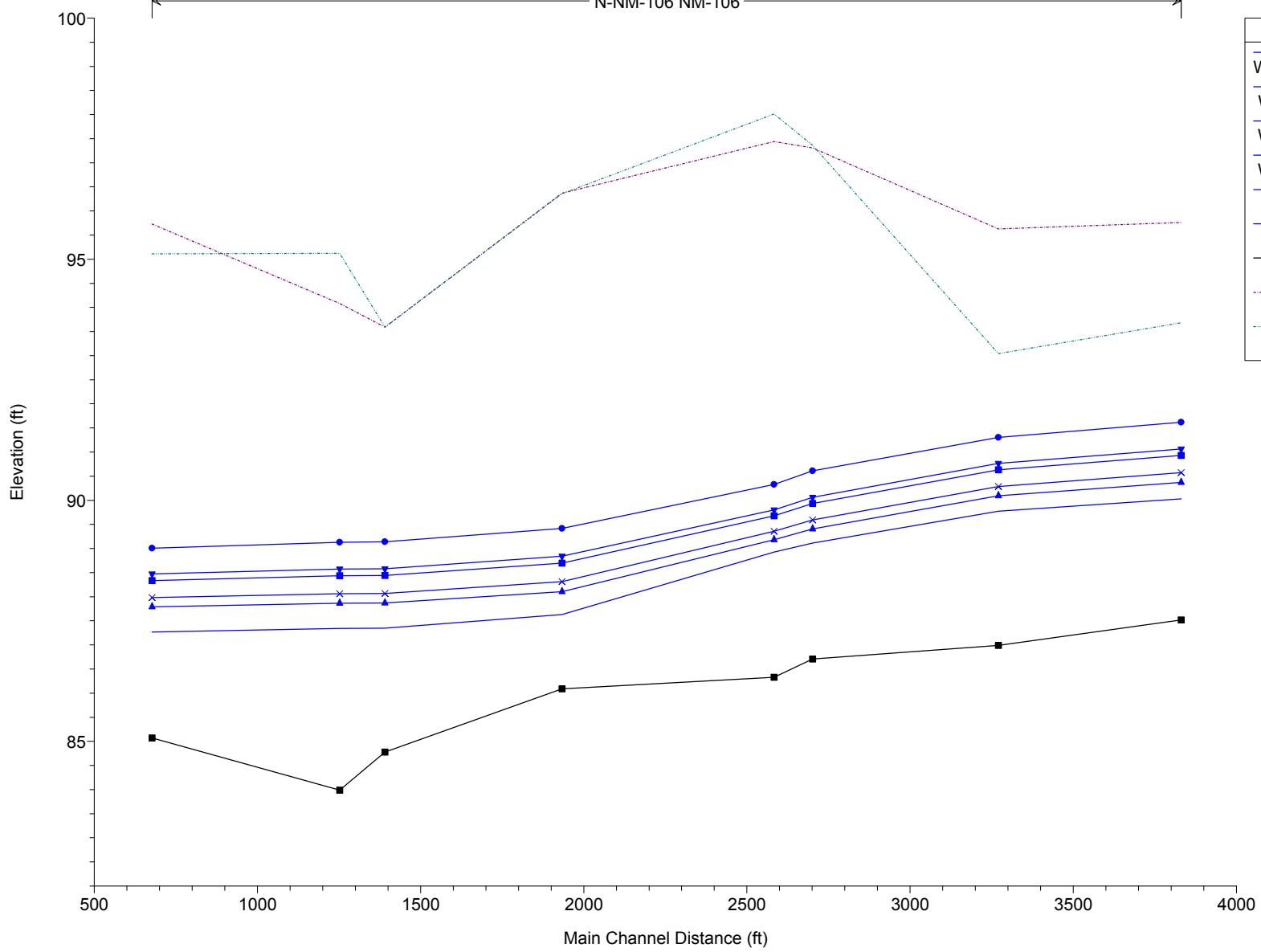


HEC-RAS Plan: BASE River: N-NM-106 Reach: NM-106

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
NM-106	677	EX 10Y	22.00	85.07	87.27	86.27	87.29	0.001001	1.22	18.06	16.32	0.20
NM-106	677	EX 25Y	31.00	85.07	87.79	86.45	87.81	0.000600	1.15	27.05	18.05	0.17
NM-106	677	EX 100Y	54.00	85.07	88.47	86.79	88.50	0.000601	1.34	40.26	21.11	0.17
NM-106	677	ULT 10Y	37.00	85.07	87.98	86.55	88.00	0.000601	1.21	30.53	18.68	0.17
NM-106	677	ULT 25Y	49.00	85.07	88.34	86.72	88.36	0.000601	1.31	37.44	20.37	0.17
NM-106	677	ULT 100Y	77.00	85.07	89.01	87.03	89.04	0.000600	1.47	52.32	23.81	0.17
NM-106	1252	EX 10Y	22.00	83.99	87.34	84.63	87.35	0.000032	0.37	59.26	23.52	0.04
NM-106	1252	EX 25Y	31.00	83.99	87.87	84.75	87.87	0.000036	0.43	71.78	24.61	0.04
NM-106	1252	EX 100Y	54.00	83.99	88.57	84.98	88.58	0.000058	0.60	89.78	26.11	0.06
NM-106	1252	ULT 10Y	37.00	83.99	88.06	84.81	88.07	0.000043	0.48	76.71	25.03	0.05
NM-106	1252	ULT 25Y	49.00	83.99	88.43	84.93	88.44	0.000054	0.57	86.12	25.81	0.05
NM-106	1252	ULT 100Y	77.00	83.99	89.13	85.17	89.14	0.000076	0.74	104.62	27.28	0.07
NM-106	1391	EX 10Y	22.00	84.78	87.35	85.61	87.36	0.000261	0.82	26.70	15.22	0.11
NM-106	1391	EX 25Y	31.00	84.78	87.87	85.78	87.88	0.000242	0.89	35.02	16.75	0.11
NM-106	1391	EX 100Y	54.00	84.78	88.58	86.11	88.60	0.000311	1.13	47.68	18.84	0.13
NM-106	1391	ULT 10Y	37.00	84.78	88.07	85.87	88.08	0.000266	0.96	38.41	17.34	0.11
NM-106	1391	ULT 25Y	49.00	84.78	88.44	86.04	88.46	0.000300	1.09	45.04	18.43	0.12
NM-106	1391	ULT 100Y	77.00	84.78	89.14	86.36	89.16	0.000357	1.31	58.61	20.37	0.14
NM-106	1933	EX 10Y	22.00	86.09	87.63	86.96	87.68	0.002027	1.65	13.37	13.16	0.29
NM-106	1933	EX 25Y	31.00	86.09	88.10	87.10	88.14	0.001259	1.55	19.96	14.81	0.24
NM-106	1933	EX 100Y	54.00	86.09	88.84	87.39	88.89	0.001009	1.70	31.81	17.18	0.22
NM-106	1933	ULT 10Y	37.00	86.09	88.32	87.20	88.35	0.001174	1.60	23.16	15.54	0.23
NM-106	1933	ULT 25Y	49.00	86.09	88.70	87.34	88.74	0.001051	1.67	29.36	16.85	0.22
NM-106	1933	ULT 100Y	77.00	86.09	89.41	87.64	89.47	0.000915	1.83	42.02	18.50	0.21
NM-106	2583	EX 10Y	22.00	86.33	88.93	87.89	88.98	0.001966	1.81	12.14	9.09	0.28
NM-106	2583	EX 25Y	31.00	86.33	89.18	88.12	89.25	0.002382	2.13	14.54	9.80	0.31
NM-106	2583	EX 100Y	54.00	86.33	89.80	88.56	89.90	0.002602	2.55	21.16	11.55	0.33
NM-106	2583	ULT 10Y	37.00	86.33	89.36	88.25	89.44	0.002473	2.27	16.33	10.30	0.32
NM-106	2583	ULT 25Y	49.00	86.33	89.68	88.47	89.78	0.002567	2.47	19.80	11.21	0.33
NM-106	2583	ULT 100Y	77.00	86.33	90.33	88.89	90.45	0.002771	2.77	27.84	14.29	0.35
NM-106	2701	EX 10Y	22.00	86.71	89.11	87.91	89.14	0.001025	1.42	15.54	10.70	0.21
NM-106	2701	EX 25Y	31.00	86.71	89.40	88.09	89.45	0.001203	1.65	18.81	11.55	0.23
NM-106	2701	EX 100Y	54.00	86.71	90.06	88.47	90.13	0.001405	1.99	27.12	14.02	0.25
NM-106	2701	ULT 10Y	37.00	86.71	89.59	88.20	89.64	0.001258	1.76	21.06	12.10	0.23
NM-106	2701	ULT 25Y	49.00	86.71	89.94	88.39	89.99	0.001354	1.93	25.36	13.31	0.25
NM-106	2701	ULT 100Y	77.00	86.71	90.61	88.78	90.68	0.001478	2.16	35.63	17.06	0.26
NM-106	3270	EX 10Y	22.00	86.99	89.77	88.55	89.80	0.001317	1.34	16.39	14.99	0.23
NM-106	3270	EX 25Y	31.00	86.99	90.09	88.78	90.13	0.001188	1.45	21.39	16.07	0.22
NM-106	3270	EX 100Y	54.00	86.99	90.76	89.38	90.81	0.001023	1.64	32.88	18.14	0.22
NM-106	3270	ULT 10Y	37.00	86.99	90.29	88.91	90.32	0.001131	1.51	24.54	16.71	0.22
NM-106	3270	ULT 25Y	49.00	86.99	90.63	89.14	90.67	0.001050	1.61	30.49	17.76	0.22
NM-106	3270	ULT 100Y	77.00	86.99	91.31	89.60	91.35	0.000951	1.79	43.10	19.68	0.21
NM-106	3830	EX 10Y	22.00	87.52	90.03	88.30	90.04	0.000201	0.72	30.50	17.94	0.10
NM-106	3830	EX 25Y	31.00	87.52	90.37	88.44	90.38	0.000235	0.84	36.88	19.30	0.11
NM-106	3830	EX 100Y	54.00	87.52	91.06	88.72	91.08	0.000285	1.06	51.17	21.80	0.12
NM-106	3830	ULT 10Y	37.00	87.52	90.57	88.52	90.58	0.000252	0.91	40.85	20.10	0.11
NM-106	3830	ULT 25Y	49.00	87.52	90.93	88.67	90.94	0.000277	1.02	48.23	21.33	0.12
NM-106	3830	ULT 100Y	77.00	87.52	91.62	88.96	91.64	0.000313	1.21	63.76	36.82	0.13

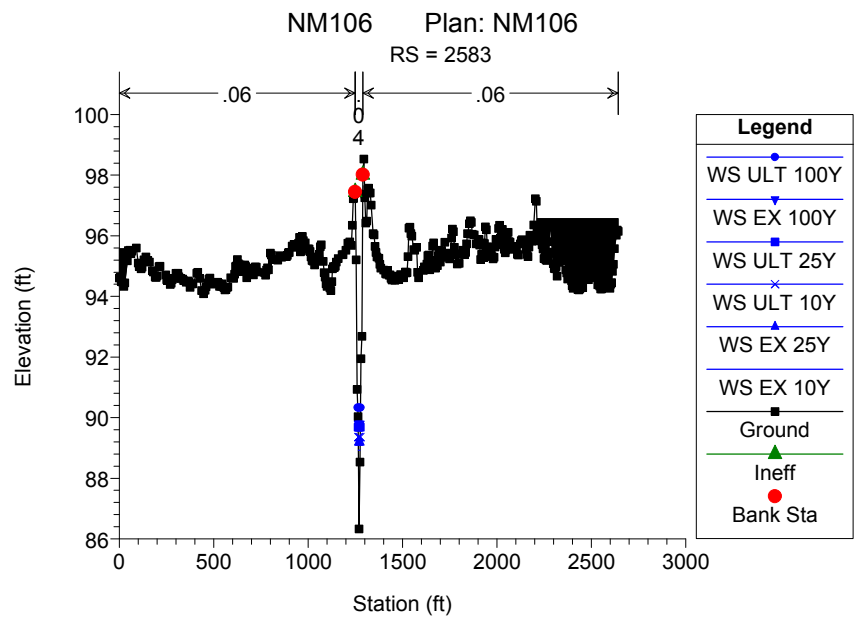
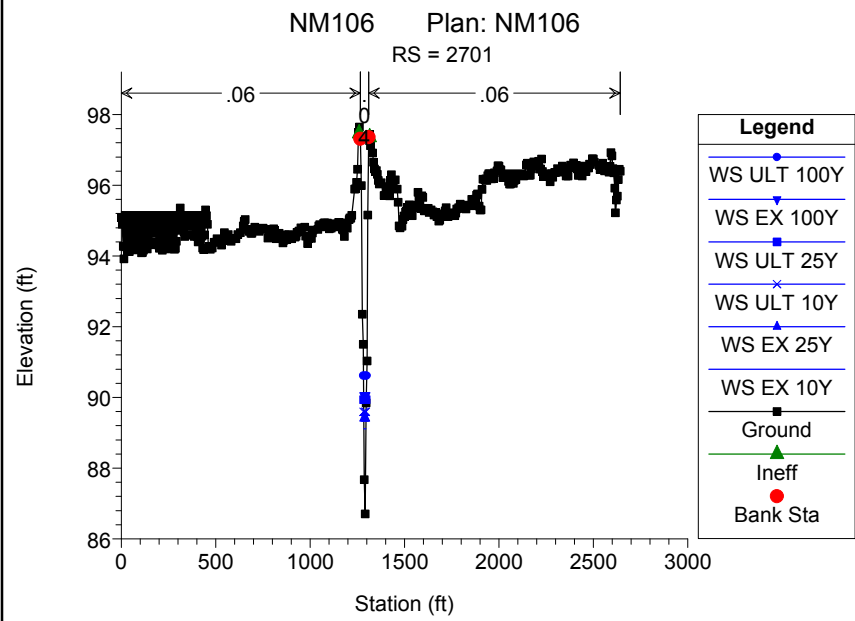
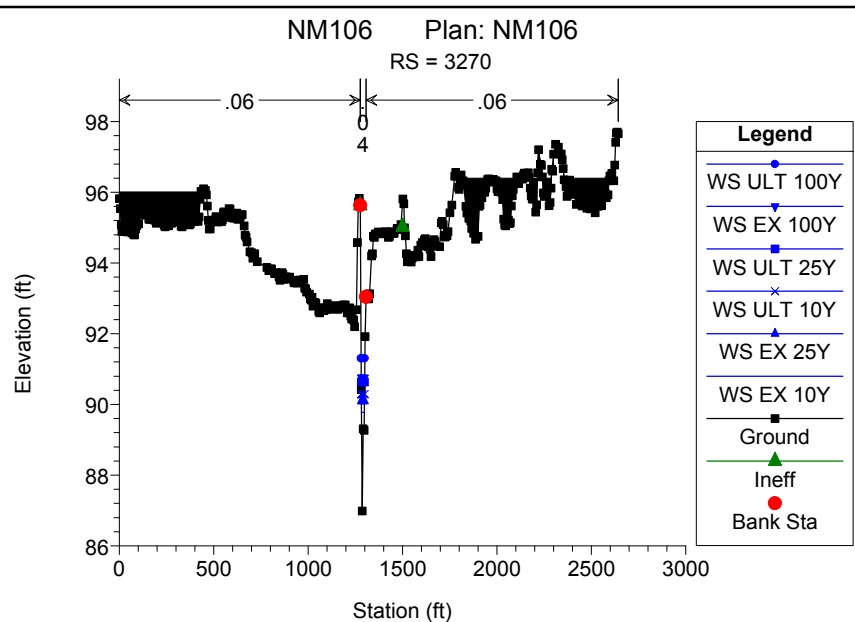
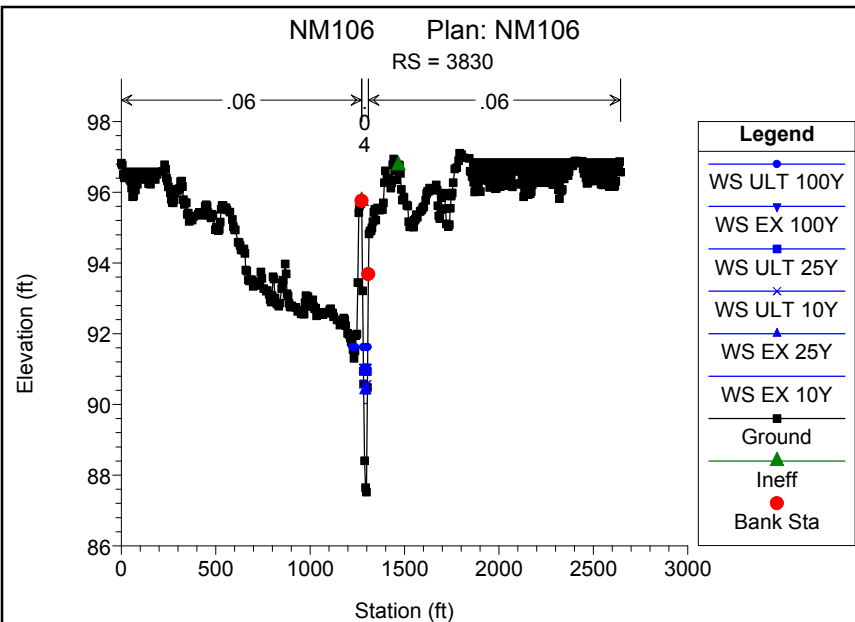
NM106 Plan: NM106

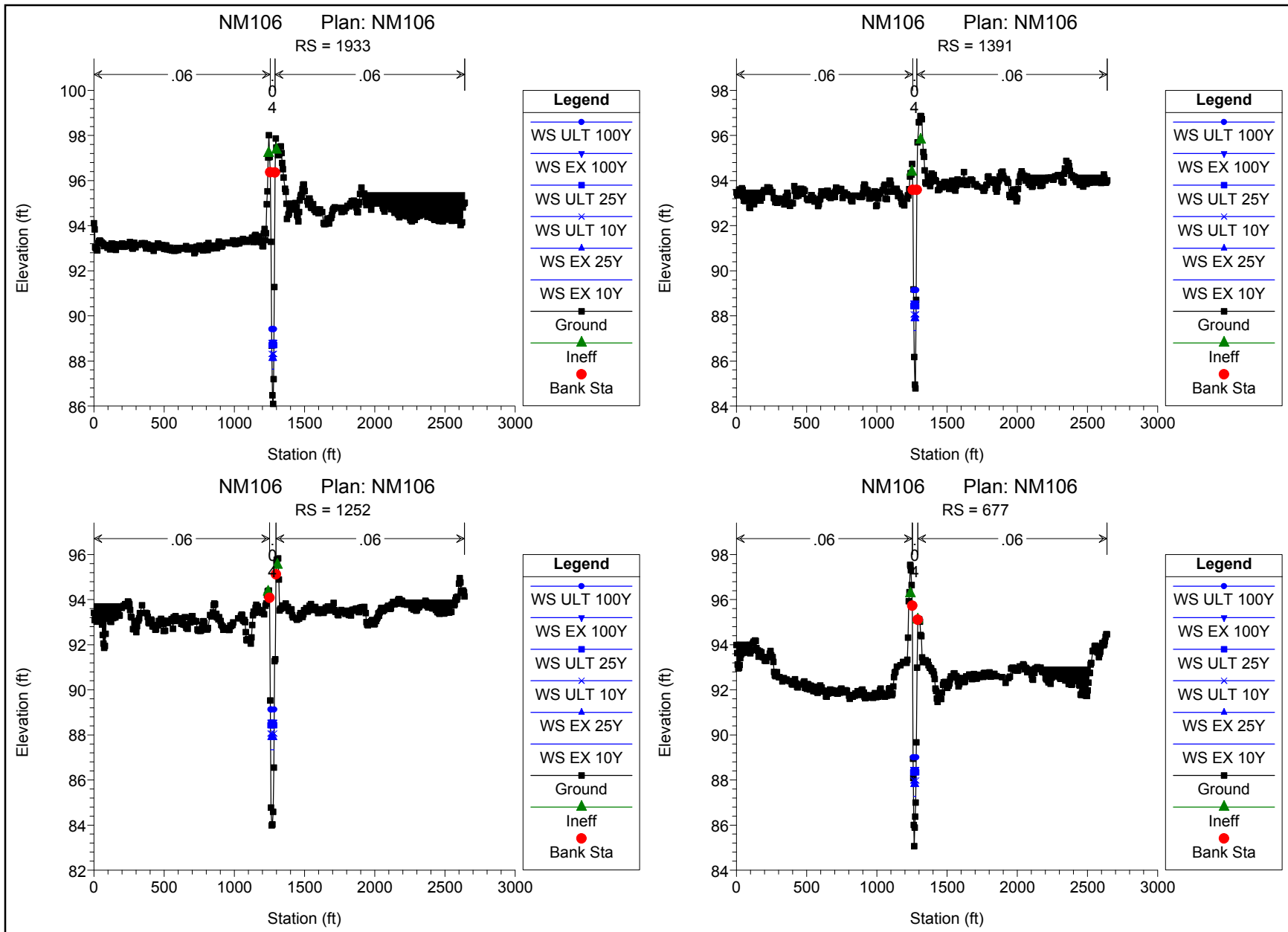
N-NM-106 NM-106



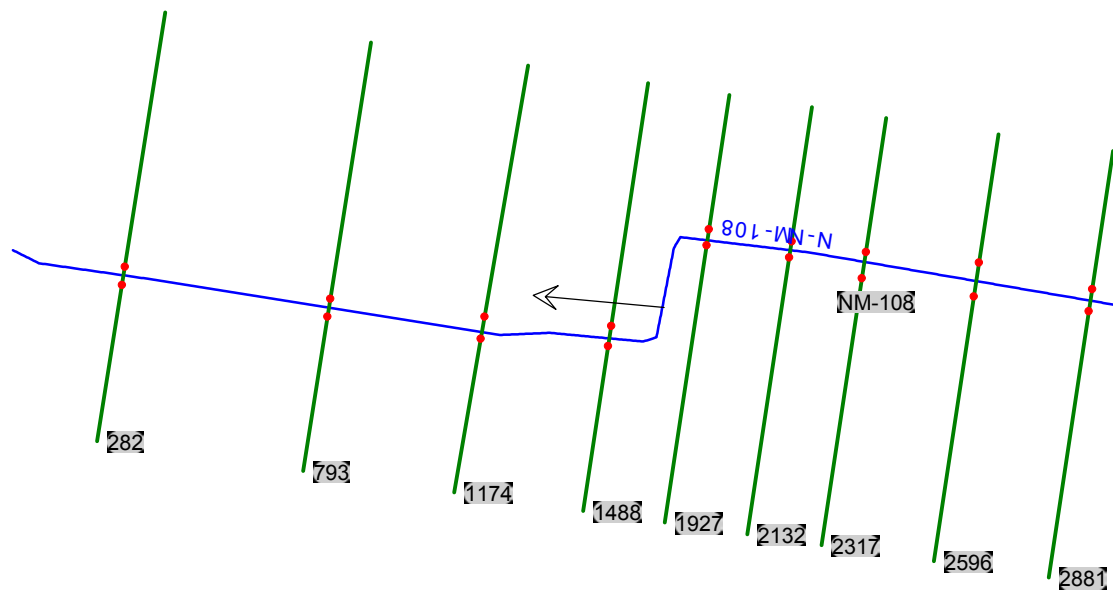
Legend

- WS ULT 100Y
- WS EX 100Y
- WS ULT 25Y
- WS ULT 10Y
- WS EX 25Y
- WS EX 10Y
- Ground
- LOB
- ROB





APPENDIX D
HEC-RAS HYDRAULIC OUTPUT
NM-108 BASE CONDITION

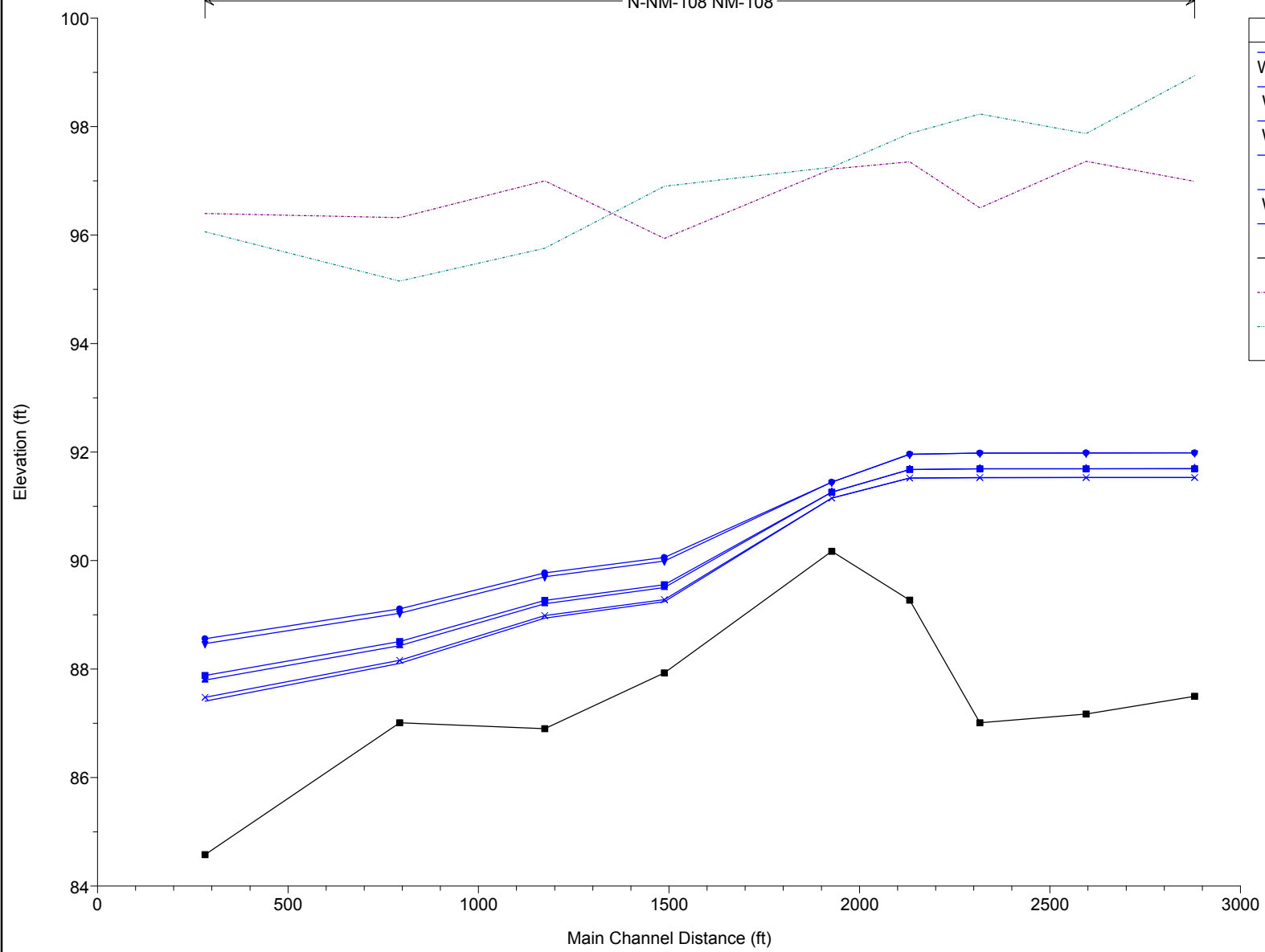


HEC-RAS Plan: BASE River: N-NM-108 Reach: NM-108

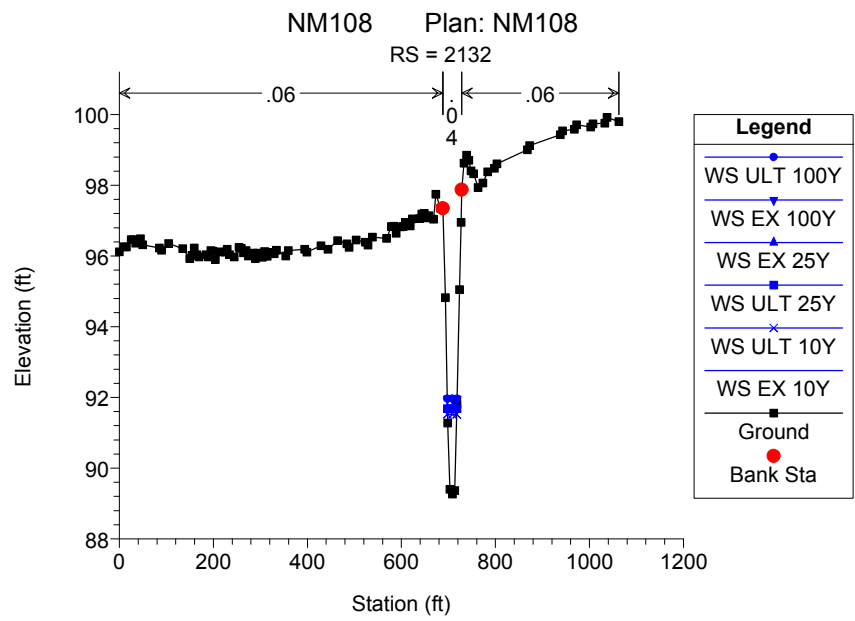
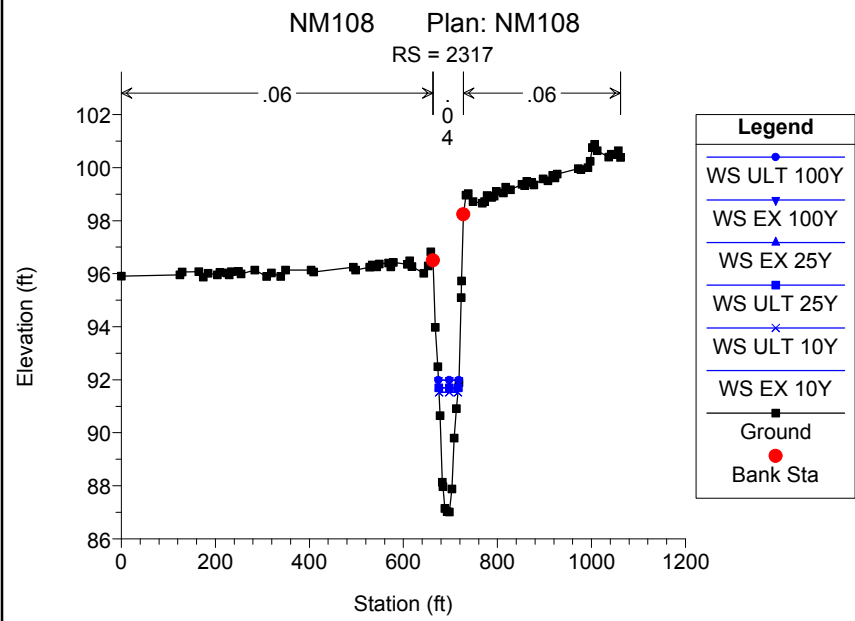
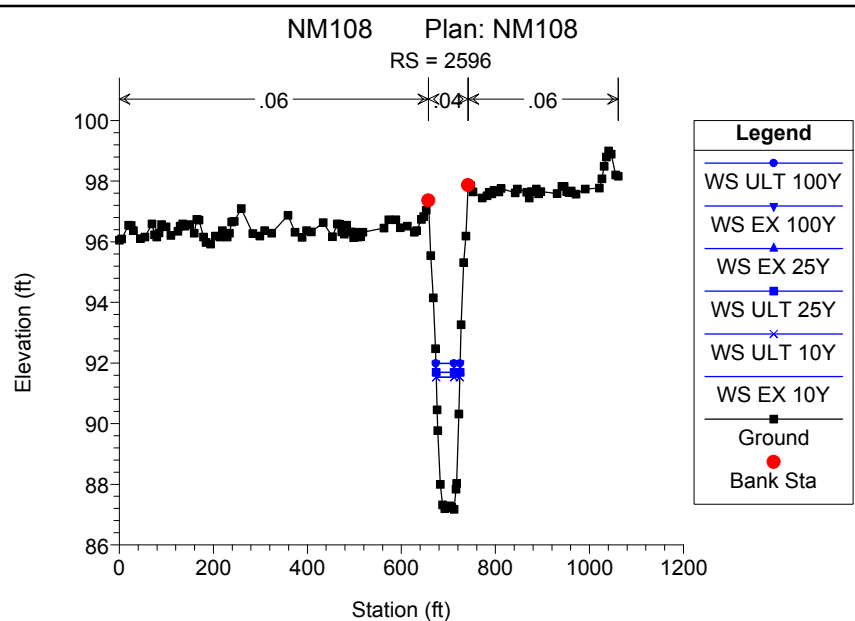
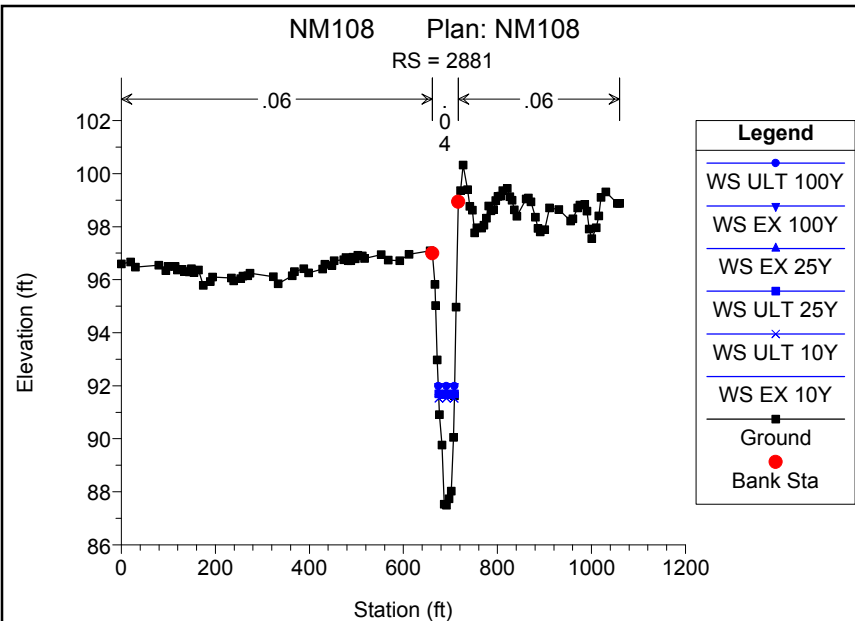
Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
NM-108	282	EX 10Y	37.00	84.58	87.41	85.83	87.44	0.000601	1.28	29.02	16.27	0.17
NM-108	282	EX 25Y	49.00	84.58	87.80	85.98	87.82	0.000600	1.38	35.54	17.62	0.17
NM-108	282	EX 100Y	75.00	84.58	88.47	86.28	88.51	0.000600	1.56	48.13	19.60	0.18
NM-108	282	ULT 10Y	39.00	84.58	87.48	85.86	87.50	0.000600	1.29	30.14	16.51	0.17
NM-108	282	ULT 25Y	52.00	84.58	87.88	86.02	87.91	0.000600	1.40	37.11	17.93	0.17
NM-108	282	ULT 100Y	79.00	84.58	88.56	86.32	88.60	0.000601	1.58	49.90	19.83	0.18
NM-108	793	EX 10Y	37.00	87.01	88.10		88.26	0.009483	3.14	11.79	14.22	0.61
NM-108	793	EX 25Y	49.00	87.01	88.43		88.57	0.005989	2.93	16.74	15.79	0.50
NM-108	793	EX 100Y	75.00	87.01	89.03		89.15	0.003593	2.78	27.00	18.64	0.41
NM-108	793	ULT 10Y	39.00	87.01	88.16		88.31	0.008634	3.09	12.62	14.49	0.58
NM-108	793	ULT 25Y	52.00	87.01	88.51		88.64	0.005513	2.90	17.95	16.16	0.48
NM-108	793	ULT 100Y	79.00	87.01	89.11		89.23	0.003406	2.77	28.55	19.03	0.40
NM-108	1174	EX 10Y	37.00	86.90	88.94		88.97	0.000749	1.29	28.62	19.19	0.19
NM-108	1174	EX 25Y	49.00	86.90	89.21		89.24	0.000806	1.45	33.86	20.13	0.20
NM-108	1174	EX 100Y	75.00	86.90	89.70		89.75	0.000860	1.70	44.20	21.48	0.21
NM-108	1174	ULT 10Y	39.00	86.90	88.98		89.01	0.000762	1.32	29.50	19.35	0.19
NM-108	1174	ULT 25Y	52.00	86.90	89.27		89.30	0.000818	1.48	35.10	20.35	0.20
NM-108	1174	ULT 100Y	79.00	86.90	89.77		89.82	0.000863	1.73	45.73	21.65	0.21
NM-108	1488	EX 10Y	20.00	87.93	89.24		89.27	0.001714	1.34	14.87	17.66	0.26
NM-108	1488	EX 25Y	26.00	87.93	89.50		89.53	0.001242	1.33	19.61	18.58	0.23
NM-108	1488	EX 100Y	39.00	87.93	89.99		90.02	0.000854	1.34	29.11	20.31	0.20
NM-108	1488	ULT 10Y	20.00	87.93	89.28		89.31	0.001490	1.29	15.56	17.79	0.24
NM-108	1488	ULT 25Y	26.00	87.93	89.56		89.58	0.001066	1.26	20.63	18.78	0.21
NM-108	1488	ULT 100Y	39.00	87.93	90.05		90.08	0.000750	1.28	30.42	20.54	0.19
NM-108	1927	EX 10Y	20.00	90.17	91.15	91.15	91.39	0.031344	3.95	5.06	10.68	1.01
NM-108	1927	EX 25Y	26.00	90.17	91.26	91.26	91.53	0.030634	4.14	6.27	12.11	1.01
NM-108	1927	EX 100Y	39.00	90.17	91.45	91.45	91.75	0.028910	4.44	8.78	14.58	1.01
NM-108	1927	ULT 10Y	20.00	90.17	91.15	91.15	91.39	0.031344	3.95	5.06	10.68	1.01
NM-108	1927	ULT 25Y	26.00	90.17	91.26	91.26	91.53	0.030654	4.14	6.27	12.11	1.01
NM-108	1927	ULT 100Y	39.00	90.17	91.45	91.45	91.75	0.028913	4.44	8.78	14.58	1.01
NM-108	2132	EX 10Y	20.00	89.27	91.52		91.53	0.000149	0.62	32.51	19.69	0.08
NM-108	2132	EX 25Y	26.00	89.27	91.68		91.69	0.000193	0.73	35.70	20.25	0.10
NM-108	2132	EX 100Y	39.00	89.27	91.96		91.97	0.000280	0.94	41.49	21.14	0.12
NM-108	2132	ULT 10Y	20.00	89.27	91.52		91.53	0.000149	0.62	32.51	19.69	0.08
NM-108	2132	ULT 25Y	26.00	89.27	91.68		91.69	0.000193	0.73	35.69	20.24	0.10
NM-108	2132	ULT 100Y	39.00	89.27	91.96		91.97	0.000279	0.94	41.52	21.14	0.12
NM-108	2317	EX 10Y	20.00	87.01	91.53		91.53	0.000005	0.17	116.30	40.44	0.02
NM-108	2317	EX 25Y	26.00	87.01	91.69		91.69	0.000008	0.21	123.01	41.71	0.02
NM-108	2317	EX 100Y	39.00	87.01	91.98		91.98	0.000014	0.29	135.34	43.63	0.03
NM-108	2317	ULT 10Y	20.00	87.01	91.53		91.53	0.000005	0.17	116.31	40.44	0.02
NM-108	2317	ULT 25Y	26.00	87.01	91.69		91.69	0.000008	0.21	122.99	41.71	0.02
NM-108	2317	ULT 100Y	39.00	87.01	91.98		91.98	0.000014	0.29	135.38	43.64	0.03
NM-108	2596	EX 10Y	20.00	87.17	91.53		91.53	0.000002	0.11	174.65	50.12	0.01
NM-108	2596	EX 25Y	26.00	87.17	91.69		91.69	0.000003	0.14	182.91	50.70	0.01
NM-108	2596	EX 100Y	39.00	87.17	91.98		91.98	0.000005	0.20	197.73	51.73	0.02
NM-108	2596	ULT 10Y	20.00	87.17	91.53		91.53	0.000002	0.11	174.65	50.12	0.01
NM-108	2596	ULT 25Y	26.00	87.17	91.69		91.69	0.000003	0.14	182.88	50.70	0.01
NM-108	2596	ULT 100Y	39.00	87.17	91.98		91.98	0.000005	0.20	197.78	51.73	0.02
NM-108	2881	EX 10Y	20.00	87.50	91.53		91.53	0.000009	0.22	91.82	32.85	0.02
NM-108	2881	EX 25Y	26.00	87.50	91.69		91.70	0.000013	0.27	97.26	33.42	0.03
NM-108	2881	EX 100Y	39.00	87.50	91.98		91.99	0.000023	0.36	107.09	34.41	0.04
NM-108	2881	ULT 10Y	20.00	87.50	91.53		91.53	0.000009	0.22	91.82	32.85	0.02
NM-108	2881	ULT 25Y	26.00	87.50	91.69		91.69	0.000013	0.27	97.24	33.42	0.03
NM-108	2881	ULT 100Y	39.00	87.50	91.99		91.99	0.000023	0.36	107.13	34.42	0.04

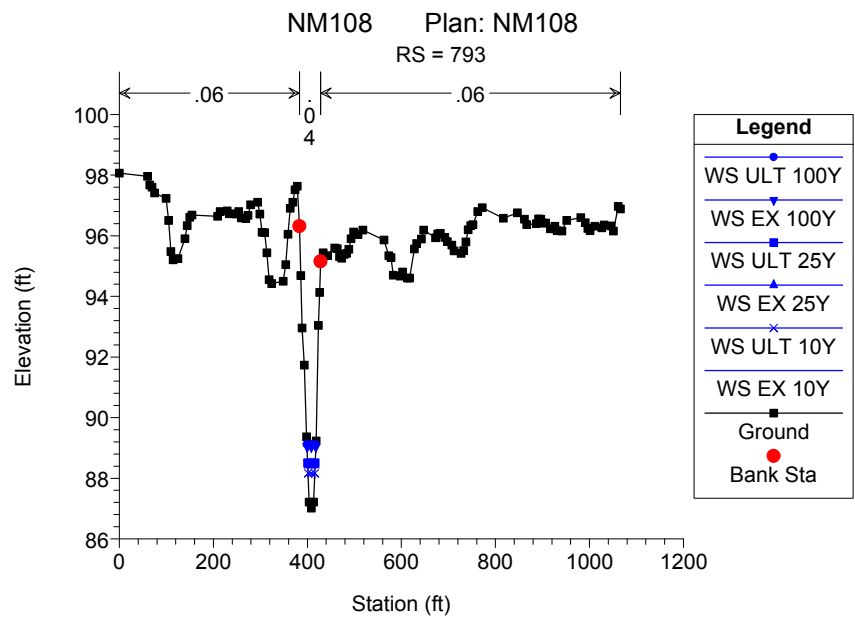
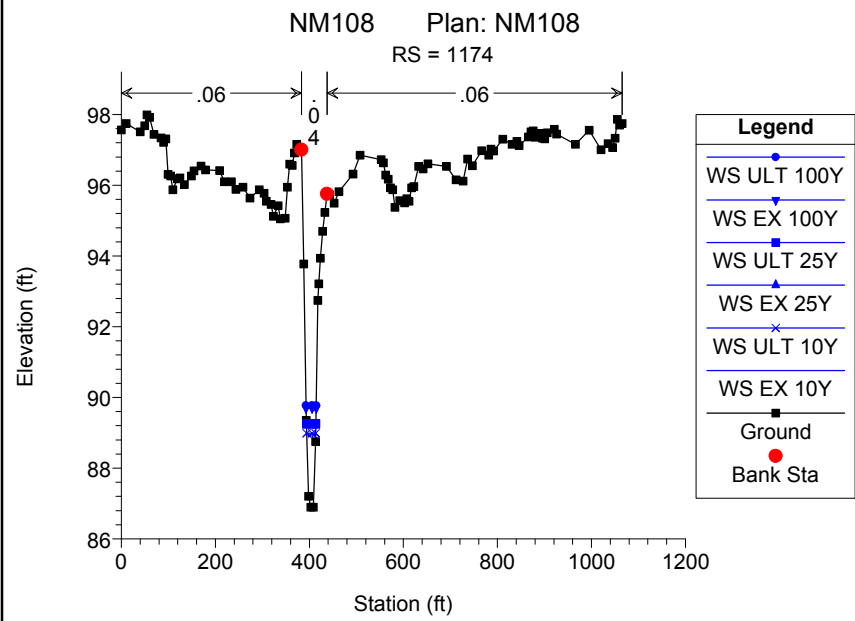
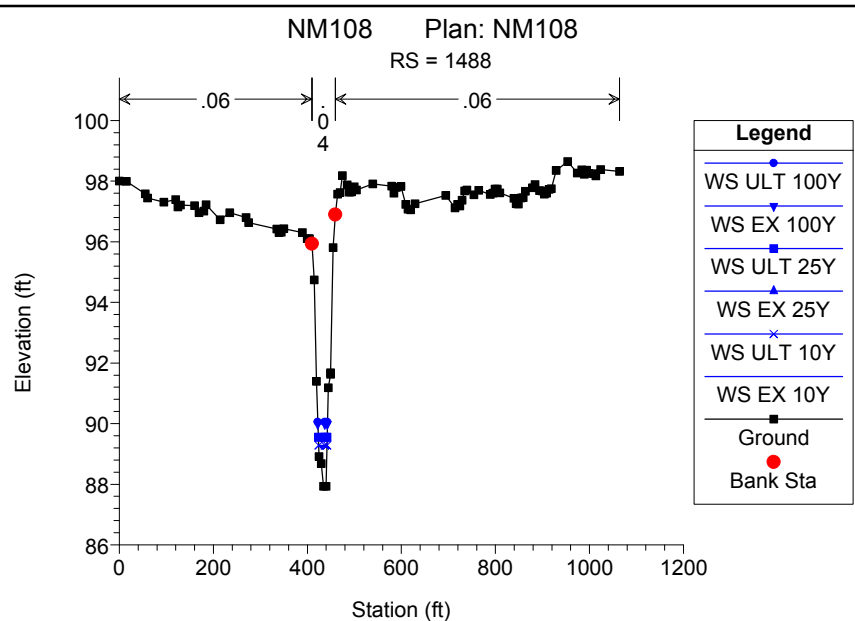
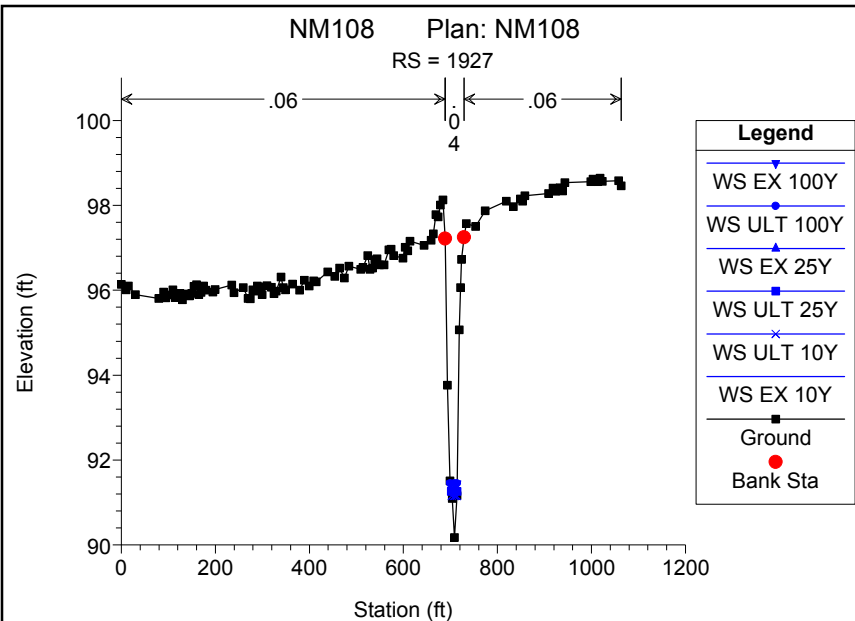
NM108 Plan: NM108

N-NM-108 NM-108



Legend	
WS ULT 100Y	Blue line with circle markers
WS EX 100Y	Blue line with inverted triangle markers
WS ULT 25Y	Blue line with square markers
WS EX 25Y	Blue line with triangle markers
WS ULT 10Y	Blue line with cross markers
WS EX 10Y	Black line with square markers
Ground	Black line
LOB	Magenta dashed line
ROB	Cyan dash-dot line





NM108 OUTPUT REPORT.TXT

HEC-RAS Version 4.1.0 Jan 2010
U.S. Army Corps of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

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X      X  XXXXXXX  XXXX      XXXX      XX      XXXX
X      X  X        X      X      X  X  X  X  X
X      X  X        X        X  X      X  X  X  X
XXXXXXXX XXXX      X        XXX XXXX  XXXXXXX  XXXX
X      X  X        X        X  X      X  X      X
X      X  X        X      X      X  X  X  X  X
X      X  XXXXXXX  XXXX      X  X  X  X  X  XXXXX

```

PROJECT DATA

Project Title: NM108
Project File : NM108.prj
Run Date and Time: 11/3/2014 10:13:21 AM

Project in English units

PLAN DATA

Plan Title: NM108
Plan File : K:\2014PROJECTS\COE_MDP_TEDSI\MODEL\APPENDIX C -
HYDRAULICS\NM108\NM108.p01

Geometry Title: NM108
Geometry File : K:\2014PROJECTS\COE_MDP_TEDSI\MODEL\APPENDIX C -
HYDRAULICS\NM108\NM108.g01

Flow Title : NM108 FLOW
Flow File : K:\2014PROJECTS\COE_MDP_TEDSI\MODEL\APPENDIX C -
HYDRAULICS\NM108\NM108.f01

Plan Summary Information:

Number of: Cross Sections	=	9	Multiple Openings	=	0
Culverts	=	0	Inline Structures	=	0
Bridges	=	0	Lateral Structures	=	0

Computational Information

Water surface calculation tolerance	=	0.01
Critical depth calculation tolerance	=	0.01
Maximum number of iterations	=	20
Maximum difference tolerance	=	0.3
Flow tolerance factor	=	0.001

Computation Options

Critical depth computed only	where necessary
Conveyance Calculation Method:	At breaks in n values only
Friction Slope Method:	Average Conveyance
Computational Flow Regime:	Subcritical Flow

NM108 OUTPUT REPORT.TXT

FLOW DATA

Flow Title: NM108 FLOW
 Flow File : K:\2014PROJECTS\COE_MDP_TEDSI\MODEL\APPENDIX C -
 HYDRAULICS\NM108\NM108.f01

Flow Data (cfs)

River	Reach	RS	EX 10Y	EX 25Y
EX 100Y	ULT 10Y	ULT 25Y	ULT 100Y	
N-NM-108	NM-108	2881	20	26
39	20	26	39	
N-NM-108	NM-108	1174	37	49
75	39	52	79	

Boundary Conditions

River	Reach	Profile	Upstream
Downstream			
N-NM-108	NM-108	EX 10Y	
Normal S = 0.0006			
N-NM-108	NM-108	EX 25Y	
Normal S = 0.0006			
N-NM-108	NM-108	EX 100Y	
Normal S = 0.0006			
N-NM-108	NM-108	ULT 10Y	
Normal S = 0.0006			
N-NM-108	NM-108	ULT 25Y	
Normal S = 0.0006			
N-NM-108	NM-108	ULT 100Y	
Normal S = 0.0006			

GEOMETRY DATA

Geometry Title: NM108
 Geometry File : K:\2014PROJECTS\COE_MDP_TEDSI\MODEL\APPENDIX C -
 HYDRAULICS\NM108\NM108.g01

CROSS SECTION

RIVER: N-NM-108
 REACH: NM-108 RS: 2881

INPUT

Description:

Station	Elevation	Data	num=	106	Sta	Elev	Sta	Elev	Sta	Elev
0	96.59	19.91	96.67	29.86	96.47	79.63	96.55	94.56	96.34	
99.54	96.5	114.47	96.5	119.45	96.36	129.4	96.39	134.38	96.3	
144.33	96.29	149.31	96.41	154.28	96.27	164.24	96.36	174.19	95.78	
189.12	95.93	194.1	96.1	233.92	96.06	238.89	95.96	253.82	96.04	
258.8	96.14	268.75	96.15	273.73	96.25	323.5	96.11	333.45	95.85	

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363.32	96.15	368.29	96.3	388.2	96.41	398.15	96.26	428.02	96.4
432.99	96.58	447.92	96.53	452.9	96.72	472.81	96.75	477.79	96.84
482.76	96.72	487.74	96.72	492.72	96.85	497.69	96.79	502.67	96.92
512.62	96.9	517.6	96.8	552.44	96.95	567.37	96.74	592.25	96.72
612.16	96.96	656.95	97.09	661.93	96.99	666.91	95.82	668.31	95.02
671.89	92.97	676.86	90.91	681.84	89.76	686.82	87.53	691.79	87.5
696.77	87.74	701.75	88.03	706.72	90.06	708.31	91.62	711.7	94.96
716.68	98.94	721.65	99.36	726.63	100.32	736.59	99.39	741.56	98.77
746.54	98.62	751.52	97.77	756.49	97.96	766.45	97.95	771.42	98.05
776.4	98.32	781.38	98.78	786.35	98.6	791.33	98.64	796.31	98.98
801.29	99.14	806.26	99.15	811.24	99.36	821.19	99.44	826.17	99.13
831.15	99	836.12	98.63	841.1	98.39	861.01	99.04	865.99	99.08
870.96	98.93	880.92	98.35	885.89	97.93	890.87	97.8	900.82	97.89
910.78	98.7	930.69	98.65	955.57	98.21	960.55	98.3	970.5	98.71
975.48	98.82	985.43	98.84	990.41	98.58	995.39	97.91	1000.36	97.55
1010.32	97.96	1015.29	98.4	1020.27	99.11	1030.22	99.31	1055.11	98.87
1060.09	98.87								

Manning's n values num= 3
 Sta n Val Sta n Val
 0 .06 661.93 .04 716.68 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 661.93 716.68 285 285 285 .1 .3

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	91.53	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-val.		0.040
w.s. Elev (ft)	91.53	Reach Len. (ft)	285.00	285.00
285.00		Flow Area (sq ft)		91.82
Crit w.s. (ft)		Area (sq ft)		91.82
E.G. slope (ft/ft)	0.000009	Flow (cfs)		20.00
Q Total (cfs)	20.00	Top width (ft)		32.85
Top width (ft)	32.85	Avg. vel. (ft/s)		0.22
vel Total (ft/s)	0.22	Hydr. Depth (ft)		2.79
Max Chl Dpth (ft)	4.03	Conv. (cfs)		6537.9
Conv. Total (cfs)	6537.9	wetted Per. (ft)		34.60
Length wtd. (ft)	285.00	Shear (lb/sq ft)		0.00
Min Ch El (ft)	87.50	Stream Power (lb/ft s)	1060.09	0.00
Alpha	1.00	Cum volume (acre-ft)		2.88
0.00		Cum SA (acres)		1.36
Frctn Loss (ft)	0.00			
C & E Loss (ft)	0.00			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

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This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	91.70	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-Val.		0.040
W.S. Elev (ft)	91.69	Reach Len. (ft)	285.00	285.00
285.00 Crit w.s. (ft)		Flow Area (sq ft)		97.26
E.G. Slope (ft/ft)	0.000013	Area (sq ft)		97.26
Q Total (cfs)	26.00	Flow (cfs)		26.00
Top width (ft)	33.42	Top width (ft)		33.42
Vel Total (ft/s)	0.27	Avg. Vel. (ft/s)		0.27
Max Chl Dpth (ft)	4.19	Hydr. Depth (ft)		2.91
Conv. Total (cfs)	7105.8	Conv. (cfs)		7105.8
Length wtd. (ft)	285.00	wetted Per. (ft)		35.26
Min Ch El (ft)	87.50	Shear (lb/sq ft)		0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	1060.09	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		3.18
C & E Loss (ft)	0.00	Cum SA (acres)		1.43

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	91.99	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-Val.		0.040
W.S. Elev (ft)	91.98	Reach Len. (ft)	285.00	285.00
285.00 Crit w.s. (ft)		Flow Area (sq ft)		107.09
E.G. Slope (ft/ft)	0.000023	Area (sq ft)		107.09
Q Total (cfs)	39.00	Flow (cfs)		39.00
Top width (ft)	34.41	Top width (ft)		34.41
Vel Total (ft/s)	0.36	Avg. Vel. (ft/s)		0.36
Max Chl Dpth (ft)	4.48	Hydr. Depth (ft)		3.11

NM108 OUTPUT REPORT.TXT				
Conv. Total (cfs)	8163.6	Conv. (cfs)		8163.6
Length Wtd. (ft)	285.00	Wetted Per. (ft)		36.43
Min Ch El (ft)	87.50	Shear (lb/sq ft)		0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	1060.09	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		3.76
C & E Loss (ft)	0.00	Cum SA (acres)		1.53

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	91.53	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-val.		0.040
W.S. Elev (ft)	91.53	Reach Len. (ft)	285.00	285.00
285.00 Crit w.s. (ft)		Flow Area (sq ft)		91.82
E.G. slope (ft/ft)	0.000009	Area (sq ft)		91.82
Q Total (cfs)	20.00	Flow (cfs)		20.00
Top width (ft)	32.85	Top width (ft)		32.85
vel Total (ft/s)	0.22	Avg. vel. (ft/s)		0.22
Max Chl Dpth (ft)	4.03	Hydr. Depth (ft)		2.79
Conv. Total (cfs)	6538.1	Conv. (cfs)		6538.1
Length Wtd. (ft)	285.00	Wetted Per. (ft)		34.60
Min Ch El (ft)	87.50	Shear (lb/sq ft)		0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	1060.09	0.00
Frctn Loss (ft)	0.00	Cum volume (acre-ft)		2.91
C & E Loss (ft)	0.00	Cum SA (acres)		1.37

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	91.69	Element	Left OB	Channel
		Page 5		

NM108 OUTPUT REPORT.TXT

Right OB				
Vel Head (ft)	0.00	wt. n-val.		0.040
W.S. Elev (ft)	91.69	Reach Len. (ft)	285.00	285.00
285.00				
Crit w.s. (ft)		Flow Area (sq ft)		97.24
E.G. Slope (ft/ft)	0.000013	Area (sq ft)		97.24
Q Total (cfs)	26.00	Flow (cfs)		26.00
Top width (ft)	33.42	Top width (ft)		33.42
Vel Total (ft/s)	0.27	Avg. Vel. (ft/s)		0.27
Max Chl Dpth (ft)	4.19	Hydr. Depth (ft)		2.91
Conv. Total (cfs)	7103.7	Conv. (cfs)		7103.7
Length wtd. (ft)	285.00	wetted Per. (ft)		35.26
Min ch El (ft)	87.50	Shear (lb/sq ft)		0.00
Alpha	1.00	Stream Power (lb/ft s)	1060.09	0.00
0.00				
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		3.22
C & E Loss (ft)	0.00	Cum SA (acres)		1.43

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	91.99	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-val.		0.040
W.S. Elev (ft)	91.99	Reach Len. (ft)	285.00	285.00
285.00				
Crit w.s. (ft)		Flow Area (sq ft)		107.13
E.G. Slope (ft/ft)	0.000023	Area (sq ft)		107.13
Q Total (cfs)	39.00	Flow (cfs)		39.00
Top width (ft)	34.42	Top width (ft)		34.42
Vel Total (ft/s)	0.36	Avg. Vel. (ft/s)		0.36
Max Chl Dpth (ft)	4.49	Hydr. Depth (ft)		3.11
Conv. Total (cfs)	8167.5	Conv. (cfs)		8167.5
Length wtd. (ft)	285.00	wetted Per. (ft)		36.44
Min ch El (ft)	87.50	Shear (lb/sq ft)		0.00

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Alpha	1.00	Stream Power (lb/ft s)	1060.09	0.00
0.00				
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		3.81
C & E Loss (ft)	0.00	Cum SA (acres)		1.54

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: N-NM-108
 REACH: NM-108 RS: 2596

INPUT

Description:

Station Elevation Data		num=	119						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	96.05	4.98	96.09	19.92	96.55	24.91	96.54	29.89	96.37
44.83	96.1	54.79	96.16	69.74	96.59	74.72	96.23	79.7	96.16
84.68	96.29	89.66	96.57	99.62	96.49	109.58	96.21	124.53	96.35
129.51	96.52	134.49	96.59	139.47	96.52	149.43	96.57	159.4	96.28
164.38	96.74	169.36	96.72	179.32	96.16	184.3	95.98	194.26	95.92
204.23	96.19	214.19	96.16	219.17	96.37	224.15	96.18	229.13	96.16
234.11	96.28	239.09	96.65	244.07	96.67	259.02	97.1	283.92	96.27
298.87	96.19	308.83	96.37	323.77	96.28	358.64	96.88	373.58	96.32
388.53	96.15	398.49	96.37	408.45	96.33	433.36	96.63	453.28	96.17
463.24	96.59	468.22	96.58	473.21	96.33	478.19	96.25	483.17	96.55
493.13	96.33	498.11	96.14	503.09	96.31	508.07	96.16	513.05	96.17
518.04	96.32	562.87	96.45	572.83	96.73	587.77	96.73	597.73	96.46
612.68	96.52	627.62	96.31	632.6	96.37	642.56	96.74	647.54	96.83
652.53	97.04	657.51	97.36	662.49	95.54	667.47	94.15	672.45	92.47
676.16	90.46	677.43	89.77	682.41	88	687.39	87.32	692.37	87.19
697.36	87.24	702.34	87.29	707.32	87.24	712.3	87.17	716.17	87.84
717.28	88.03	722.26	90.32	727.24	93.26	732.22	95.31	737.2	96.19
742.19	97.87	747.17	97.85	752.15	97.65	772.07	97.45	782.03	97.52
787.02	97.63	792	97.58	796.98	97.7	806.94	97.65	811.92	97.76
841.81	97.61	846.79	97.74	866.71	97.64	871.69	97.45	876.68	97.66
886.64	97.74	891.62	97.58	896.6	97.66	931.47	97.59	941.43	97.82
946.41	97.82	951.39	97.66	956.37	97.62	961.35	97.68	971.32	97.57
991.24	97.74	1021.13	97.77	1026.11	98.08	1031.09	98.49	1036.07	98.8
1041.05	99	1046.03	98.89	1056	98.21	1060.98	98.16		

Manning's n Values		num=	3		
Sta	n Val	Sta	n Val	Sta	n Val
0	.06	657.51	.04	742.19	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
657.51	742.19	279	279	279	.1	.3

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	91.53	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-Val.		0.040
w.s. Elev (ft)	91.53	Reach Len. (ft)	279.00	279.00

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279.00				
Crit W.S. (ft)		Flow Area (sq ft)		174.65
E.G. Slope (ft/ft)	0.000002	Area (sq ft)		174.65
Q Total (cfs)	20.00	Flow (cfs)		20.00
Top Width (ft)	50.12	Top Width (ft)		50.12
Vel Total (ft/s)	0.11	Avg. Vel. (ft/s)		0.11
Max Chl Dpth (ft)	4.36	Hydr. Depth (ft)		3.48
Conv. Total (cfs)	14582.5	Conv. (cfs)		14582.5
Length wtd. (ft)	279.00	wetted Per. (ft)		51.83
Min Ch El (ft)	87.17	Shear (lb/sq ft)		0.00
Alpha	1.00	Stream Power (lb/ft s)	1060.98	0.00
0.00				
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		2.01
C & E Loss (ft)	0.00	Cum SA (acres)		1.09

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	91.69	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-Val.		0.040
W.S. Elev (ft)	91.69	Reach Len. (ft)	279.00	279.00
279.00				
Crit W.S. (ft)		Flow Area (sq ft)		182.91
E.G. Slope (ft/ft)	0.000003	Area (sq ft)		182.91
Q Total (cfs)	26.00	Flow (cfs)		26.00
Top width (ft)	50.70	Top width (ft)		50.70
Vel Total (ft/s)	0.14	Avg. Vel. (ft/s)		0.14
Max Chl Dpth (ft)	4.52	Hydr. Depth (ft)		3.61
Conv. Total (cfs)	15616.9	Conv. (cfs)		15616.9
Length wtd. (ft)	279.00	wetted Per. (ft)		52.50
Min Ch El (ft)	87.17	Shear (lb/sq ft)		0.00
Alpha	1.00	Stream Power (lb/ft s)	1060.98	0.00
0.00				
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		2.26

C & E Loss (ft)

NM108 OUTPUT REPORT.TXT
0.00 Cum SA (acres)

1.15

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	91.98	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-Val.		0.040
W.S. Elev (ft)	91.98	Reach Len. (ft)	279.00	279.00
279.00 Crit w.s. (ft)		Flow Area (sq ft)		197.73
E.G. slope (ft/ft)	0.000005	Area (sq ft)		197.73
Q Total (cfs)	39.00	Flow (cfs)		39.00
Top width (ft)	51.73	Top width (ft)		51.73
Vel Total (ft/s)	0.20	Avg. Vel. (ft/s)		0.20
Max Chl Dpth (ft)	4.81	Hydr. Depth (ft)		3.82
Conv. Total (cfs)	17521.0	Conv. (cfs)		17521.0
Length wtd. (ft)	279.00	wetted Per. (ft)		53.67
Min Ch El (ft)	87.17	Shear (lb/sq ft)		0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	1060.98	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		2.77
C & E Loss (ft)	0.00	Cum SA (acres)		1.25

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	91.53	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-Val.		0.040
W.S. Elev (ft)	91.53	Reach Len. (ft)	279.00	279.00
279.00 Crit w.s. (ft)		Flow Area (sq ft)		174.65
E.G. slope (ft/ft)	0.000002	Area (sq ft)		174.65
Q Total (cfs)	20.00	Flow (cfs)		20.00

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Top width (ft)	50.12	Top width (ft)	50.12
Vel Total (ft/s)	0.11	Avg. Vel. (ft/s)	0.11
Max Chl Dpth (ft)	4.36	Hydr. Depth (ft)	3.48
Conv. Total (cfs)	14582.9	Conv. (cfs)	14582.9
Length wtd. (ft)	279.00	wetted Per. (ft)	51.83
Min Ch El (ft)	87.17	Shear (lb/sq ft)	0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	1060.98
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	2.04
C & E Loss (ft)	0.00	Cum SA (acres)	1.10

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	91.69	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-Val.		0.040
W.S. Elev (ft)	91.69	Reach Len. (ft)	279.00	279.00
279.00 Crit W.S. (ft)		Flow Area (sq ft)		182.88
E.G. Slope (ft/ft)	0.000003	Area (sq ft)		182.88
Q Total (cfs)	26.00	Flow (cfs)		26.00
Top width (ft)	50.70	Top width (ft)		50.70
Vel Total (ft/s)	0.14	Avg. Vel. (ft/s)		0.14
Max Chl Dpth (ft)	4.52	Hydr. Depth (ft)		3.61
Conv. Total (cfs)	15613.1	Conv. (cfs)		15613.1
Length wtd. (ft)	279.00	wetted Per. (ft)		52.49
Min Ch El (ft)	87.17	Shear (lb/sq ft)		0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	1060.98	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		2.30
C & E Loss (ft)	0.00	Cum SA (acres)		1.16

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance)

NM108 OUTPUT REPORT.TXT

is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	91.98	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-Val.		0.040
w.s. Elev (ft)	91.98	Reach Len. (ft)	279.00	279.00
279.00 Crit w.s. (ft)		Flow Area (sq ft)		197.78
E.G. slope (ft/ft)	0.000005	Area (sq ft)		197.78
Q Total (cfs)	39.00	Flow (cfs)		39.00
Top width (ft)	51.73	Top width (ft)		51.73
Vel Total (ft/s)	0.20	Avg. Vel. (ft/s)		0.20
Max Chl Dpth (ft)	4.81	Hydr. Depth (ft)		3.82
Conv. Total (cfs)	17528.1	Conv. (cfs)		17528.1
Length wtd. (ft)	279.00	wetted Per. (ft)		53.68
Min Ch El (ft)	87.17	Shear (lb/sq ft)		0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	1060.98	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		2.82
C & E Loss (ft)	0.00	Cum SA (acres)		1.26

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: N-NM-108

REACH: NM-108

RS: 2317

INPUT

Description:

Station	Elevation	Data	num=	85	Station	Elevation	Station	Elevation	Station	Elevation
0	95.91	124.63	95.96	129.62	96.06	164.51	96.08	174.48	95.87	
184.45	96.01	204.39	95.96	209.38	96.05	224.33	96.03	229.32	95.95	
234.31	96.07	249.26	96.09	254.25	95.99	284.16	96.13	309.08	95.9	
319.05	96.03	338.99	95.9	348.96	96.13	403.8	96.13	408.79	96.06	
493.54	96.25	498.52	96.13	528.43	96.25	533.42	96.33	543.39	96.26	
548.37	96.37	568.31	96.4	573.3	96.26	578.28	96.42	608.2	96.35	
613.18	96.48	618.17	96.27	643.09	96.01	653.06	96.29	658.05	96.82	
663.03	96.5	668.02	93.97	673	92.49	677.99	90.64	682.97	88.14	
683.86	87.97	687.96	87.15	692.94	87.02	697.93	87.01	702.91	87.88	
707.9	89.8	712.89	90.91	717.87	91.89	722.86	95.1	723.87	95.73	

NM108 OUTPUT REPORT.TXT

727.84	98.23	732.83	98.96	737.81	99.02	747.78	98.72	767.72	98.66
772.71	98.72	777.69	98.95	787.66	98.88	792.65	98.92	797.63	99.11
812.59	99.04	817.57	99.26	827.54	99.17	852.47	99.37	857.46	99.32
862.44	99.48	872.41	99.44	877.4	99.34	897.34	99.58	907.31	99.5
917.28	99.71	922.26	99.61	927.25	99.75	972.12	99.96	977.1	99.92
992.06	100	997.04	100.24	1002.03	100.76	1007.01	100.88	1012	100.64
1036.92	100.4	1041.91	100.5	1046.89	100.49	1056.86	100.64	1061.85	100.38

Manning's n	Values	num=	3
Sta	n Val	Sta	n Val
0	.06	663.03	.04
		727.84	.06

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	663.03	727.84		186	184	184		.1	.3

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	91.53	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-Val.		0.040
W.S. Elev (ft)	91.53	Reach Len. (ft)	186.00	184.00
184.00				
Crit w.s. (ft)		Flow Area (sq ft)		116.30
E.G. Slope (ft/ft)	0.000005	Area (sq ft)		116.30
Q Total (cfs)	20.00	Flow (cfs)		20.00
Top width (ft)	40.44	Top width (ft)		40.44
Vel Total (ft/s)	0.17	Avg. Vel. (ft/s)		0.17
Max Chl Dpth (ft)	4.52	Hydr. Depth (ft)		2.88
Conv. Total (cfs)	8532.7	Conv. (cfs)		8532.7
Length wtd. (ft)	184.00	wetted Per. (ft)		41.90
Min Ch El (ft)	87.01	Shear (lb/sq ft)		0.00
Alpha	1.00	Stream Power (lb/ft s)	1061.85	0.00
0.00				
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		1.08
C & E Loss (ft)	0.00	Cum SA (acres)		0.80

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	91.69	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-Val.		0.040
W.S. Elev (ft)	91.69	Reach Len. (ft)	186.00	184.00

NM108 OUTPUT REPORT.TXT

184.00				
Crit W.S. (ft)		Flow Area (sq ft)		123.01
E.G. Slope (ft/ft)	0.000008	Area (sq ft)		123.01
Q Total (cfs)	26.00	Flow (cfs)		26.00
Top Width (ft)	41.71	Top Width (ft)		41.71
Vel Total (ft/s)	0.21	Avg. Vel. (ft/s)		0.21
Max Chl Dpth (ft)	4.68	Hydr. Depth (ft)		2.95
Conv. Total (cfs)	9177.8	Conv. (cfs)		9177.8
Length wtd. (ft)	184.00	wetted Per. (ft)		43.22
Min Ch El (ft)	87.01	Shear (lb/sq ft)		0.00
Alpha	1.00	Stream Power (lb/ft s)	1061.85	0.00
0.00				
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		1.29
C & E Loss (ft)	0.00	Cum SA (acres)		0.85

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	91.98	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-Val.		0.040
W.S. Elev (ft)	91.98	Reach Len. (ft)	186.00	184.00
184.00				
Crit W.S. (ft)		Flow Area (sq ft)		135.34
E.G. Slope (ft/ft)	0.000014	Area (sq ft)		135.34
Q Total (cfs)	39.00	Flow (cfs)		39.00
Top Width (ft)	43.63	Top Width (ft)		43.63
Vel Total (ft/s)	0.29	Avg. Vel. (ft/s)		0.29
Max Chl Dpth (ft)	4.97	Hydr. Depth (ft)		3.10
Conv. Total (cfs)	10437.7	Conv. (cfs)		10437.7
Length wtd. (ft)	184.00	wetted Per. (ft)		45.24
Min Ch El (ft)	87.01	Shear (lb/sq ft)		0.00
Alpha	1.00	Stream Power (lb/ft s)	1061.85	0.00
0.00				
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)		1.70

C & E Loss (ft) NM108 OUTPUT REPORT.TXT 0.95
0.00 Cum SA (acres)

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	91.53	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-Val.		0.040
W.S. Elev (ft)	91.53	Reach Len. (ft)	186.00	184.00
184.00 Crit w.s. (ft)		Flow Area (sq ft)		116.31
E.G. slope (ft/ft)	0.000005	Area (sq ft)		116.31
Q Total (cfs)	20.00	Flow (cfs)		20.00
Top width (ft)	40.44	Top width (ft)		40.44
Vel Total (ft/s)	0.17	Avg. Vel. (ft/s)		0.17
Max Chl Dpth (ft)	4.52	Hydr. Depth (ft)		2.88
Conv. Total (cfs)	8533.0	Conv. (cfs)		8533.0
Length wtd. (ft)	184.00	wetted Per. (ft)		41.90
Min Ch El (ft)	87.01	Shear (lb/sq ft)		0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	1061.85	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		1.10
C & E Loss (ft)	0.00	Cum SA (acres)		0.81

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	91.69	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-Val.		0.040
W.S. Elev (ft)	91.69	Reach Len. (ft)	186.00	184.00
184.00 Crit w.s. (ft)		Flow Area (sq ft)		122.99
E.G. slope (ft/ft)	0.000008	Area (sq ft)		122.99
Q Total (cfs)	26.00	Flow (cfs)		26.00

NM108 OUTPUT REPORT.TXT

Top width (ft)	41.71	Top width (ft)	41.71
Vel Total (ft/s)	0.21	Avg. Vel. (ft/s)	0.21
Max Chl Dpth (ft)	4.68	Hydr. Depth (ft)	2.95
Conv. Total (cfs)	9175.4	Conv. (cfs)	9175.4
Length wtd. (ft)	184.00	wetted Per. (ft)	43.22
Min Ch El (ft)	87.01	Shear (lb/sq ft)	0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	1061.85
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	1.33
C & E Loss (ft)	0.00	Cum SA (acres)	0.86

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	91.98	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-Val.		0.040
W.S. Elev (ft)	91.98	Reach Len. (ft)	186.00	184.00
184.00 Crit W.S. (ft)		Flow Area (sq ft)		135.38
E.G. Slope (ft/ft)	0.000014	Area (sq ft)		135.38
Q Total (cfs)	39.00	Flow (cfs)		39.00
Top width (ft)	43.64	Top width (ft)		43.64
Vel Total (ft/s)	0.29	Avg. Vel. (ft/s)		0.29
Max Chl Dpth (ft)	4.97	Hydr. Depth (ft)		3.10
Conv. Total (cfs)	10442.9	Conv. (cfs)		10442.9
Length wtd. (ft)	184.00	wetted Per. (ft)		45.25
Min Ch El (ft)	87.01	Shear (lb/sq ft)		0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	1061.85	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)		1.75
C & E Loss (ft)	0.00	Cum SA (acres)		0.96

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance)

NM108 OUTPUT REPORT.TXT

is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: N-NM-108
REACH: NM-108

RS: 2132

INPUT

Description:

Station	Elevation	Data	num= 102							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	
0	96.12	9.98	96.26	14.96	96.25	24.94	96.46	29.93	96.46	
34.92	96.36	44.89	96.49	49.88	96.32	84.79	96.23	89.78	96.16	
104.75	96.35	134.67	96.21	149.64	95.93	154.63	96.02	159.61	96.23	
164.6	96.04	169.59	95.97	184.55	96.04	189.54	95.97	194.53	96.15	
199.52	96.14	204.5	95.9	214.48	96.12	224.46	96.11	229.44	96.19	
234.43	96.04	244.41	95.97	254.38	96.24	259.37	96.22	264.36	96.09	
269.35	96.15	274.34	96	284.31	96.08	289.3	95.93	294.29	96.08	
304.26	95.96	309.25	96.13	314.24	95.99	324.21	96.1	329.2	96.06	
334.19	96.16	354.14	96	359.13	96.15	394.05	96.19	399.03	96.11	
428.96	96.29	443.93	96.19	463.88	96.43	483.83	96.34	488.82	96.24	
503.78	96.45	523.73	96.39	528.72	96.31	538.7	96.53	568.62	96.5	
578.6	96.83	583.59	96.84	588.57	96.64	598.55	96.82	603.54	96.83	
608.53	96.95	618.5	96.85	623.49	97.05	638.45	97.06	643.44	97.19	
648.43	97.2	653.42	97.08	658.41	97.14	668.38	97.04	673.37	97.75	
683.34	97.35	688.33	97.35	693.32	94.82	698.31	91.28	703.3	89.4	
708.28	89.27	713.27	89.37	718.26	91.81	723.25	95.05	726.61	96.95	
728.24	97.87	733.22	98.62	738.21	98.85	743.2	98.71	748.19	98.41	
753.18	98.33	763.15	97.94	773.13	98.06	783.1	98.38	798.07	98.48	
803.05	98.61	867.9	99	872.89	99.12	937.73	99.43	942.72	99.54	
967.66	99.58	972.64	99.71	1002.57	99.65	1007.56	99.74	1032.5	99.76	
1037.49	99.92	1062.43	99.8							

Manning's n Values			num= 3		
Sta	n Val	Sta	n Val	Sta	n Val
0	.06	688.33	.04	728.24	.06

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	688.33	728.24		268	205		.1	.3

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	91.53	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	wt. n-val.		0.040
W.S. Elev (ft)	91.52	Reach Len. (ft)	268.00	205.00
206.00				
Crit w.s. (ft)		Flow Area (sq ft)		32.51
E.G. Slope (ft/ft)	0.000149	Area (sq ft)		32.51
Q Total (cfs)	20.00	Flow (cfs)		20.00
Top width (ft)	19.69	Top width (ft)		19.69
Vel Total (ft/s)	0.62	Avg. vel. (ft/s)		0.62
Max Chl Dpth (ft)	2.25	Hydr. Depth (ft)		1.65

NM108 OUTPUT REPORT.TXT				
Conv. Total (cfs)	1636.1	Conv. (cfs)		1636.1
Length Wtd. (ft)	205.00	Wetted Per. (ft)		20.61
Min Ch El (ft)	89.27	Shear (lb/sq ft)		0.01
Alpha 0.00	1.00	Stream Power (lb/ft s)	1062.43	0.00
Frctn Loss (ft)	0.11	Cum Volume (acre-ft)		0.76
C & E Loss (ft)	0.02	Cum SA (acres)		0.67

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	91.69	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-val.		0.040
W.S. Elev (ft)	91.68	Reach Len. (ft)	268.00	205.00
206.00 Crit w.s. (ft)		Flow Area (sq ft)		35.70
E.G. slope (ft/ft)	0.000193	Area (sq ft)		35.70
Q Total (cfs)	26.00	Flow (cfs)		26.00
Top width (ft)	20.25	Top width (ft)		20.25
vel Total (ft/s)	0.73	Avg. vel. (ft/s)		0.73
Max Chl Dpth (ft)	2.41	Hydr. Depth (ft)		1.76
Conv. Total (cfs)	1873.9	Conv. (cfs)		1873.9
Length Wtd. (ft)	205.00	Wetted Per. (ft)		21.25
Min Ch El (ft)	89.27	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	1062.43	0.00
Frctn Loss (ft)	0.14	Cum volume (acre-ft)		0.95
C & E Loss (ft)	0.03	Cum SA (acres)		0.72

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	91.97	Element	Left OB	Channel
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NM108 OUTPUT REPORT.TXT

Right OB				
Vel Head (ft)	0.01	wt. n-Val.		0.040
W.S. Elev (ft)	91.96	Reach Len. (ft)	268.00	205.00
206.00				
Crit w.s. (ft)		Flow Area (sq ft)		41.49
E.G. Slope (ft/ft)	0.000280	Area (sq ft)		41.49
Q Total (cfs)	39.00	Flow (cfs)		39.00
Top width (ft)	21.14	Top width (ft)		21.14
Vel Total (ft/s)	0.94	Avg. Vel. (ft/s)		0.94
Max Chl Dpth (ft)	2.69	Hydr. Depth (ft)		1.96
Conv. Total (cfs)	2331.4	Conv. (cfs)		2331.4
Length wtd. (ft)	205.00	wetted Per. (ft)		22.31
Min ch El (ft)	89.27	Shear (lb/sq ft)		0.03
Alpha	1.00	Stream Power (lb/ft s)	1062.43	0.00
0.00				
Frctn Loss (ft)	0.19	Cum Volume (acre-ft)		1.33
C & E Loss (ft)	0.03	Cum SA (acres)		0.81

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	91.53	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	wt. n-Val.		0.040
W.S. Elev (ft)	91.52	Reach Len. (ft)	268.00	205.00
206.00				
Crit w.s. (ft)		Flow Area (sq ft)		32.51
E.G. Slope (ft/ft)	0.000149	Area (sq ft)		32.51
Q Total (cfs)	20.00	Flow (cfs)		20.00
Top width (ft)	19.69	Top width (ft)		19.69
Vel Total (ft/s)	0.62	Avg. Vel. (ft/s)		0.62
Max Chl Dpth (ft)	2.25	Hydr. Depth (ft)		1.65
Conv. Total (cfs)	1636.2	Conv. (cfs)		1636.2
Length wtd. (ft)	205.00	wetted Per. (ft)		20.61
Min ch El (ft)	89.27	Shear (lb/sq ft)		0.01

NM108 OUTPUT REPORT.TXT

Alpha	1.00	Stream Power (lb/ft s)	1062.43	0.00
0.00				
Frctn Loss (ft)	0.11	Cum Volume (acre-ft)		0.79
C & E Loss (ft)	0.02	Cum SA (acres)		0.68

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	91.69	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	wt. n-val.		0.040
W.S. Elev (ft)	91.68	Reach Len. (ft)	268.00	205.00
206.00				
Crit w.s. (ft)		Flow Area (sq ft)		35.69
E.G. slope (ft/ft)	0.000193	Area (sq ft)		35.69
Q Total (cfs)	26.00	Flow (cfs)		26.00
Top width (ft)	20.24	Top width (ft)		20.24
vel Total (ft/s)	0.73	Avg. vel. (ft/s)		0.73
Max chl Dpth (ft)	2.41	Hydr. Depth (ft)		1.76
Conv. Total (cfs)	1873.0	Conv. (cfs)		1873.0
Length wtd. (ft)	205.00	wetted Per. (ft)		21.25
Min Ch El (ft)	89.27	Shear (lb/sq ft)		0.02
Alpha	1.00	Stream Power (lb/ft s)	1062.43	0.00
0.00				
Frctn Loss (ft)	0.14	Cum volume (acre-ft)		0.99
C & E Loss (ft)	0.03	Cum SA (acres)		0.73

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	91.97	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	wt. n-val.		0.040
W.S. Elev (ft)	91.96	Reach Len. (ft)	268.00	205.00
206.00				
Crit w.s. (ft)		Flow Area (sq ft)		41.52

NM108 OUTPUT REPORT.TXT

E.G. slope (ft/ft)	0.000279	Area (sq ft)	41.52
Q Total (cfs)	39.00	Flow (cfs)	39.00
Top width (ft)	21.14	Top width (ft)	21.14
Vel Total (ft/s)	0.94	Avg. Vel. (ft/s)	0.94
Max chl Dpth (ft)	2.69	Hydr. Depth (ft)	1.96
Conv. Total (cfs)	2333.3	Conv. (cfs)	2333.3
Length wtd. (ft)	205.00	wetted Per. (ft)	22.31
Min ch El (ft)	89.27	shear (lb/sq ft)	0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	1062.43 0.00
Frctn Loss (ft)	0.19	Cum Volume (acre-ft)	1.38
C & E Loss (ft)	0.03	Cum SA (acres)	0.82

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: N-NM-108
REACH: NM-108

RS: 1927

INPUT

Description:

Station Elevation Data	num=	105
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev		
0 96.14 9.98 96.01 14.97 96.1 29.95 95.9 79.85 95.81		
89.84 95.96 94.83 95.82 104.81 95.89 109.8 96.01 114.79 95.83		
124.77 95.93 129.76 95.78 134.76 95.91 144.74 95.87 149.73 95.93		
154.72 96.09 159.71 96.13 164.7 95.9 169.69 95.95 174.68 96.1		
179.67 96 194.65 95.96 199.64 96.02 234.57 96.12 239.56 95.94		
259.53 96.06 269.51 95.81 274.5 95.8 279.49 96.01 284.48 95.98		
289.47 96.1 294.47 96.08 299.46 95.9 309.44 96.11 319.42 96.07		
324.41 95.92 329.4 95.98 339.38 96.31 344.37 96.06 349.37 96.01		
364.34 96.15 379.31 96 389.29 96.24 399.27 96.1 409.26 96.22		
414.25 96.2 439.2 96.43 454.18 96.33 464.16 96.52 474.14 96.29		
484.12 96.57 509.08 96.49 514.07 96.54 524.05 96.82 529.04 96.49		
534.03 96.52 539.02 96.72 544.01 96.74 549 96.6 558.98 96.6		
568.97 96.95 573.96 96.97 578.95 96.82 598.91 96.76 603.9 97.01		
608.89 96.93 613.89 97.16 643.83 97.06 658.8 97.18 663.79 97.33		
668.79 97.78 673.78 97.73 678.77 98.01 683.76 98.13 688.75 97.22		
693.74 93.76 698.73 91.51 703.72 91.09 708.71 90.17 713.7 91.16		
718.69 95.07 721.67 96.06 723.69 96.73 728.68 97.25 733.67 97.57		
753.63 97.5 773.6 97.87 818.51 98.1 833.49 97.97 848.46 98.15		
853.45 98.1 858.44 98.23 908.35 98.28 918.33 98.41 923.32 98.33		
933.31 98.42 938.3 98.34 943.29 98.54 998.19 98.56 1003.18 98.62		
1013.16 98.56 1018.15 98.64 1023.14 98.57 1058.08 98.58 1063.07 98.46		

Manning's n values

num= 3

NM108 OUTPUT REPORT.TXT

Sta n Val Sta n Val Sta n Val
 0 .06 688.75 .04 728.68 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 688.75 728.68 242 439 230 .1 .3

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	91.39	Element	Left OB	Channel
Right OB Vel Head (ft)	0.24	wt. n-Val.		0.040
W.S. Elev (ft)	91.15	Reach Len. (ft)	242.00	439.00
230.00 Crit w.s. (ft)	91.15	Flow Area (sq ft)		5.06
E.G. Slope (ft/ft)	0.031344	Area (sq ft)		5.06
Q Total (cfs)	20.00	Flow (cfs)		20.00
Top width (ft)	10.68	Top width (ft)		10.68
Vel Total (ft/s)	3.95	Avg. Vel. (ft/s)		3.95
Max Chl Dpth (ft)	0.98	Hydr. Depth (ft)		0.47
Conv. Total (cfs)	113.0	Conv. (cfs)		113.0
Length wtd. (ft)	439.00	wetted Per. (ft)		10.86
Min Ch El (ft)	90.17	Shear (lb/sq ft)		0.91
Alpha	1.00	Stream Power (lb/ft s)	1063.07	0.00
0.00 Frctn Loss (ft)	1.98	Cum Volume (acre-ft)		0.67
C & E Loss (ft)	0.06	Cum SA (acres)		0.60

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
 Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
 Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
 Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	91.53	Element	Left OB	Channel
Right OB Vel Head (ft)	0.27	wt. n-Val.		0.040

NM108 OUTPUT REPORT.TXT

W.S. Elev (ft)	91.26	Reach Len. (ft)	242.00	439.00
230.00 Crit w.s. (ft)	91.26	Flow Area (sq ft)		6.27
E.G. Slope (ft/ft)	0.030634	Area (sq ft)		6.27
Q Total (cfs)	26.00	Flow (cfs)		26.00
Top width (ft)	12.11	Top width (ft)		12.11
Vel Total (ft/s)	4.14	Avg. Vel. (ft/s)		4.14
Max Chl Dpth (ft)	1.09	Hydr. Depth (ft)		0.52
Conv. Total (cfs)	148.6	Conv. (cfs)		148.6
Length wtd. (ft)	439.00	wetted Per. (ft)		12.33
Min Ch El (ft)	90.17	Shear (lb/sq ft)		0.97
Alpha	1.00	Stream Power (lb/ft s)	1063.07	0.00
0.00 Frctn Loss (ft)	1.51	Cum Volume (acre-ft)		0.85
C & E Loss (ft)	0.07	Cum SA (acres)		0.65

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	91.75	Element	Left OB	Channel
Right OB Vel Head (ft)	0.31	wt. n-val.		0.040
W.S. Elev (ft)	91.45	Reach Len. (ft)	242.00	439.00
230.00 Crit w.s. (ft)	91.45	Flow Area (sq ft)		8.78
E.G. Slope (ft/ft)	0.028910	Area (sq ft)		8.78
Q Total (cfs)	39.00	Flow (cfs)		39.00
Top width (ft)	14.58	Top width (ft)		14.58
Vel Total (ft/s)	4.44	Avg. Vel. (ft/s)		4.44

NM108 OUTPUT REPORT.TXT

Max Chl Dpth (ft)	1.28	Hydr. Depth (ft)	0.60
Conv. Total (cfs)	229.4	Conv. (cfs)	229.4
Length Wtd. (ft)	439.00	Wetted Per. (ft)	14.87
Min Ch El (ft)	90.17	Shear (lb/sq ft)	1.07
Alpha 0.00	1.00	Stream Power (lb/ft s)	1063.07
Frctn Loss (ft)	1.09	Cum Volume (acre-ft)	1.21
C & E Loss (ft)	0.08	Cum SA (acres)	0.73

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	91.39	Element	Left OB	Channel
Right OB Vel Head (ft)	0.24	wt. n-val.		0.040
W.S. Elev (ft)	91.15	Reach Len. (ft)	242.00	439.00
230.00 Crit W.S. (ft)	91.15	Flow Area (sq ft)		5.06
E.G. Slope (ft/ft)	0.031344	Area (sq ft)		5.06
Q Total (cfs)	20.00	Flow (cfs)		20.00
Top Width (ft)	10.68	Top Width (ft)		10.68
Vel Total (ft/s)	3.95	Avg. Vel. (ft/s)		3.95
Max Chl Dpth (ft)	0.98	Hydr. Depth (ft)		0.47
Conv. Total (cfs)	113.0	Conv. (cfs)		113.0
Length Wtd. (ft)	439.00	wetted Per. (ft)		10.86
Min Ch El (ft)	90.17	Shear (lb/sq ft)		0.91
Alpha 0.00	1.00	Stream Power (lb/ft s)	1063.07	0.00
Frctn Loss (ft)	1.76	Cum Volume (acre-ft)		0.70

NM108 OUTPUT REPORT.TXT

C & E Loss (ft) 0.07 Cum SA (acres) 0.61

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
 Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
 Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
 Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	91.53	Element	Left OB	Channel
Right OB Vel Head (ft)	0.27	wt. n-Val.		0.040
W.S. Elev (ft)	91.26	Reach Len. (ft)	242.00	439.00
230.00 Crit w.s. (ft)	91.26	Flow Area (sq ft)		6.27
E.G. Slope (ft/ft)	0.030654	Area (sq ft)		6.27
Q Total (cfs)	26.00	Flow (cfs)		26.00
Top width (ft)	12.11	Top width (ft)		12.11
Vel Total (ft/s)	4.14	Avg. Vel. (ft/s)		4.14
Max Chl Dpth (ft)	1.09	Hydr. Depth (ft)		0.52
Conv. Total (cfs)	148.5	Conv. (cfs)		148.5
Length wtd. (ft)	439.00	wetted Per. (ft)		12.33
Min Ch El (ft)	90.17	Shear (lb/sq ft)		0.97
Alpha 0.00	1.00	Stream Power (lb/ft s)	1063.07	0.00
Frctn Loss (ft)	1.33	Cum Volume (acre-ft)		0.89
C & E Loss (ft)	0.07	Cum SA (acres)		0.66

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
 Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

NM108 OUTPUT REPORT.TXT

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	91.75	Element	Left OB	Channel
Right OB Vel Head (ft)	0.31	wt. n-Val.		0.040
W.S. Elev (ft)	91.45	Reach Len. (ft)	242.00	439.00
230.00 Crit w.s. (ft)	91.45	Flow Area (sq ft)		8.78
E.G. slope (ft/ft)	0.028913	Area (sq ft)		8.78
Q Total (cfs)	39.00	Flow (cfs)		39.00
Top width (ft)	14.58	Top width (ft)		14.58
Vel Total (ft/s)	4.44	Avg. Vel. (ft/s)		4.44
Max Chl Dpth (ft)	1.28	Hydr. Depth (ft)		0.60
Conv. Total (cfs)	229.4	Conv. (cfs)		229.4
Length wtd. (ft)	439.00	wetted Per. (ft)		14.87
Min Ch El (ft)	90.17	Shear (lb/sq ft)		1.07
Alpha 0.00	1.00	Stream Power (lb/ft s)	1063.07	0.00
Frctn Loss (ft)	0.98	Cum Volume (acre-ft)		1.26
C & E Loss (ft)	0.08	Cum SA (acres)		0.73

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

NM108 OUTPUT REPORT.TXT

RIVER: N-NM-108
 REACH: NM-108

RS: 1488

INPUT

Description:

Station Elevation Data		num= 91	
Sta	Elev	Sta	Elev
0	98	14.98	97.99
119.86	97.39	124.85	97.15
179.78	97.01	184.78	97.22
274.67	96.63	334.6	96.42
389.53	96.3	399.52	96.1
419.49	91.4	424.49	88.91
444.46	91.18	448.93	91.63
464.44	97.57	469.43	97.62
494.4	97.65	499.4	97.81
584.29	97.6	589.29	97.79
619.25	97.05	629.24	97.25
724.12	97.18	729.12	97.37
764.07	97.7	789.04	97.56
809.02	97.61	838.98	97.43
858.96	97.46	863.95	97.67
898.91	97.68	903.9	97.57
928.87	98.35	953.84	98.65
993.79	98.36	998.79	98.26
1063.71	98.32		

Manning's n Values		num= 3	
Sta	n Val	Sta	n Val
0	.06	409.5	.04
		459.44	.06

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.	Expan.
	409.5	459.44		316	314	.1	.3

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	89.27	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.03	wt. n-val.		0.040
w.s. Elev (ft)	89.24	Reach Len. (ft)	316.00	314.00
360.00				
Crit w.s. (ft)		Flow Area (sq ft)		14.87
E.G. slope (ft/ft)	0.001714	Area (sq ft)		14.87
Q Total (cfs)	20.00	Flow (cfs)		20.00
Top width (ft)	17.66	Top width (ft)		17.66
vel Total (ft/s)	1.34	Avg. vel. (ft/s)		1.34
Max chl Dpth (ft)	1.31	Hydr. Depth (ft)		0.84
Conv. Total (cfs)	483.1	Conv. (cfs)		483.1
Length wtd. (ft)	314.00	wetted Per. (ft)		18.18
Min ch El (ft)	87.93	shear (lb/sq ft)		0.09
Alpha	1.00	Stream Power (lb/ft s)	1063.71	0.00
0.00				

	NM108 OUTPUT REPORT.TXT	
Frctn Loss (ft)	0.30	Cum Volume (acre-ft) 0.57
C & E Loss (ft)	0.00	Cum SA (acres) 0.46

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	89.53	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	wt. n-val.		0.040
W.S. Elev (ft)	89.50	Reach Len. (ft)	316.00	314.00
360.00 Crit W.S. (ft)		Flow Area (sq ft)		19.61
E.G. Slope (ft/ft)	0.001242	Area (sq ft)		19.61
Q Total (cfs)	26.00	Flow (cfs)		26.00
Top width (ft)	18.58	Top width (ft)		18.58
Vel Total (ft/s)	1.33	Avg. Vel. (ft/s)		1.33
Max Chl Dpth (ft)	1.57	Hydr. Depth (ft)		1.06
Conv. Total (cfs)	737.7	Conv. (cfs)		737.7
Length wtd. (ft)	314.00	wetted Per. (ft)		19.25
Min Ch El (ft)	87.93	Shear (lb/sq ft)		0.08
Alpha 0.00	1.00	Stream Power (lb/ft s)	1063.71	0.00
Frctn Loss (ft)	0.29	Cum Volume (acre-ft)		0.72
C & E Loss (ft)	0.00	Cum SA (acres)		0.49

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	90.02	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	wt. n-val.		0.040
W.S. Elev (ft)	89.99	Reach Len. (ft)	316.00	314.00
360.00 Crit W.S. (ft)		Flow Area (sq ft)		29.11
E.G. Slope (ft/ft)	0.000854	Area (sq ft)		29.11

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Q Total (cfs)	39.00	Flow (cfs)	39.00
Top width (ft)	20.31	Top width (ft)	20.31
Vel Total (ft/s)	1.34	Avg. Vel. (ft/s)	1.34
Max Chl Dpth (ft)	2.06	Hydr. Depth (ft)	1.43
Conv. Total (cfs)	1334.3	Conv. (cfs)	1334.3
Length wtd. (ft)	314.00	Wetted Per. (ft)	21.24
Min Ch El (ft)	87.93	Shear (lb/sq ft)	0.07
Alpha 0.00	1.00	Stream Power (lb/ft s)	1063.71
Frctn Loss (ft)	0.27	Cum Volume (acre-ft)	1.02
C & E Loss (ft)	0.00	Cum SA (acres)	0.55

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	89.31	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	wt. n-val.		0.040
W.S. Elev (ft)	89.28	Reach Len. (ft)	316.00	314.00
360.00 Crit w.s. (ft)		Flow Area (sq ft)		15.56
E.G. slope (ft/ft)	0.001490	Area (sq ft)		15.56
Q Total (cfs)	20.00	Flow (cfs)		20.00
Top width (ft)	17.79	Top width (ft)		17.79
Vel Total (ft/s)	1.29	Avg. Vel. (ft/s)		1.29
Max Chl Dpth (ft)	1.35	Hydr. Depth (ft)		0.87
Conv. Total (cfs)	518.1	Conv. (cfs)		518.1
Length wtd. (ft)	314.00	Wetted Per. (ft)		18.34
Min Ch El (ft)	87.93	Shear (lb/sq ft)		0.08
Alpha 0.00	1.00	Stream Power (lb/ft s)	1063.71	0.00
Frctn Loss (ft)	0.29	Cum Volume (acre-ft)		0.60
C & E Loss (ft)	0.00	Cum SA (acres)		0.46

NM108 OUTPUT REPORT.TXT

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	89.58	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-val.		0.040
W.S. Elev (ft)	89.56	Reach Len. (ft)	316.00	314.00
360.00 Crit W.S. (ft)		Flow Area (sq ft)		20.63
E.G. Slope (ft/ft)	0.001066	Area (sq ft)		20.63
Q Total (cfs)	26.00	Flow (cfs)		26.00
Top width (ft)	18.78	Top width (ft)		18.78
Vel Total (ft/s)	1.26	Avg. Vel. (ft/s)		1.26
Max Chl Dpth (ft)	1.63	Hydr. Depth (ft)		1.10
Conv. Total (cfs)	796.4	Conv. (cfs)		796.4
Length wtd. (ft)	314.00	wetted Per. (ft)		19.47
Min Ch El (ft)	87.93	shear (lb/sq ft)		0.07
Alpha 0.00	1.00	Stream Power (lb/ft s)	1063.71	0.00
Frctn Loss (ft)	0.28	Cum Volume (acre-ft)		0.76
C & E Loss (ft)	0.00	Cum SA (acres)		0.50

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	90.08	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	wt. n-val.		0.040
W.S. Elev (ft)	90.05	Reach Len. (ft)	316.00	314.00
360.00 Crit W.S. (ft)		Flow Area (sq ft)		30.42
E.G. Slope (ft/ft)	0.000750	Area (sq ft)		30.42
Q Total (cfs)	39.00	Flow (cfs)		39.00
Top width (ft)	20.54	Top width (ft)		20.54
Vel Total (ft/s)	1.28	Avg. Vel. (ft/s)		1.28

NM108 OUTPUT REPORT.TXT

Max Chl Dpth (ft)	2.12	Hydr. Depth (ft)	1.48
Conv. Total (cfs)	1424.1	Conv. (cfs)	1424.1
Length wtd. (ft)	314.00	Wetted Per. (ft)	21.50
Min Ch El (ft)	87.93	Shear (lb/sq ft)	0.07
Alpha	1.00	Stream Power (lb/ft s)	1063.71
0.00			0.00
Frctn Loss (ft)	0.26	Cum Volume (acre-ft)	1.06
C & E Loss (ft)	0.00	Cum SA (acres)	0.56

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: N-NM-108
 REACH: NM-108 RS: 1174

INPUT

Description:

Station Elevation Data num= 106

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	97.57	9.95	97.75	39.82	97.51	49.77	97.68	54.75	97.99
59.72	97.92	69.68	97.44	84.61	97.34	89.58	97.21	94.56	97.31
99.54	96.31	104.52	96.26	109.49	95.87	119.45	96.18	124.42	96.21
134.38	96.02	149.31	96.26	154.28	96.41	169.21	96.54	179.17	96.43
209.03	96.42	218.98	96.1	233.91	96.1	243.87	95.88	258.8	95.95
273.73	95.64	293.64	95.87	303.59	95.77	308.57	95.55	318.52	95.46
323.5	95.12	333.45	95.42	338.43	95.05	348.38	95.07	353.36	95.95
358.34	96.6	363.31	96.56	368.29	96.91	373.27	97.16	378.24	97.01
383.22	97	388.2	93.77	393.18	89.35	398.15	87.2	403.13	86.9
408.11	86.9	413.08	88.75	418.06	92.74	419.99	93.21	423.04	93.94
428.01	94.7	432.99	95.23	437.97	95.76	442.94	95.73	452.9	95.49
462.85	95.82	492.71	96.32	507.64	96.85	552.44	96.72	557.41	96.63
562.39	96.29	567.37	96.17	572.34	95.93	577.32	95.87	582.3	95.38
592.25	95.57	602.21	95.5	607.18	95.62	612.16	95.55	617.14	95.93
622.11	95.96	632.07	96.53	642.02	96.46	651.97	96.61	691.79	96.53
711.7	96.15	726.63	96.12	736.58	96.74	746.54	96.55	766.44	96.98
781.37	96.85	786.35	97.02	791.33	96.97	811.23	97.3	831.14	97.16
841.1	97.24	846.07	97.12	865.98	97.37	870.96	97.51	875.93	97.54
880.91	97.36	890.87	97.47	895.84	97.33	900.82	97.31	905.8	97.48
920.73	97.58	925.7	97.45	965.52	97.16	995.38	97.56	1020.26	97
1035.2	97.18	1045.15	97.07	1050.13	97.33	1055.1	97.86	1060.08	97.7
1065.06	97.75								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	383.22	.04	437.97	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
383.22	437.97	379	381	384	.1	.3

CROSS SECTION OUTPUT Profile #EX 10Y

NM108 OUTPUT REPORT.TXT

E.G. Elev (ft)	88.97	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	wt. n-val.		0.040
W.S. Elev (ft)	88.94	Reach Len. (ft)	379.00	381.00
384.00 Crit W.S. (ft)		Flow Area (sq ft)		28.62
E.G. Slope (ft/ft)	0.000749	Area (sq ft)		28.62
Q Total (cfs)	37.00	Flow (cfs)		37.00
Top width (ft)	19.19	Top width (ft)		19.19
Vel Total (ft/s)	1.29	Avg. Vel. (ft/s)		1.29
Max Chl Dpth (ft)	2.04	Hydr. Depth (ft)		1.49
Conv. Total (cfs)	1352.0	Conv. (cfs)		1352.0
Length wtd. (ft)	381.00	wetted Per. (ft)		19.95
Min ch El (ft)	86.90	Shear (lb/sq ft)		0.07
Alpha 0.00	1.00	Stream Power (lb/ft s)	1065.06	0.00
Frctn Loss (ft)	0.70	Cum Volume (acre-ft)		0.42
C & E Loss (ft)	0.01	Cum SA (acres)		0.32

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	89.24	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	wt. n-val.		0.040
W.S. Elev (ft)	89.21	Reach Len. (ft)	379.00	381.00
384.00 Crit W.S. (ft)		Flow Area (sq ft)		33.86
E.G. Slope (ft/ft)	0.000806	Area (sq ft)		33.86
Q Total (cfs)	49.00	Flow (cfs)		49.00
Top width (ft)	20.13	Top width (ft)		20.13
Vel Total (ft/s)	1.45	Avg. Vel. (ft/s)		1.45
Max Chl Dpth (ft)	2.31	Hydr. Depth (ft)		1.68
Conv. Total (cfs)	1726.4	Conv. (cfs)		1726.4
Length wtd. (ft)	381.00	wetted Per. (ft)		21.05

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Min Ch El (ft)	86.90	Shear (lb/sq ft)		0.08
Alpha 0.00	1.00	Stream Power (lb/ft s)	1065.06	0.00
Frctn Loss (ft)	0.66	Cum Volume (acre-ft)		0.53
C & E Loss (ft)	0.01	Cum SA (acres)		0.35

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	89.75	Element	Left OB	Channel
Right OB Vel Head (ft)	0.04	wt. n-val.		0.040
W.S. Elev (ft)	89.70	Reach Len. (ft)	379.00	381.00
384.00 Crit w.s. (ft)		Flow Area (sq ft)		44.20
E.G. slope (ft/ft)	0.000860	Area (sq ft)		44.20
Q Total (cfs)	75.00	Flow (cfs)		75.00
Top width (ft)	21.48	Top width (ft)		21.48
vel Total (ft/s)	1.70	Avg. vel. (ft/s)		1.70
Max Chl Dpth (ft)	2.80	Hydr. Depth (ft)		2.06
Conv. Total (cfs)	2557.7	Conv. (cfs)		2557.7
Length wtd. (ft)	381.00	wetted Per. (ft)		22.74
Min Ch El (ft)	86.90	Shear (lb/sq ft)		0.10
Alpha 0.00	1.00	Stream Power (lb/ft s)	1065.06	0.00
Frctn Loss (ft)	0.59	Cum volume (acre-ft)		0.75
C & E Loss (ft)	0.01	Cum SA (acres)		0.40

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	89.01	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	wt. n-val.		0.040

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W.S. Elev (ft)	88.98	Reach Len. (ft)	379.00	381.00
384.00 Crit W.S. (ft)		Flow Area (sq ft)		29.50
E.G. Slope (ft/ft)	0.000762	Area (sq ft)		29.50
Q Total (cfs)	39.00	Flow (cfs)		39.00
Top width (ft)	19.35	Top width (ft)		19.35
Vel Total (ft/s)	1.32	Avg. Vel. (ft/s)		1.32
Max Chl Dpth (ft)	2.08	Hydr. Depth (ft)		1.52
Conv. Total (cfs)	1412.9	Conv. (cfs)		1412.9
Length wtd. (ft)	381.00	wetted Per. (ft)		20.14
Min ch El (ft)	86.90	Shear (lb/sq ft)		0.07
Alpha 0.00	1.00	Stream Power (lb/ft s)	1065.06	0.00
Frctn Loss (ft)	0.69	Cum Volume (acre-ft)		0.43
C & E Loss (ft)	0.01	Cum SA (acres)		0.33

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	89.30	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	wt. n-val.		0.040
W.S. Elev (ft)	89.27	Reach Len. (ft)	379.00	381.00
384.00 Crit W.S. (ft)		Flow Area (sq ft)		35.10
E.G. Slope (ft/ft)	0.000818	Area (sq ft)		35.10
Q Total (cfs)	52.00	Flow (cfs)		52.00
Top width (ft)	20.35	Top width (ft)		20.35
Vel Total (ft/s)	1.48	Avg. Vel. (ft/s)		1.48
Max Chl Dpth (ft)	2.37	Hydr. Depth (ft)		1.72
Conv. Total (cfs)	1818.6	Conv. (cfs)		1818.6
Length wtd. (ft)	381.00	wetted Per. (ft)		21.30
Min ch El (ft)	86.90	Shear (lb/sq ft)		0.08
Alpha 0.00	1.00	Stream Power (lb/ft s)	1065.06	0.00
Frctn Loss (ft)	0.65	Cum Volume (acre-ft)		0.56

NM108 OUTPUT REPORT.TXT

C & E Loss (ft) 0.01 Cum SA (acres) 0.36

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	89.82	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.05	wt. n-val.		0.040
W.S. Elev (ft)	89.77	Reach Len. (ft)	379.00	381.00
384.00				
Crit W.S. (ft)		Flow Area (sq ft)		45.73
E.G. slope (ft/ft)	0.000863	Area (sq ft)		45.73
Q Total (cfs)	79.00	Flow (cfs)		79.00
Top width (ft)	21.65	Top width (ft)		21.65
vel Total (ft/s)	1.73	Avg. vel. (ft/s)		1.73
Max Chl Dpth (ft)	2.87	Hydr. Depth (ft)		2.11
Conv. Total (cfs)	2689.5	Conv. (cfs)		2689.5
Length wtd. (ft)	381.00	wetted Per. (ft)		22.96
Min Ch El (ft)	86.90	Shear (lb/sq ft)		0.11
Alpha	1.00	Stream Power (lb/ft s)	1065.06	0.00
0.00				
Frctn Loss (ft)	0.58	Cum volume (acre-ft)		0.79
C & E Loss (ft)	0.01	Cum SA (acres)		0.41

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: N-NM-108
REACH: NM-108 RS: 793

INPUT

Description:

Station	Elevation	Data	num=	115					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	98.07	59.77	97.96	64.75	97.68	69.74	97.6	74.72	97.41
99.62	97.23	104.6	96.51	109.58	95.48	114.56	95.21	124.53	95.25
139.47	95.9	144.45	96.34	149.43	96.61	154.41	96.68	209.21	96.64

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214.19	96.8	229.13	96.82	234.11	96.73	249.05	96.72	254.04	96.8
259.02	96.59	268.98	96.57	273.96	96.67	278.94	97.02	293.88	97.11
298.86	96.72	303.85	96.11	308.83	96.1	313.81	95.44	318.79	94.55
323.77	94.43	348.68	94.5	353.66	95.05	358.64	96.05	363.62	96.91
368.6	97.11	373.58	97.52	378.56	97.63	383.54	96.32	385.96	94.69
388.52	92.96	393.5	91.73	398.49	89.37	403.47	87.21	408.45	87.01
413.43	87.21	418.41	89.23	423.39	93.04	425.96	94.13	428.37	95.15
433.35	95.44	443.32	95.34	458.26	95.6	463.24	95.58	468.22	95.31
473.2	95.26	478.18	95.39	483.16	95.42	488.15	95.56	493.13	95.9
498.11	96.13	508.07	96.04	518.03	96.19	562.86	95.86	572.82	95.34
577.8	95.28	582.79	94.7	597.73	94.67	602.71	94.81	612.67	94.61
617.65	94.6	627.62	95.57	632.6	95.75	642.56	95.89	647.54	96.19
672.44	95.94	677.43	96.06	682.41	96.08	692.37	95.95	697.35	95.81
707.31	95.69	712.29	95.5	727.24	95.42	732.22	95.51	737.2	95.8
742.18	96.2	747.16	96.34	752.14	96.37	762.1	96.8	772.07	96.93
816.9	96.58	846.78	96.76	861.73	96.55	866.71	96.37	886.63	96.4
891.61	96.56	896.59	96.55	901.57	96.42	906.56	96.42	916.52	96.23
926.48	96.32	931.46	96.17	941.42	96.16	951.38	96.51	981.27	96.6
991.23	96.43	996.21	96.24	1001.2	96.17	1011.16	96.32	1026.1	96.26
1031.08	96.36	1046.03	96.33	1051.01	96.16	1060.97	96.97	1065.95	96.89

Manning's n values	num=	3
Sta n Val	Sta n Val	Sta n Val
0 .06 383.54	.04 428.37	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.	Expan.
383.54	428.37	511	511	511	.1	.3	

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	88.26	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.15	wt. n-val.		0.040
W.S. Elev (ft)	88.10	Reach Len. (ft)	511.00	511.00
511.00		Flow Area (sq ft)		11.79
Crit w.s. (ft)		Area (sq ft)		11.79
E.G. slope (ft/ft)	0.009483	Flow (cfs)		37.00
Q Total (cfs)	37.00	Top width (ft)		14.22
Top width (ft)	14.22	Avg. vel. (ft/s)		3.14
Vel Total (ft/s)	3.14	Hydr. Depth (ft)		0.83
Max Chl Dpth (ft)	1.09	Conv. (cfs)		379.9
Conv. Total (cfs)	379.9	wetted Per. (ft)		14.59
Length wtd. (ft)	511.00	Shear (lb/sq ft)		0.48
Min Ch El (ft)	87.01	Stream Power (lb/ft s)	1065.95	0.00
Alpha	1.00	Cum Volume (acre-ft)		0.24
0.00		Cum SA (acres)		0.18
Frctn Loss (ft)	0.78			
C & E Loss (ft)	0.04			

NM108 OUTPUT REPORT.TXT

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	88.57	Element	Left OB	Channel
Right OB Vel Head (ft)	0.13	wt. n-val.		0.040
W.S. Elev (ft)	88.43	Reach Len. (ft)	511.00	511.00
511.00 Crit w.s. (ft)		Flow Area (sq ft)		16.74
E.G. Slope (ft/ft)	0.005989	Area (sq ft)		16.74
Q Total (cfs)	49.00	Flow (cfs)		49.00
Top width (ft)	15.79	Top width (ft)		15.79
Vel Total (ft/s)	2.93	Avg. Vel. (ft/s)		2.93
Max chl Dpth (ft)	1.42	Hydr. Depth (ft)		1.06
Conv. Total (cfs)	633.2	Conv. (cfs)		633.2
Length wtd. (ft)	511.00	wetted Per. (ft)		16.29
Min ch El (ft)	87.01	shear (lb/sq ft)		0.38
Alpha 0.00	1.00	Stream Power (lb/ft s)	1065.95	0.00
Frctn Loss (ft)	0.71	Cum Volume (acre-ft)		0.31
C & E Loss (ft)	0.03	Cum SA (acres)		0.20

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	89.15	Element	Left OB	Channel
Right OB Vel Head (ft)	0.12	wt. n-val.		0.040
W.S. Elev (ft)	89.03	Reach Len. (ft)	511.00	511.00
511.00 Crit w.s. (ft)		Flow Area (sq ft)		27.00
E.G. Slope (ft/ft)	0.003593	Area (sq ft)		27.00
Q Total (cfs)	75.00	Flow (cfs)		75.00
Top width (ft)	18.64	Top width (ft)		18.64
Vel Total (ft/s)	2.78	Avg. Vel. (ft/s)		2.78

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Max Chl Dpth (ft)	2.02	Hydr. Depth (ft)	1.45
Conv. Total (cfs)	1251.3	Conv. (cfs)	1251.3
Length Wtd. (ft)	511.00	Wetted Per. (ft)	19.38
Min Ch El (ft)	87.01	Shear (lb/sq ft)	0.31
Alpha 0.00	1.00	Stream Power (lb/ft s)	1065.95
Frctn Loss (ft)	0.62	Cum Volume (acre-ft)	0.44
C & E Loss (ft)	0.02	Cum SA (acres)	0.22

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	88.31	Element	Left OB	Channel
Right OB Vel Head (ft)	0.15	wt. n-val.		0.040
W.S. Elev (ft)	88.16	Reach Len. (ft)	511.00	511.00
511.00 Crit w.s. (ft)		Flow Area (sq ft)		12.62
E.G. slope (ft/ft)	0.008634	Area (sq ft)		12.62
Q Total (cfs)	39.00	Flow (cfs)		39.00
Top width (ft)	14.49	Top width (ft)		14.49
Vel Total (ft/s)	3.09	Avg. vel. (ft/s)		3.09
Max Chl Dpth (ft)	1.15	Hydr. Depth (ft)		0.87
Conv. Total (cfs)	419.7	Conv. (cfs)		419.7
Length Wtd. (ft)	511.00	Wetted Per. (ft)		14.88
Min Ch El (ft)	87.01	Shear (lb/sq ft)		0.46
Alpha 0.00	1.00	Stream Power (lb/ft s)	1065.95	0.00
Frctn Loss (ft)	0.77	Cum Volume (acre-ft)		0.25
C & E Loss (ft)	0.04	Cum SA (acres)		0.18

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 25Y

NM108 OUTPUT REPORT.TXT

E.G. Elev (ft)	88.64	Element	Left OB	Channel
Right OB Vel Head (ft)	0.13	wt. n-val.		0.040
W.S. Elev (ft)	88.51	Reach Len. (ft)	511.00	511.00
511.00 Crit W.S. (ft)		Flow Area (sq ft)		17.95
E.G. Slope (ft/ft)	0.005513	Area (sq ft)		17.95
Q Total (cfs)	52.00	Flow (cfs)		52.00
Top width (ft)	16.16	Top width (ft)		16.16
Vel Total (ft/s)	2.90	Avg. Vel. (ft/s)		2.90
Max Chl Dpth (ft)	1.50	Hydr. Depth (ft)		1.11
Conv. Total (cfs)	700.3	Conv. (cfs)		700.3
Length wtd. (ft)	511.00	wetted Per. (ft)		16.69
Min ch El (ft)	87.01	Shear (lb/sq ft)		0.37
Alpha 0.00	1.00	Stream Power (lb/ft s)	1065.95	0.00
Frctn Loss (ft)	0.69	Cum Volume (acre-ft)		0.32
C & E Loss (ft)	0.03	Cum SA (acres)		0.20

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	89.23	Element	Left OB	Channel
Right OB Vel Head (ft)	0.12	wt. n-val.		0.040
W.S. Elev (ft)	89.11	Reach Len. (ft)	511.00	511.00
511.00 Crit W.S. (ft)		Flow Area (sq ft)		28.55
E.G. Slope (ft/ft)	0.003406	Area (sq ft)		28.55
Q Total (cfs)	79.00	Flow (cfs)		79.00
Top width (ft)	19.03	Top width (ft)		19.03
Vel Total (ft/s)	2.77	Avg. Vel. (ft/s)		2.77
Max Chl Dpth (ft)	2.10	Hydr. Depth (ft)		1.50
Conv. Total (cfs)	1353.6	Conv. (cfs)		1353.6
Length wtd. (ft)	511.00	wetted Per. (ft)		19.80

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Min Ch El (ft)	87.01	Shear (lb/sq ft)	0.31
Alpha	1.00	Stream Power (lb/ft s)	1065.95
0.00			0.00
Frctn Loss (ft)	0.61	Cum Volume (acre-ft)	0.46
C & E Loss (ft)	0.02	Cum SA (acres)	0.23

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: N-NM-108
 REACH: NM-108 RS: 282

INPUT

Description:

Station Elevation Data num= 116

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	97.14	24.94	96.9	29.93	96.98	34.92	97.17	39.91	97.22
79.82	96.76	84.81	97.5	94.78	97.44	104.76	97.02	109.75	97.19
114.74	96.96	119.73	95.75	124.71	95.72	129.7	95.79	134.69	95.96
139.68	95.99	154.65	96.57	214.51	96.92	244.44	96.94	249.43	97.03
259.4	96.81	274.37	96.9	284.35	96.78	294.32	96.03	299.31	95.83
309.29	96.05	319.27	96.02	329.24	94.98	334.23	95.04	344.21	95.33
349.2	95.39	354.19	95.23	359.18	95.34	364.16	96.52	369.15	97.48
374.14	97.72	379.13	98.06	384.12	97.93	389.11	96.4	393.25	94.16
394.1	93.7	399.08	92.31	404.07	88.08	409.06	85.76	414.05	84.58
419.04	85.38	424.03	89.07	429.02	93.29	433.25	95.64	434	96.06
438.99	96.13	443.98	96.37	448.97	96.09	458.95	96.15	463.94	96.49
468.92	96.09	473.91	95.81	483.89	95.82	493.87	96.04	498.86	96.39
503.84	96.41	508.83	96.55	513.82	96.51	518.81	96.37	523.8	96.36
533.78	96.59	538.76	96.45	543.75	96.44	548.74	96.29	553.73	96.29
558.72	96.45	568.7	96.49	578.67	96.19	583.66	95.85	593.64	95.57
603.61	95.92	608.6	96.01	613.59	95.9	618.58	95.61	633.55	96.17
643.52	96.76	648.51	96.92	658.49	96.91	663.48	96.78	703.39	96.64
713.36	96.08	723.34	95.96	743.29	96.12	758.26	95.59	768.24	95.54
773.23	95.63	793.18	95.63	798.17	95.53	808.15	95.57	813.13	95.51
823.11	95.54	828.1	95.64	848.05	95.56	853.04	95.45	873	95.39
877.99	95.51	897.94	95.45	902.93	95.31	907.92	95.28	912.91	95.41
977.76	95.38	982.75	95.48	1017.67	95.32	1027.64	95.67	1032.63	95.75
1037.62	95.71	1042.61	95.49	1047.6	95.45	1052.59	95.52	1057.57	95.73
1067.55	95.93								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	389.11	.04	434	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.	Expan.
389.11	434	251	282	251	.1	.3	

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	87.44	Element	Left OB	Channel
Right OB				

		NM108 OUTPUT REPORT.TXT	
Vel Head (ft)	0.03	wt. n-Val.	0.040
W.S. Elev (ft)	87.41	Reach Len. (ft)	
Crit W.S. (ft)	85.83	Flow Area (sq ft)	29.02
E.G. Slope (ft/ft)	0.000601	Area (sq ft)	29.02
Q Total (cfs)	37.00	Flow (cfs)	37.00
Top Width (ft)	16.27	Top Width (ft)	16.27
Vel Total (ft/s)	1.28	Avg. Vel. (ft/s)	1.28
Max Chl Dpth (ft)	2.83	Hydr. Depth (ft)	1.78
Conv. Total (cfs)	1509.4	Conv. (cfs)	1509.4
Length Wtd. (ft)		wetted Per. (ft)	17.51
Min Ch El (ft)	84.58	Shear (lb/sq ft)	0.06
Alpha	1.00	Stream Power (lb/ft s)	1067.55
0.00		Cum Volume (acre-ft)	0.00
Frctn Loss (ft)		Cum SA (acres)	
C & E Loss (ft)			

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	87.82	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.03	wt. n-Val.		0.040
W.S. Elev (ft)	87.80	Reach Len. (ft)		
Crit W.S. (ft)	85.98	Flow Area (sq ft)		35.54
E.G. Slope (ft/ft)	0.000600	Area (sq ft)		35.54
Q Total (cfs)	49.00	Flow (cfs)		49.00
Top Width (ft)	17.62	Top Width (ft)		17.62
Vel Total (ft/s)	1.38	Avg. Vel. (ft/s)		1.38
Max Chl Dpth (ft)	3.22	Hydr. Depth (ft)		2.02
Conv. Total (cfs)	1999.7	Conv. (cfs)		1999.7
Length Wtd. (ft)		wetted Per. (ft)		19.07
Min Ch El (ft)	84.58	Shear (lb/sq ft)		0.07
Alpha	1.00	Stream Power (lb/ft s)	1067.55	0.00
0.00		Cum Volume (acre-ft)		
Frctn Loss (ft)		Cum SA (acres)		
C & E Loss (ft)				

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CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	88.51	Element	Left OB	Channel
Right OB Vel Head (ft)	0.04	wt. n-val.		0.040
W.S. Elev (ft)	88.47	Reach Len. (ft)		
Crit W.S. (ft)	86.28	Flow Area (sq ft)		48.13
E.G. slope (ft/ft)	0.000600	Area (sq ft)		48.13
Q Total (cfs)	75.00	Flow (cfs)		75.00
Top width (ft)	19.60	Top width (ft)		19.60
Vel Total (ft/s)	1.56	Avg. vel. (ft/s)		1.56
Max Chl Dpth (ft)	3.89	Hydr. Depth (ft)		2.45
Conv. Total (cfs)	3061.3	Conv. (cfs)		3061.3
Length wtd. (ft)		wetted Per. (ft)		21.48
Min Ch El (ft)	84.58	Shear (lb/sq ft)		0.08
Alpha 0.00	1.00	Stream Power (lb/ft s)	1067.55	0.00
Frctn Loss (ft)		Cum volume (acre-ft)		
C & E Loss (ft)		Cum SA (acres)		

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	87.50	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	wt. n-val.		0.040
W.S. Elev (ft)	87.48	Reach Len. (ft)		
Crit W.S. (ft)	85.86	Flow Area (sq ft)		30.14
E.G. slope (ft/ft)	0.000600	Area (sq ft)		30.14
Q Total (cfs)	39.00	Flow (cfs)		39.00
Top width (ft)	16.51	Top width (ft)		16.51
Vel Total (ft/s)	1.29	Avg. vel. (ft/s)		1.29
Max Chl Dpth (ft)	2.90	Hydr. Depth (ft)		1.83
Conv. Total (cfs)	1591.7	Conv. (cfs)		1591.7

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Length wtd. (ft)		Wetted Per. (ft)	17.79
Min Ch El (ft)	84.58	Shear (lb/sq ft)	0.06
Alpha	1.00	Stream Power (lb/ft s)	1067.55
0.00			0.00
Frctn Loss (ft)		Cum Volume (acre-ft)	
C & E Loss (ft)		Cum SA (acres)	

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	87.91	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.03	wt. n-val.		0.040
W.S. Elev (ft)	87.88	Reach Len. (ft)		
Crit W.S. (ft)	86.02	Flow Area (sq ft)		37.11
E.G. Slope (ft/ft)	0.000600	Area (sq ft)		37.11
Q Total (cfs)	52.00	Flow (cfs)		52.00
Top width (ft)	17.93	Top width (ft)		17.93
Vel Total (ft/s)	1.40	Avg. vel. (ft/s)		1.40
Max Chl Dpth (ft)	3.30	Hydr. Depth (ft)		2.07
Conv. Total (cfs)	2122.6	Conv. (cfs)		2122.6
Length wtd. (ft)		Wetted Per. (ft)		19.43
Min Ch El (ft)	84.58	Shear (lb/sq ft)		0.07
Alpha	1.00	Stream Power (lb/ft s)	1067.55	0.00
0.00				
Frctn Loss (ft)		Cum Volume (acre-ft)		
C & E Loss (ft)		Cum SA (acres)		

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	88.60	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.04	wt. n-val.		0.040
W.S. Elev (ft)	88.56	Reach Len. (ft)		
Crit W.S. (ft)	86.32	Flow Area (sq ft)		49.90
E.G. Slope (ft/ft)	0.000601	Area (sq ft)		49.90
Q Total (cfs)	79.00	Flow (cfs)		79.00

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Top width (ft)	19.83	Top width (ft)	19.83
Vel Total (ft/s)	1.58	Avg. Vel. (ft/s)	1.58
Max Chl Dpth (ft)	3.98	Hydr. Depth (ft)	2.52
Conv. Total (cfs)	3223.0	Conv. (cfs)	3223.0
Length wtd. (ft)		wetted Per. (ft)	21.77
Min Ch El (ft)	84.58	Shear (lb/sq ft)	0.09
Alpha	1.00	Stream Power (lb/ft s)	1067.55
0.00		Cum Volume (acre-ft)	0.00
Frctn Loss (ft)		Cum SA (acres)	
C & E Loss (ft)			

SUMMARY OF MANNING'S N VALUES

River:N-NM-108

Reach	River Sta.	n1	n2	n3
NM-108	2881	.06	.04	.06
NM-108	2596	.06	.04	.06
NM-108	2317	.06	.04	.06
NM-108	2132	.06	.04	.06
NM-108	1927	.06	.04	.06
NM-108	1488	.06	.04	.06
NM-108	1174	.06	.04	.06
NM-108	793	.06	.04	.06
NM-108	282	.06	.04	.06

SUMMARY OF REACH LENGTHS

River: N-NM-108

Reach	River Sta.	Left	Channel	Right
NM-108	2881	285	285	285
NM-108	2596	279	279	279
NM-108	2317	186	184	184
NM-108	2132	268	205	206
NM-108	1927	242	439	230
NM-108	1488	316	314	360
NM-108	1174	379	381	384
NM-108	793	511	511	511
NM-108	282	251	282	251

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS

NM108 OUTPUT REPORT.TXT

River: N-NM-108

Reach	River Sta.	Contr.	Expan.
NM-108	2881	.1	.3
NM-108	2596	.1	.3
NM-108	2317	.1	.3
NM-108	2132	.1	.3
NM-108	1927	.1	.3
NM-108	1488	.1	.3
NM-108	1174	.1	.3
NM-108	793	.1	.3
NM-108	282	.1	.3

Profile Output Table - Table 1

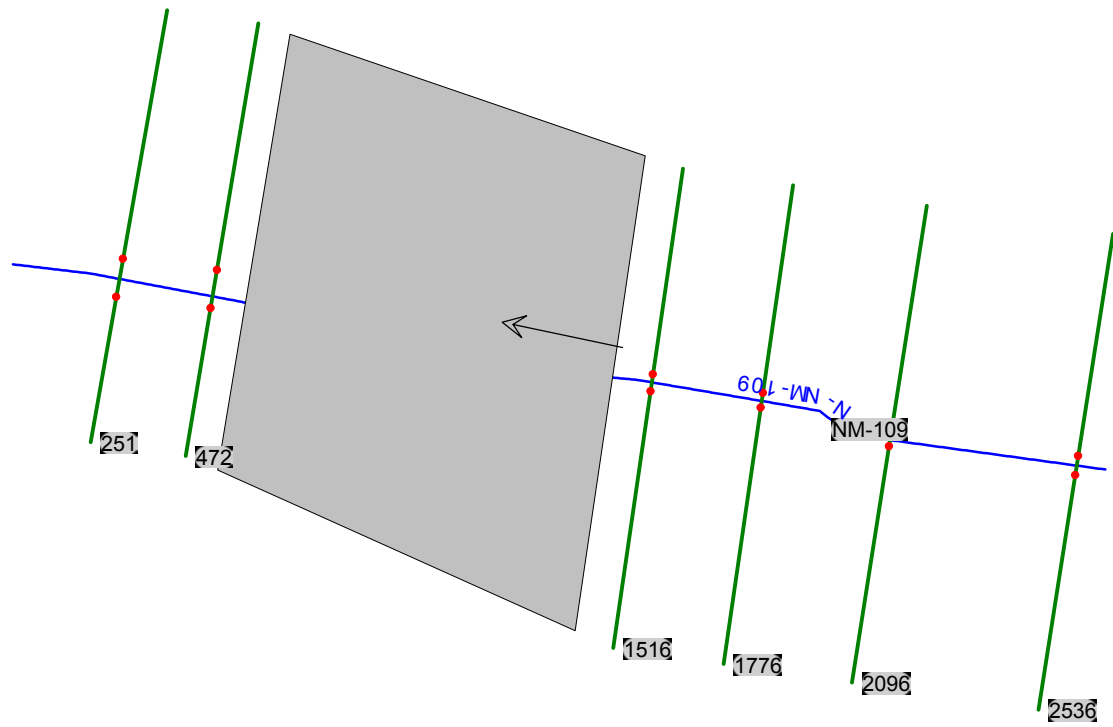
Reach Vel Chnl (ft/s)	River Sta Flow Area (sq ft)	Profile Top Width (ft)	Q Total Volume (cfs) (acre-ft)	W.S. Elev (ft)	E.G. Elev (ft)	Min Ch El (ft)
NM-108 1.28	282 29.02	EX 10Y 16.27	37.00	87.41	87.44	84.58
NM-108 1.38	282 35.54	EX 25Y 17.62	49.00	87.80	87.82	84.58
NM-108 1.56	282 48.13	EX 100Y 19.60	75.00	88.47	88.51	84.58
NM-108 1.29	282 30.14	ULT 10Y 16.51	39.00	87.48	87.50	84.58
NM-108 1.40	282 37.11	ULT 25Y 17.93	52.00	87.88	87.91	84.58
NM-108 1.58	282 49.90	ULT 100Y 19.83	79.00	88.56	88.60	84.58
NM-108 3.14	793 11.79	EX 10Y 14.22	37.00 0.24	88.10	88.26	87.01
NM-108 2.93	793 16.74	EX 25Y 15.79	49.00 0.31	88.43	88.57	87.01
NM-108 2.78	793 27.00	EX 100Y 18.64	75.00 0.44	89.03	89.15	87.01
NM-108 3.09	793 12.62	ULT 10Y 14.49	39.00 0.25	88.16	88.31	87.01
NM-108 2.90	793 17.95	ULT 25Y 16.16	52.00 0.32	88.51	88.64	87.01
NM-108 2.77	793 28.55	ULT 100Y 19.03	79.00 0.46	89.11	89.23	87.01
NM-108 1.29	1174 28.62	EX 10Y 19.19	37.00 0.42	88.94	88.97	86.90
NM-108 1.45	1174 33.86	EX 25Y 20.13	49.00 0.53	89.21	89.24	86.90
NM-108 1.70	1174 44.20	EX 100Y 21.48	75.00 0.75	89.70	89.75	86.90
NM-108 1.32	1174 29.50	ULT 10Y 19.35	39.00 0.43	88.98	89.01	86.90
NM-108 1.48	1174 35.10	ULT 25Y 20.35	52.00 0.56	89.27	89.30	86.90

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NM-108	1174	ULT 100Y	79.00	89.77	89.82	86.90
1.73	45.73	21.65	0.79			
NM-108	1488	EX 10Y	20.00	89.24	89.27	87.93
1.34	14.87	17.66	0.57			
NM-108	1488	EX 25Y	26.00	89.50	89.53	87.93
1.33	19.61	18.58	0.72			
NM-108	1488	EX 100Y	39.00	89.99	90.02	87.93
1.34	29.11	20.31	1.02			
NM-108	1488	ULT 10Y	20.00	89.28	89.31	87.93
1.29	15.56	17.79	0.60			
NM-108	1488	ULT 25Y	26.00	89.56	89.58	87.93
1.26	20.63	18.78	0.76			
NM-108	1488	ULT 100Y	39.00	90.05	90.08	87.93
1.28	30.42	20.54	1.06			
NM-108	1927	EX 10Y	20.00	91.15	91.39	90.17
3.95	5.06	10.68	0.67			
NM-108	1927	EX 25Y	26.00	91.26	91.53	90.17
4.14	6.27	12.11	0.85			
NM-108	1927	EX 100Y	39.00	91.45	91.75	90.17
4.44	8.78	14.58	1.21			
NM-108	1927	ULT 10Y	20.00	91.15	91.39	90.17
3.95	5.06	10.68	0.70			
NM-108	1927	ULT 25Y	26.00	91.26	91.53	90.17
4.14	6.27	12.11	0.89			
NM-108	1927	ULT 100Y	39.00	91.45	91.75	90.17
4.44	8.78	14.58	1.26			
NM-108	2132	EX 10Y	20.00	91.52	91.53	89.27
0.62	32.51	19.69	0.76			
NM-108	2132	EX 25Y	26.00	91.68	91.69	89.27
0.73	35.70	20.25	0.95			
NM-108	2132	EX 100Y	39.00	91.96	91.97	89.27
0.94	41.49	21.14	1.33			
NM-108	2132	ULT 10Y	20.00	91.52	91.53	89.27
0.62	32.51	19.69	0.79			
NM-108	2132	ULT 25Y	26.00	91.68	91.69	89.27
0.73	35.69	20.24	0.99			
NM-108	2132	ULT 100Y	39.00	91.96	91.97	89.27
0.94	41.52	21.14	1.38			
NM-108	2317	EX 10Y	20.00	91.53	91.53	87.01
0.17	116.30	40.44	1.08			
NM-108	2317	EX 25Y	26.00	91.69	91.69	87.01
0.21	123.01	41.71	1.29			
NM-108	2317	EX 100Y	39.00	91.98	91.98	87.01
0.29	135.34	43.63	1.70			
NM-108	2317	ULT 10Y	20.00	91.53	91.53	87.01
0.17	116.31	40.44	1.10			
NM-108	2317	ULT 25Y	26.00	91.69	91.69	87.01
0.21	122.99	41.71	1.33			
NM-108	2317	ULT 100Y	39.00	91.98	91.98	87.01
0.29	135.38	43.64	1.75			
NM-108	2596	EX 10Y	20.00	91.53	91.53	87.17
0.11	174.65	50.12	2.01			
NM-108	2596	EX 25Y	26.00	91.69	91.69	87.17

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0.14	182.91	50.70	2.26			
NM-108	2596	EX 100Y	39.00	91.98	91.98	87.17
0.20	197.73	51.73	2.77			
NM-108	2596	ULT 10Y	20.00	91.53	91.53	87.17
0.11	174.65	50.12	2.04			
NM-108	2596	ULT 25Y	26.00	91.69	91.69	87.17
0.14	182.88	50.70	2.30			
NM-108	2596	ULT 100Y	39.00	91.98	91.98	87.17
0.20	197.78	51.73	2.82			
NM-108	2881	EX 10Y	20.00	91.53	91.53	87.50
0.22	91.82	32.85	2.88			
NM-108	2881	EX 25Y	26.00	91.69	91.70	87.50
0.27	97.26	33.42	3.18			
NM-108	2881	EX 100Y	39.00	91.98	91.99	87.50
0.36	107.09	34.41	3.76			
NM-108	2881	ULT 10Y	20.00	91.53	91.53	87.50
0.22	91.82	32.85	2.91			
NM-108	2881	ULT 25Y	26.00	91.69	91.69	87.50
0.27	97.24	33.42	3.22			
NM-108	2881	ULT 100Y	39.00	91.99	91.99	87.50
0.36	107.13	34.42	3.81			

APPENDIX D
HEC-RAS HYDRAULIC OUTPUT
NM-109 BASE CONDITION

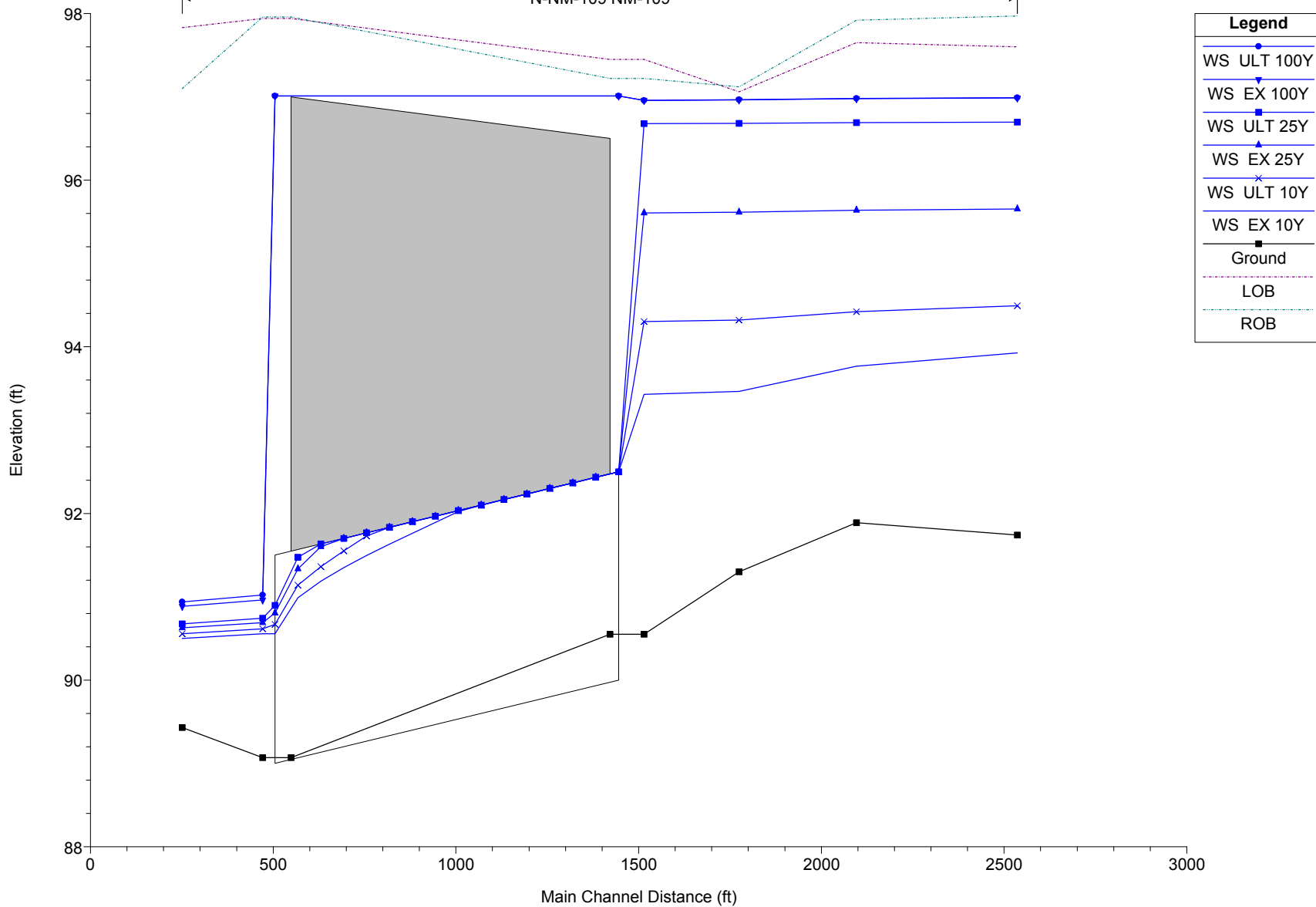


HEC-RAS Plan: BASE River: N-NM-109 Reach: NM-109

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
NM-109	251	EX 10Y	21.00	89.43	90.50	89.89	90.51	0.000601	0.60	34.92	54.37	0.13
NM-109	251	EX 25Y	28.00	89.43	90.63	90.03	90.63	0.000601	0.67	41.82	55.34	0.14
NM-109	251	EX 100Y	45.00	89.43	90.88	90.13	90.89	0.000601	0.80	56.40	57.34	0.14
NM-109	251	ULT 10Y	24.00	89.43	90.56	89.92	90.56	0.000600	0.63	37.97	54.80	0.13
NM-109	251	ULT 25Y	31.00	89.43	90.68	90.05	90.68	0.000601	0.70	44.57	55.72	0.14
NM-109	251	ULT 100Y	49.00	89.43	90.94	90.15	90.95	0.000600	0.82	59.54	57.76	0.14
NM-109	472	EX 10Y	21.00	89.07	90.56		90.56	0.000126	0.40	52.90	47.32	0.07
NM-109	472	EX 25Y	28.00	89.07	90.69		90.69	0.000156	0.47	59.28	48.03	0.07
NM-109	472	EX 100Y	45.00	89.07	90.96		90.97	0.000214	0.62	72.61	49.49	0.09
NM-109	472	ULT 10Y	24.00	89.07	90.62		90.62	0.000139	0.43	55.74	47.64	0.07
NM-109	472	ULT 25Y	31.00	89.07	90.74		90.75	0.000167	0.50	61.87	48.32	0.08
NM-109	472	ULT 100Y	49.00	89.07	91.02		91.03	0.000225	0.65	75.44	49.79	0.09
NM-109	1328		Culvert									
NM-109	1516	EX 10Y	21.00	90.55	93.43	91.25	93.43	0.000091	0.48	43.34	21.61	0.06
NM-109	1516	EX 25Y	28.00	90.55	95.61	91.35	95.61	0.000017	0.28	101.75	33.46	0.03
NM-109	1516	EX 100Y	45.00	90.55	96.96	91.56	96.96	0.000015	0.30	160.05	102.46	0.03
NM-109	1516	ULT 10Y	24.00	90.55	94.30	91.29	94.31	0.000040	0.38	63.62	24.72	0.04
NM-109	1516	ULT 25Y	31.00	90.55	96.68	91.39	96.68	0.000009	0.22	141.60	46.91	0.02
NM-109	1516	ULT 100Y	49.00	90.55	96.96	91.60	96.96	0.000017	0.32	160.03	102.42	0.03
NM-109	1776	EX 10Y	21.00	91.30	93.46		93.52	0.003064	1.85	11.34	10.20	0.31
NM-109	1776	EX 25Y	28.00	91.30	95.61		95.62	0.000132	0.58	47.92	23.40	0.07
NM-109	1776	EX 100Y	45.00	91.30	96.96		96.97	0.000069	0.49	108.41	106.69	0.05
NM-109	1776	ULT 10Y	24.00	91.30	94.32		94.34	0.000757	1.08	22.20	15.86	0.16
NM-109	1776	ULT 25Y	31.00	91.30	96.68		96.69	0.000047	0.39	87.57	65.64	0.04
NM-109	1776	ULT 100Y	49.00	91.30	96.97		96.97	0.000082	0.53	108.49	106.95	0.06
NM-109	2096	EX 10Y	21.00	91.89	93.77		93.78	0.000354	0.72	29.10	22.77	0.11
NM-109	2096	EX 25Y	28.00	91.89	95.64		95.64	0.000034	0.34	81.77	33.47	0.04
NM-109	2096	EX 100Y	45.00	91.89	96.98		96.98	0.000023	0.33	156.21	191.54	0.03
NM-109	2096	ULT 10Y	24.00	91.89	94.42		94.42	0.000132	0.53	45.22	26.64	0.07
NM-109	2096	ULT 25Y	31.00	91.89	96.69		96.69	0.000015	0.26	122.63	71.23	0.03
NM-109	2096	ULT 100Y	49.00	91.89	96.98		96.98	0.000028	0.36	156.85	193.41	0.04
NM-109	2536	EX 10Y	21.00	91.74	93.93		93.94	0.000369	0.77	27.43	19.76	0.11
NM-109	2536	EX 25Y	28.00	91.74	95.65		95.66	0.000043	0.36	78.11	37.03	0.04
NM-109	2536	EX 100Y	45.00	91.74	96.99		96.99	0.000010	0.21	419.04	516.47	0.02
NM-109	2536	ULT 10Y	24.00	91.74	94.49		94.50	0.000212	0.59	40.71	28.79	0.09
NM-109	2536	ULT 25Y	31.00	91.74	96.70		96.70	0.000009	0.20	284.84	425.98	0.02
NM-109	2536	ULT 100Y	49.00	91.74	96.99		96.99	0.000012	0.23	421.48	518.98	0.02

NM109 Plan: NM109

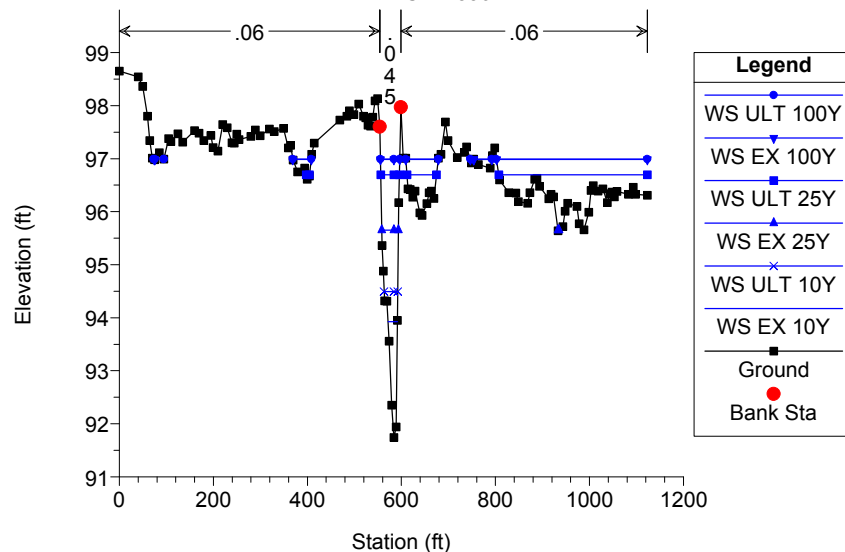
N-NM-109 NM-109



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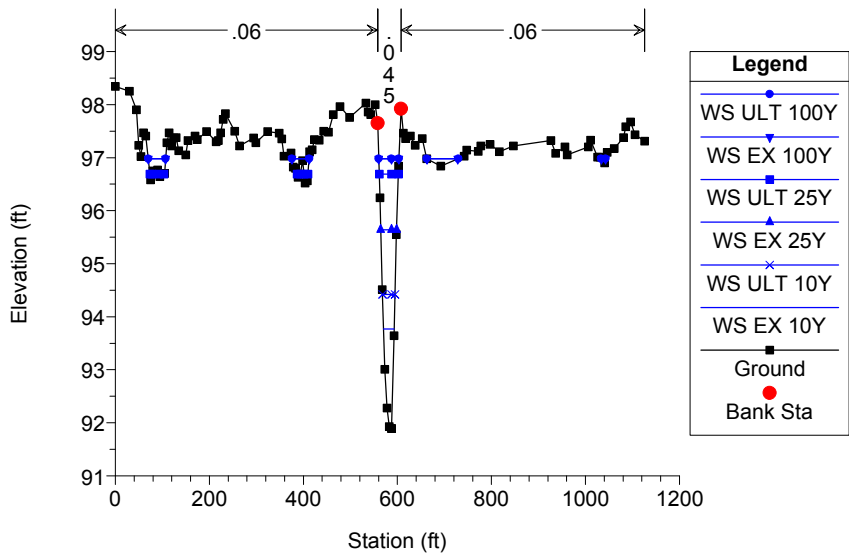
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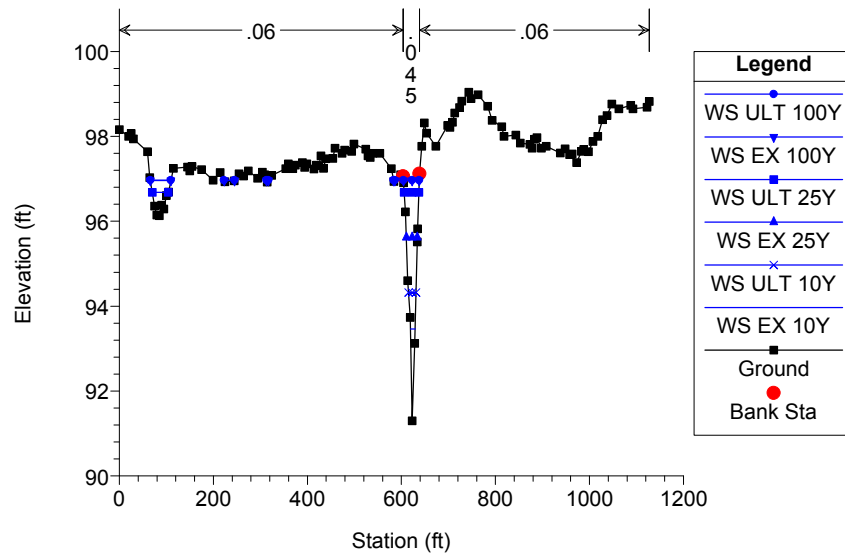
NM109 Plan: NM109

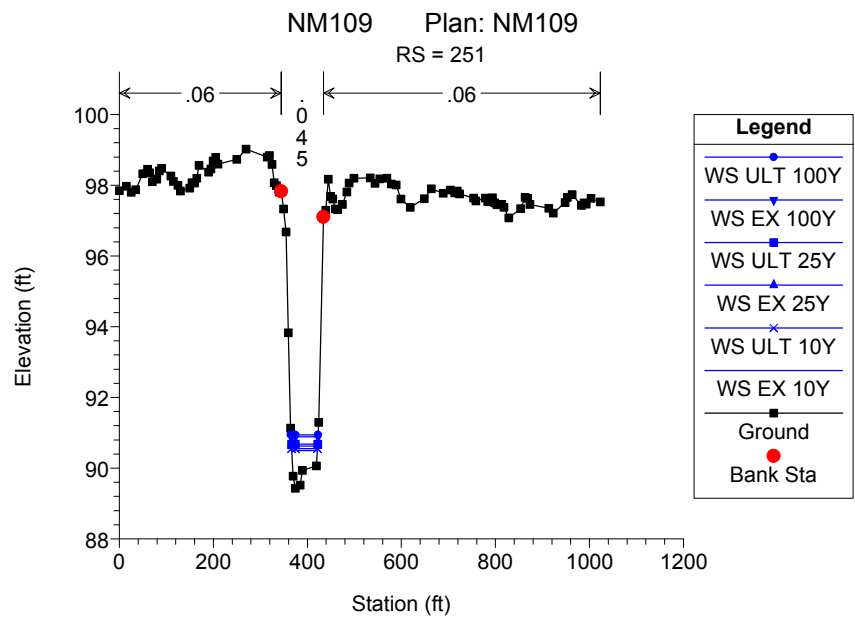
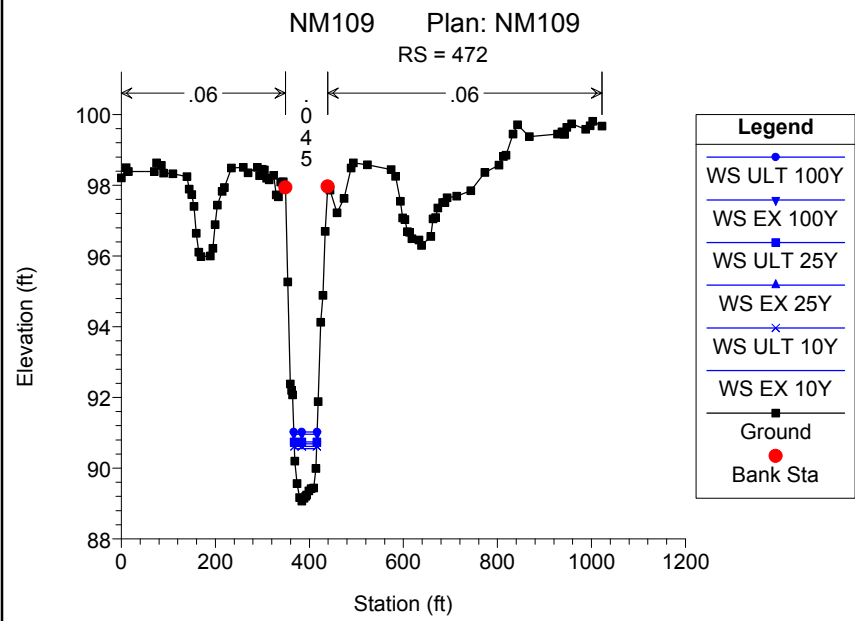
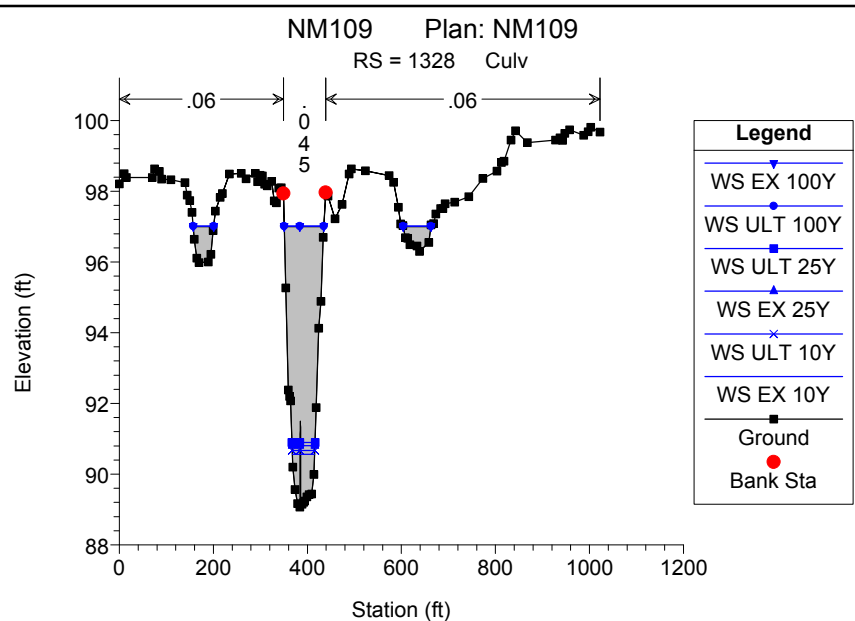
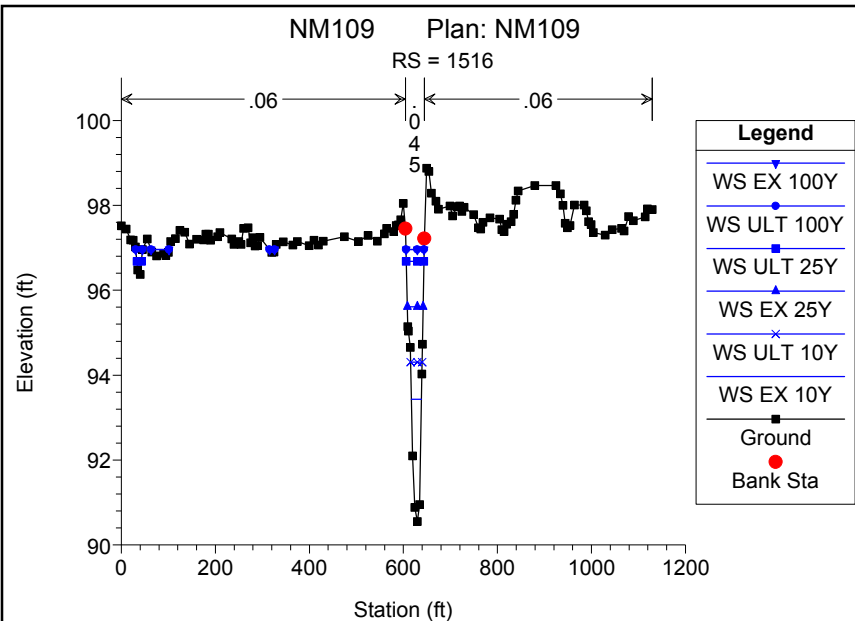
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NM109 Plan: NM109

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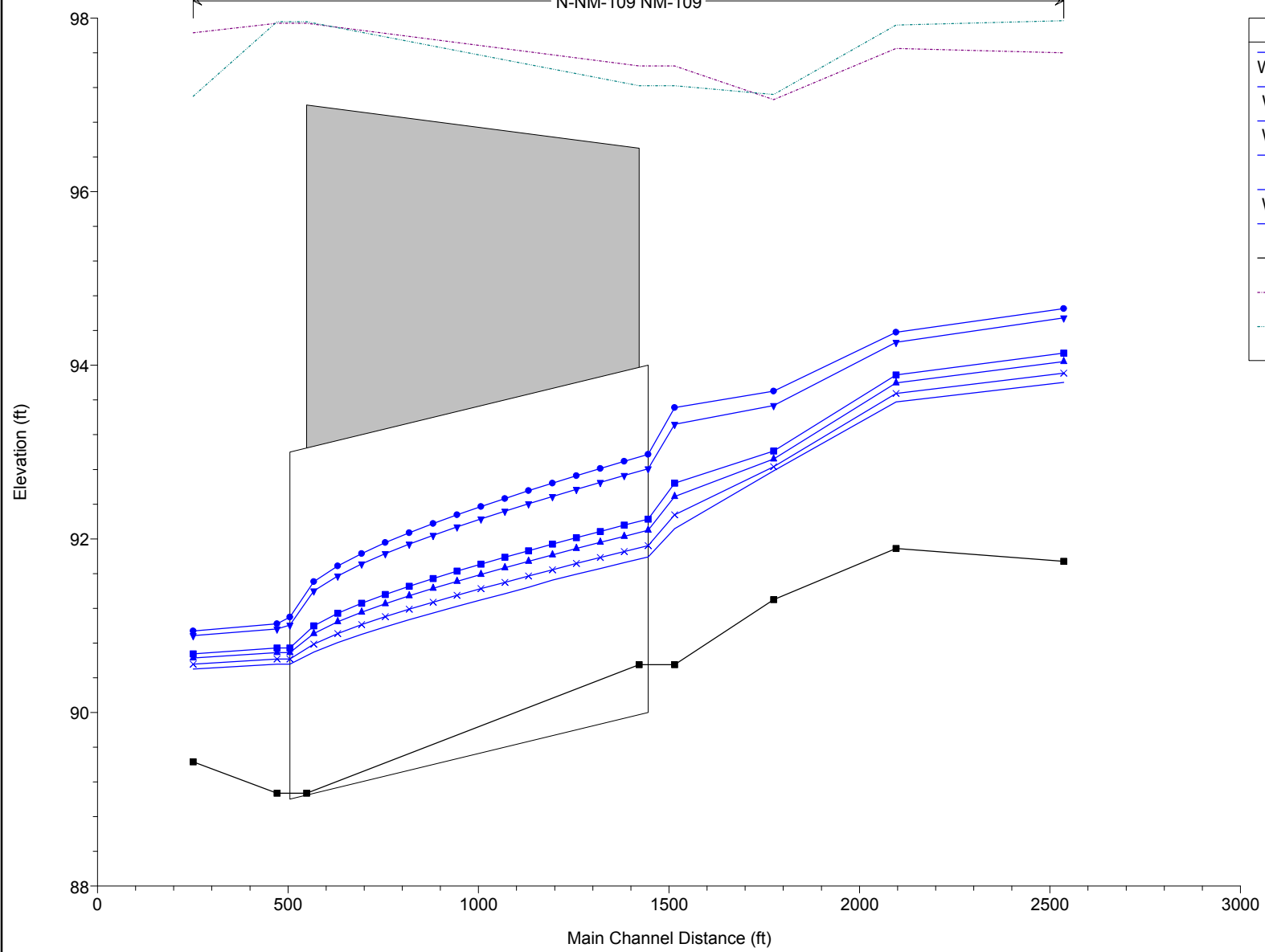
APPENDIX D
HEC-RAS HYDRAULIC OUTPUT
NM-109 PROPOSED CONDITION

HEC-RAS Plan: PROPOSED River: N-NM-109 Reach: NM-109

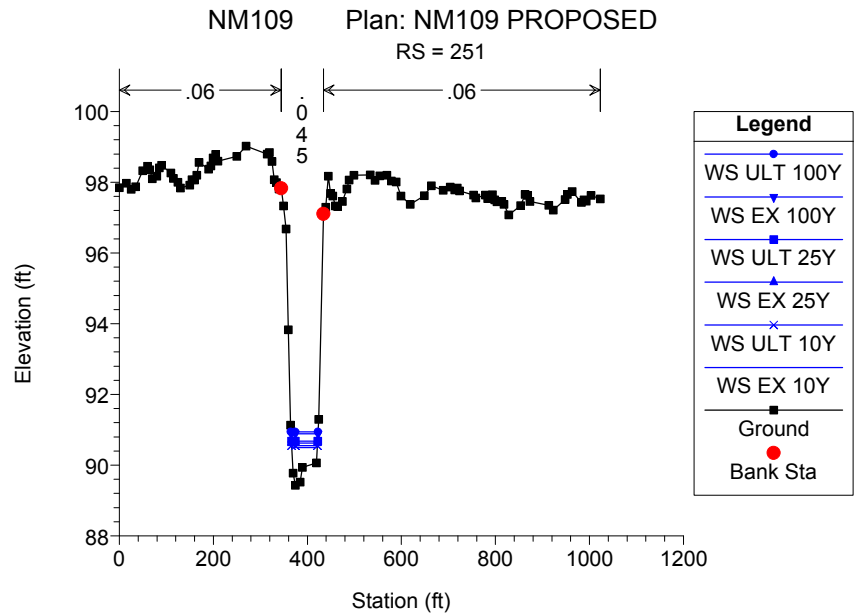
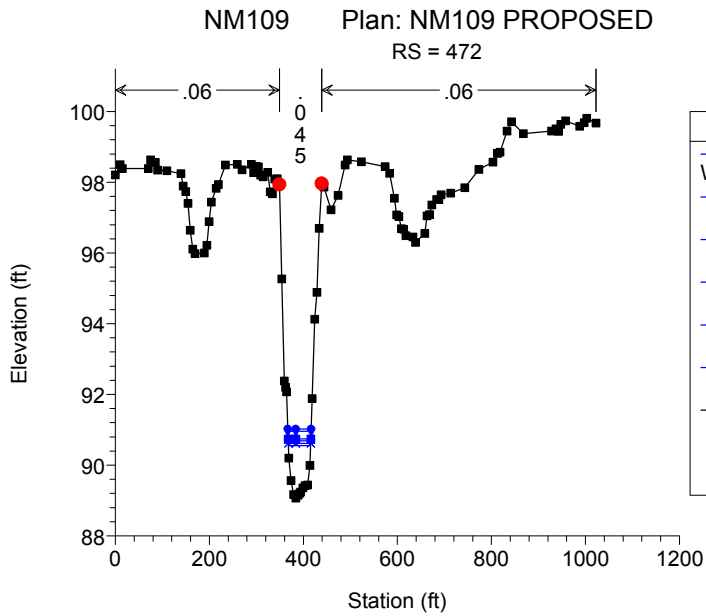
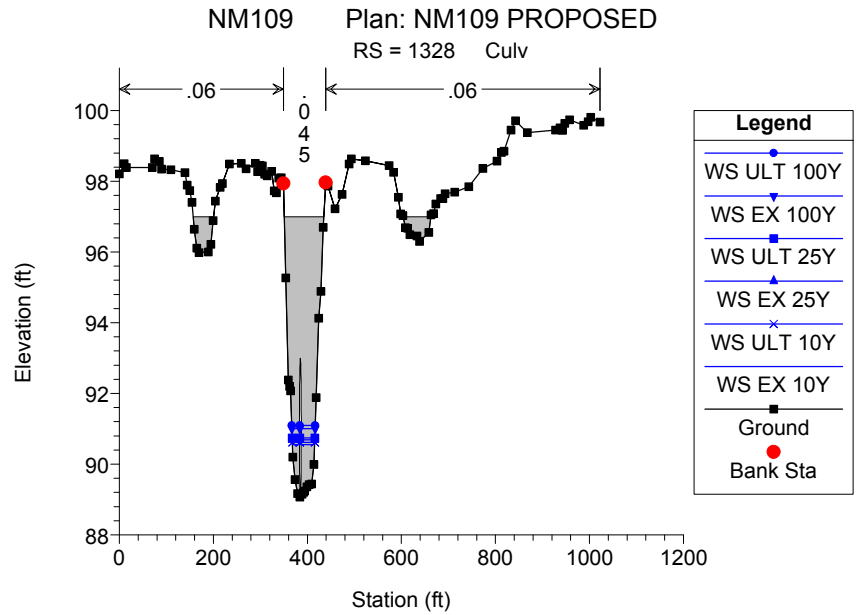
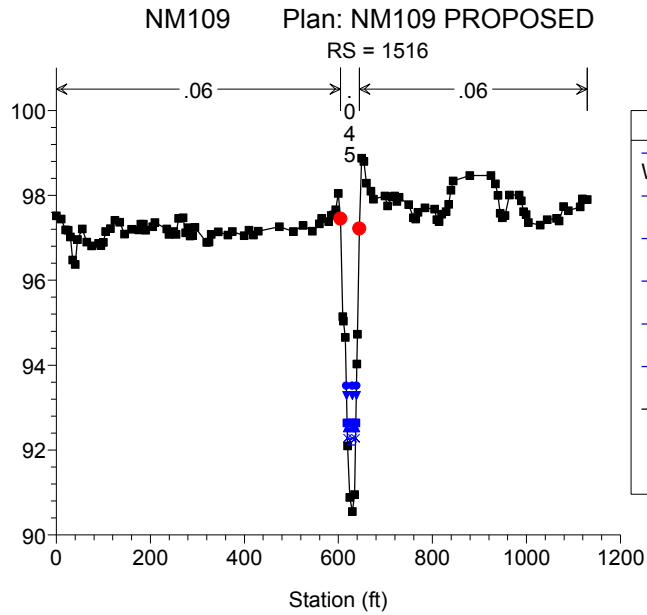
Reach	River Sta	Profile	Q Total (cfs)	W.S. Elev (ft)	E.G. Elev (ft)	Min Ch El (ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Volume (acre-ft)
NM-109	251	EX 10Y	21.00	90.50	90.51	89.43	0.60	34.92	54.37	
NM-109	251	EX 25Y	28.00	90.63	90.63	89.43	0.67	41.82	55.34	
NM-109	251	EX 100Y	45.00	90.88	90.89	89.43	0.80	56.40	57.34	
NM-109	251	ULT 10Y	24.00	90.56	90.56	89.43	0.63	37.97	54.80	
NM-109	251	ULT 25Y	31.00	90.68	90.68	89.43	0.70	44.57	55.72	
NM-109	251	ULT 100Y	49.00	90.94	90.95	89.43	0.82	59.54	57.76	
NM-109	472	EX 10Y	21.00	90.56	90.56	89.07	0.40	52.90	47.32	0.22
NM-109	472	EX 25Y	28.00	90.69	90.69	89.07	0.47	59.30	48.04	0.26
NM-109	472	EX 100Y	45.00	90.96	90.97	89.07	0.62	72.61	49.49	0.33
NM-109	472	ULT 10Y	24.00	90.62	90.62	89.07	0.43	55.74	47.64	0.24
NM-109	472	ULT 25Y	31.00	90.74	90.75	89.07	0.50	61.83	48.32	0.27
NM-109	472	ULT 100Y	49.00	91.02	91.03	89.07	0.65	75.44	49.79	0.34
NM-109	1328		Culvert							
NM-109	1516	EX 10Y	21.00	92.12	92.14	90.55	1.16	18.05	16.91	0.37
NM-109	1516	EX 25Y	28.00	92.49	92.51	90.55	1.14	24.59	18.24	0.44
NM-109	1516	EX 100Y	45.00	93.32	93.34	90.55	1.10	41.00	21.22	0.60
NM-109	1516	ULT 10Y	24.00	92.28	92.30	90.55	1.15	20.83	17.49	0.40
NM-109	1516	ULT 25Y	31.00	92.64	92.66	90.55	1.13	27.42	18.79	0.47
NM-109	1516	ULT 100Y	49.00	93.51	93.53	90.55	1.09	45.13	21.90	0.63
NM-109	1776	EX 10Y	21.00	92.78	93.02	91.30	3.92	5.36	7.23	0.44
NM-109	1776	EX 25Y	28.00	92.92	93.22	91.30	4.37	6.40	7.90	0.53
NM-109	1776	EX 100Y	45.00	93.54	93.75	91.30	3.72	12.08	10.48	0.75
NM-109	1776	ULT 10Y	24.00	92.83	93.11	91.30	4.20	5.71	7.46	0.48
NM-109	1776	ULT 25Y	31.00	93.01	93.30	91.30	4.35	7.12	8.33	0.57
NM-109	1776	ULT 100Y	49.00	93.70	93.89	91.30	3.53	13.88	11.13	0.81
NM-109	2096	EX 10Y	21.00	93.58	93.59	91.89	0.84	24.85	21.62	0.55
NM-109	2096	EX 25Y	28.00	93.80	93.81	91.89	0.94	29.77	22.94	0.67
NM-109	2096	EX 100Y	45.00	94.27	94.28	91.89	1.09	41.18	25.72	0.95
NM-109	2096	ULT 10Y	24.00	93.68	93.69	91.89	0.89	27.01	22.22	0.60
NM-109	2096	ULT 25Y	31.00	93.89	93.90	91.89	0.97	31.87	23.48	0.72
NM-109	2096	ULT 100Y	49.00	94.38	94.40	91.89	1.11	44.13	26.39	1.02
NM-109	2536	EX 10Y	21.00	93.80	93.81	91.74	0.84	25.02	18.78	0.81
NM-109	2536	EX 25Y	28.00	94.04	94.06	91.74	0.94	29.77	20.67	0.97
NM-109	2536	EX 100Y	45.00	94.55	94.56	91.74	1.06	42.31	29.12	1.37
NM-109	2536	ULT 10Y	24.00	93.91	93.92	91.74	0.89	27.10	19.63	0.88
NM-109	2536	ULT 25Y	31.00	94.14	94.15	91.74	0.97	31.82	21.43	1.04
NM-109	2536	ULT 100Y	49.00	94.65	94.67	91.74	1.08	45.39	29.74	1.47

NM109 Plan: NM109 PROPOSED

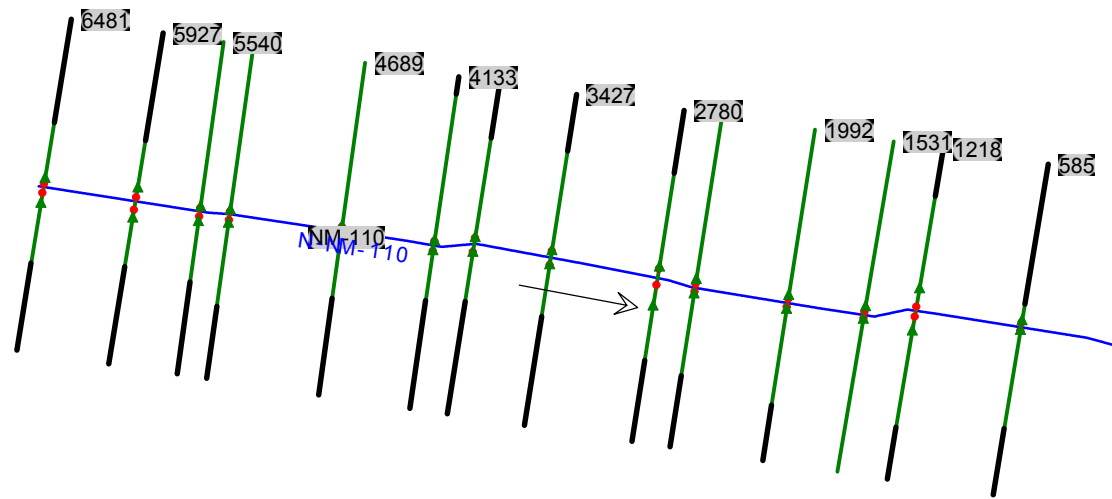
N-NM-109 NM-109



Legend	
WS ULT 100Y	●
WS EX 100Y	▼
WS ULT 25Y	■
WS EX 25Y	▲
WS ULT 10Y	×
WS EX 10Y	■
Ground	■
LOB	- - -
ROB	· · ·



APPENDIX D
HEC-RAS HYDRAULIC OUTPUT
NM-110 BASE CONDITION



HEC-RAS Plan: BASE River: N-NM-110 Reach: NM-110

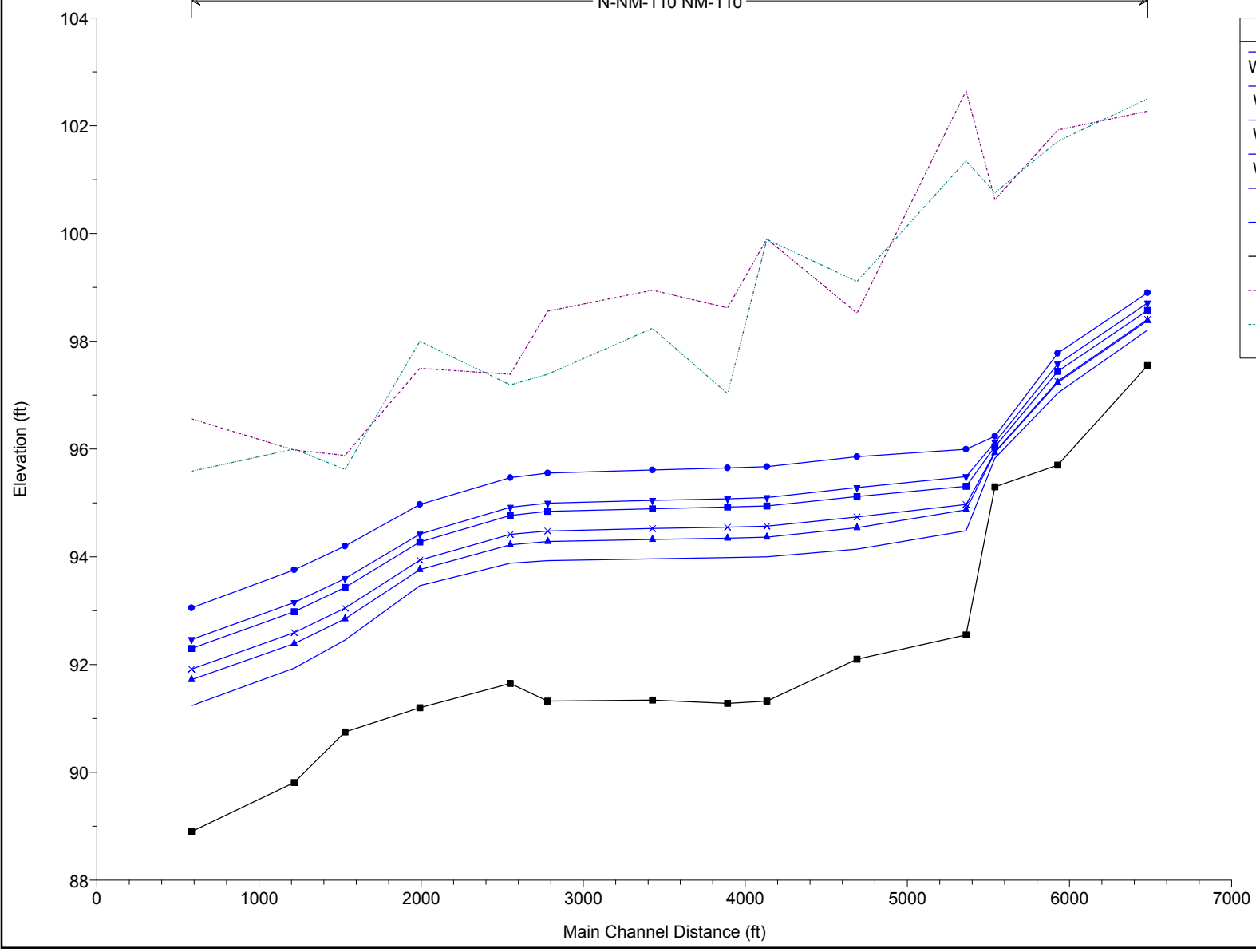
Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
NM-110	585	EX 10Y	63.00	88.90	91.24	89.96	91.27	0.001102	1.47	42.89	27.00	0.21
NM-110	585	EX 25Y	90.00	88.90	91.72	90.16	91.76	0.001101	1.57	57.44	32.77	0.21
NM-110	585	EX 100Y	156.00	88.90	92.46	90.55	92.52	0.001100	1.88	82.81	35.52	0.22
NM-110	585	ULT 10Y	106.00	88.90	91.92	90.26	91.96	0.001101	1.66	63.98	33.50	0.21
NM-110	585	ULT 25Y	140.00	88.90	92.30	90.47	92.35	0.001102	1.82	76.97	34.91	0.22
NM-110	585	ULT 100Y	220.00	88.90	93.05	90.87	93.12	0.001101	2.11	104.44	37.71	0.22
NM-110	1218	EX 10Y	63.00	89.81	91.93	90.76	91.97	0.001093	1.44	43.77	28.31	0.20
NM-110	1218	EX 25Y	90.00	89.81	92.39	90.95	92.43	0.001015	1.58	57.04	30.24	0.20
NM-110	1218	EX 100Y	156.00	89.81	93.15	91.30	93.21	0.001080	1.92	81.38	33.50	0.22
NM-110	1218	ULT 10Y	106.00	89.81	92.59	91.04	92.63	0.001036	1.67	63.32	31.11	0.21
NM-110	1218	ULT 25Y	140.00	89.81	92.98	91.23	93.03	0.001069	1.85	75.80	32.78	0.21
NM-110	1218	ULT 100Y	220.00	89.81	93.76	91.59	93.83	0.001133	2.14	102.68	36.98	0.23
NM-110	1531	EX 10Y	63.00	90.75	92.46	91.77	92.52	0.003148	2.05	30.79	26.04	0.33
NM-110	1531	EX 25Y	90.00	90.75	92.85	91.94	92.92	0.002651	2.17	41.41	28.00	0.31
NM-110	1531	EX 100Y	156.00	90.75	93.60	92.29	93.69	0.002232	2.46	63.53	31.18	0.30
NM-110	1531	ULT 10Y	106.00	90.75	93.05	92.04	93.13	0.002507	2.25	47.08	28.90	0.31
NM-110	1531	ULT 25Y	140.00	90.75	93.43	92.22	93.52	0.002301	2.40	58.43	30.49	0.31
NM-110	1531	ULT 100Y	220.00	90.75	94.20	92.58	94.31	0.002026	2.65	83.04	33.63	0.30
NM-110	1992	EX 10Y	39.00	91.20	93.46	92.39	93.49	0.001225	1.26	31.07	26.89	0.21
NM-110	1992	EX 25Y	56.00	91.20	93.76	92.57	93.80	0.001221	1.42	39.36	28.05	0.21
NM-110	1992	EX 100Y	99.00	91.20	94.42	92.90	94.47	0.001145	1.69	58.66	30.58	0.21
NM-110	1992	ULT 10Y	67.00	91.20	93.94	92.66	93.98	0.001217	1.51	44.34	28.73	0.21
NM-110	1992	ULT 25Y	89.00	91.20	94.28	92.83	94.32	0.001172	1.64	54.21	30.02	0.22
NM-110	1992	ULT 100Y	140.00	91.20	94.97	93.18	95.02	0.001064	1.84	75.99	32.68	0.21
NM-110	2549	EX 10Y	39.00	91.65	93.88	92.41	93.90	0.000494	0.99	39.37	24.41	0.14
NM-110	2549	EX 25Y	56.00	91.65	94.23	92.57	94.25	0.000572	1.17	47.97	25.84	0.15
NM-110	2549	EX 100Y	99.00	91.65	94.92	92.91	94.95	0.000679	1.48	66.71	28.24	0.17
NM-110	2549	ULT 10Y	67.00	91.65	94.42	92.67	94.44	0.000609	1.26	53.01	26.51	0.16
NM-110	2549	ULT 25Y	89.00	91.65	94.77	92.83	94.80	0.000662	1.42	62.55	27.73	0.17
NM-110	2549	ULT 100Y	140.00	91.65	95.47	93.17	95.51	0.000729	1.69	82.74	30.14	0.18
NM-110	2780	EX 10Y	39.00	91.32	93.93	91.80	93.93	0.000066	0.37	104.93	63.93	0.05
NM-110	2780	EX 25Y	56.00	91.32	94.28	91.92	94.29	0.000074	0.44	127.86	66.33	0.06
NM-110	2780	EX 100Y	99.00	91.32	94.99	92.16	95.00	0.000090	0.56	177.61	73.86	0.06
NM-110	2780	ULT 10Y	67.00	91.32	94.48	91.98	94.48	0.000079	0.47	141.15	67.88	0.06
NM-110	2780	ULT 25Y	89.00	91.32	94.84	92.10	94.85	0.000087	0.53	166.49	72.09	0.06
NM-110	2780	ULT 100Y	140.00	91.32	95.56	92.35	95.56	0.000095	0.64	220.33	78.23	0.07
NM-110	3427	EX 10Y	39.00	91.34	93.96	91.76	93.97	0.000042	0.34	115.65	58.05	0.04
NM-110	3427	EX 25Y	56.00	91.34	94.32	91.86	94.32	0.000052	0.41	136.75	59.76	0.05
NM-110	3427	EX 100Y	99.00	91.34	95.05	92.06	95.05	0.000069	0.55	181.23	63.23	0.06
NM-110	3427	ULT 10Y	67.00	91.34	94.52	91.92	94.53	0.000057	0.45	148.89	60.73	0.05
NM-110	3427	ULT 25Y	89.00	91.34	94.89	92.01	94.90	0.000066	0.52	171.53	62.49	0.06
NM-110	3427	ULT 100Y	140.00	91.34	95.61	92.22	95.62	0.000079	0.64	217.79	65.91	0.06
NM-110	3890	EX 10Y	39.00	91.28	93.98	91.73	93.99	0.000043	0.34	113.40	56.39	0.04
NM-110	3890	EX 25Y	56.00	91.28	94.35	91.83	94.35	0.000054	0.42	134.33	58.90	0.05
NM-110	3890	EX 100Y	99.00	91.28	95.08	92.03	95.08	0.000071	0.55	178.90	63.08	0.06
NM-110	3890	ULT 10Y	67.00	91.28	94.55	91.89	94.55	0.000059	0.46	146.47	60.03	0.05
NM-110	3890	ULT 25Y	89.00	91.28	94.92	91.99	94.93	0.000068	0.53	169.15	62.13	0.06
NM-110	3890	ULT 100Y	140.00	91.28	95.65	92.20	95.66	0.000082	0.65	215.93	66.58	0.06
NM-110	4133	EX 10Y	39.00	91.32	94.00	92.13	94.01	0.000254	0.80	49.03	25.47	0.10
NM-110	4133	EX 25Y	56.00	91.32	94.36	92.30	94.38	0.000314	0.96	58.61	26.95	0.11
NM-110	4133	EX 100Y	99.00	91.32	95.10	92.63	95.12	0.000412	1.25	79.49	29.92	0.13
NM-110	4133	ULT 10Y	67.00	91.32	94.57	92.39	94.59	0.000345	1.04	64.23	27.78	0.12
NM-110	4133	ULT 25Y	89.00	91.32	94.94	92.56	94.96	0.000394	1.19	74.87	29.29	0.13
NM-110	4133	ULT 100Y	140.00	91.32	95.67	92.90	95.70	0.000493	1.43	97.79	34.17	0.15
NM-110	4689	EX 10Y	17.00	92.10	94.14	92.80	94.15	0.000241	0.59	29.02	23.31	0.09
NM-110	4689	EX 25Y	24.00	92.10	94.54	92.91	94.54	0.000255	0.58	41.10	34.69	0.09
NM-110	4689	EX 100Y	40.00	92.10	95.28	93.12	95.29	0.000152	0.58	68.67	39.28	0.08
NM-110	4689	ULT 10Y	25.00	92.10	94.74	92.92	94.74	0.000171	0.52	48.19	35.98	0.08
NM-110	4689	ULT 25Y	33.00	92.10	95.12	93.03	95.12	0.000138	0.53	62.28	38.32	0.07
NM-110	4689	ULT 100Y	51.00	92.10	95.86	93.22	95.86	0.000103	0.55	92.28	42.46	0.07
NM-110	5361	EX 10Y	17.00	92.55	94.49	93.67	94.52	0.002069	1.42	11.93	12.30	0.25
NM-110	5361	EX 25Y	24.00	92.55	94.87	93.83	94.90	0.001593	1.40	17.20	15.05	0.23
NM-110	5361	EX 100Y	40.00	92.55	95.49	94.12	95.52	0.001223	1.44	27.80	19.05	0.21
NM-110	5361	ULT 10Y	25.00	92.55	94.97	93.86	95.00	0.001371	1.33	18.79	15.79	0.21
NM-110	5361	ULT 25Y	33.00	92.55	95.31	94.01	95.34	0.001192	1.35	24.47	18.16	0.20

HEC-RAS Plan: BASE River: N-NM-110 Reach: NM-110 (Continued)

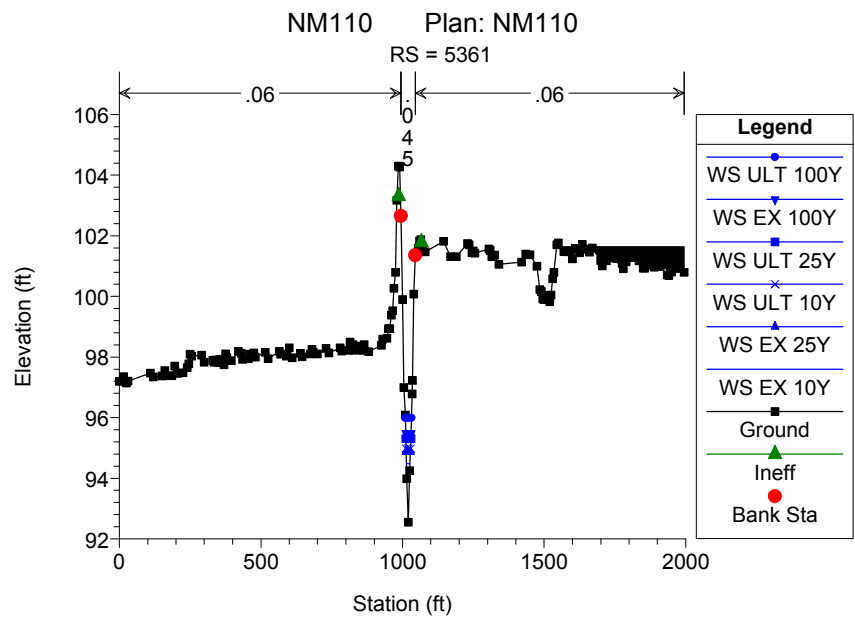
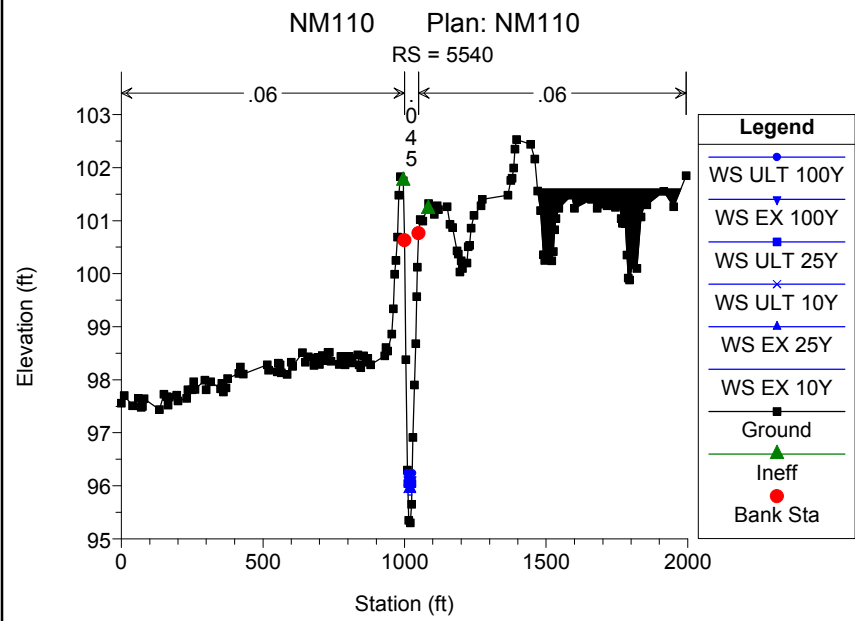
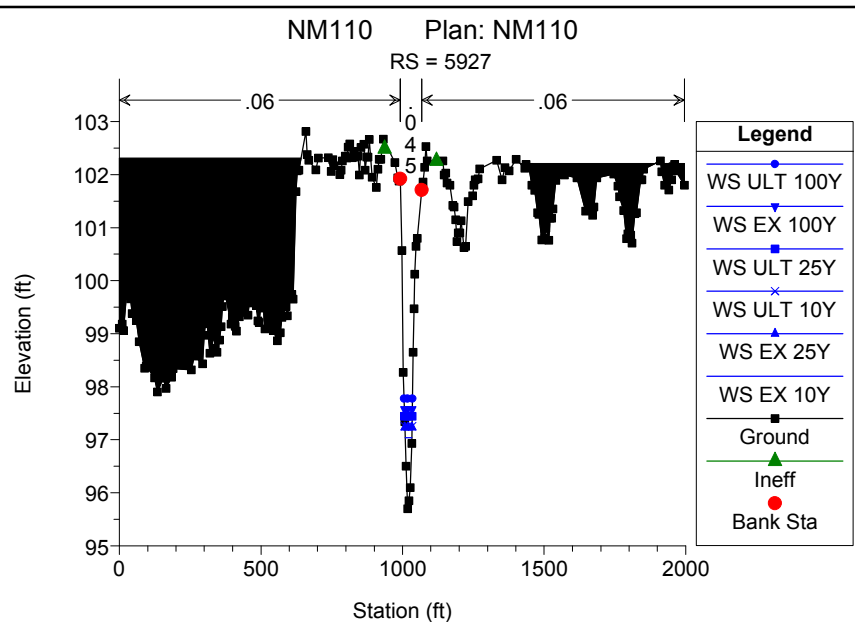
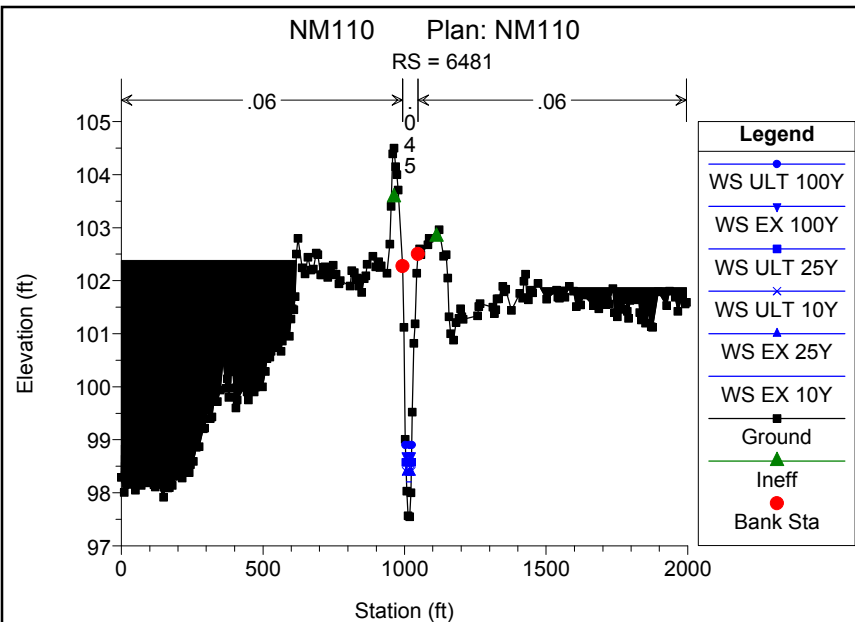
Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
NM-110	5361	ULT 100Y	51.00	92.55	95.99	94.28	96.02	0.000824	1.34	38.09	21.57	0.18
NM-110	5540	EX 10Y	17.00	95.30	95.83	95.83	96.01	0.040667	3.44	4.94	13.22	0.99
NM-110	5540	EX 25Y	24.00	95.30	95.93	95.93	96.15	0.038301	3.77	6.37	14.18	0.99
NM-110	5540	EX 100Y	40.00	95.30	96.12	96.12	96.41	0.035793	4.32	9.26	15.95	1.00
NM-110	5540	ULT 10Y	25.00	95.30	95.94	95.94	96.17	0.038929	3.84	6.51	14.27	1.00
NM-110	5540	ULT 25Y	33.00	95.30	96.04	96.04	96.31	0.037289	4.13	7.99	15.20	1.00
NM-110	5540	ULT 100Y	51.00	95.30	96.23	96.23	96.56	0.034719	4.60	11.09	16.98	1.00
NM-110	5927	EX 10Y	17.00	95.70	97.04	96.27	97.05	0.000866	0.86	19.74	23.45	0.17
NM-110	5927	EX 25Y	24.00	95.70	97.23	96.37	97.25	0.000922	0.98	24.53	25.19	0.17
NM-110	5927	EX 100Y	40.00	95.70	97.58	96.55	97.60	0.001029	1.19	33.72	28.10	0.19
NM-110	5927	ULT 10Y	25.00	95.70	97.26	96.38	97.27	0.000934	1.00	25.12	25.40	0.18
NM-110	5927	ULT 25Y	33.00	95.70	97.44	96.48	97.46	0.000985	1.10	29.92	26.96	0.18
NM-110	5927	ULT 100Y	51.00	95.70	97.78	96.66	97.80	0.001073	1.29	39.41	29.73	0.20
NM-110	6481	EX 10Y	17.00	97.55	98.21	98.05	98.29	0.013080	2.24	7.60	16.56	0.58
NM-110	6481	EX 25Y	24.00	97.55	98.38	98.15	98.46	0.009666	2.27	10.59	18.01	0.52
NM-110	6481	EX 100Y	40.00	97.55	98.71	98.32	98.80	0.006817	2.36	16.92	20.75	0.46
NM-110	6481	ULT 10Y	25.00	97.55	98.41	98.16	98.49	0.009315	2.27	11.02	18.21	0.51
NM-110	6481	ULT 25Y	33.00	97.55	98.57	98.25	98.66	0.007759	2.33	14.17	19.60	0.48
NM-110	6481	ULT 100Y	51.00	97.55	98.90	98.42	98.99	0.005966	2.43	21.00	22.33	0.44

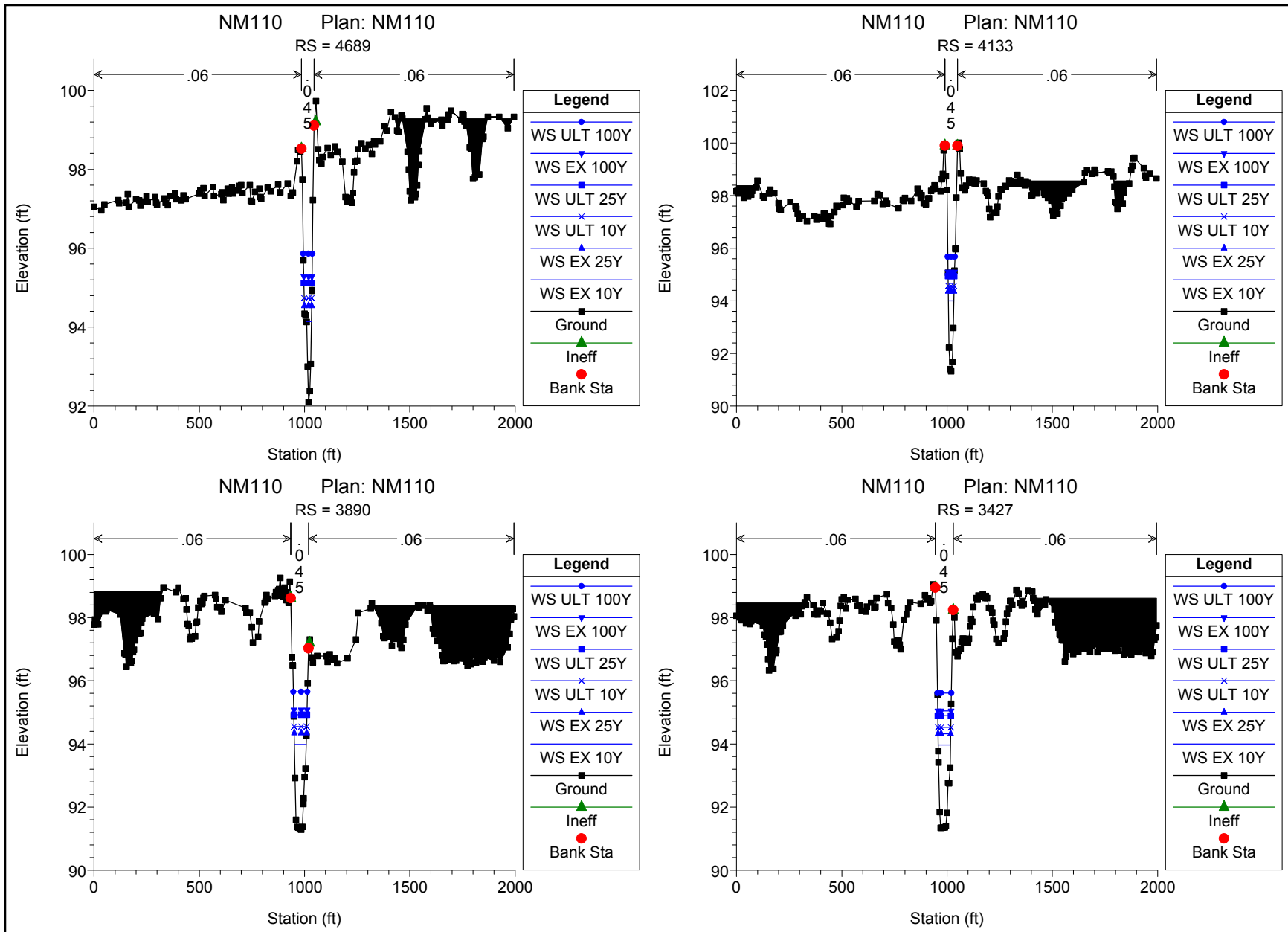
NM110 Plan: NM110

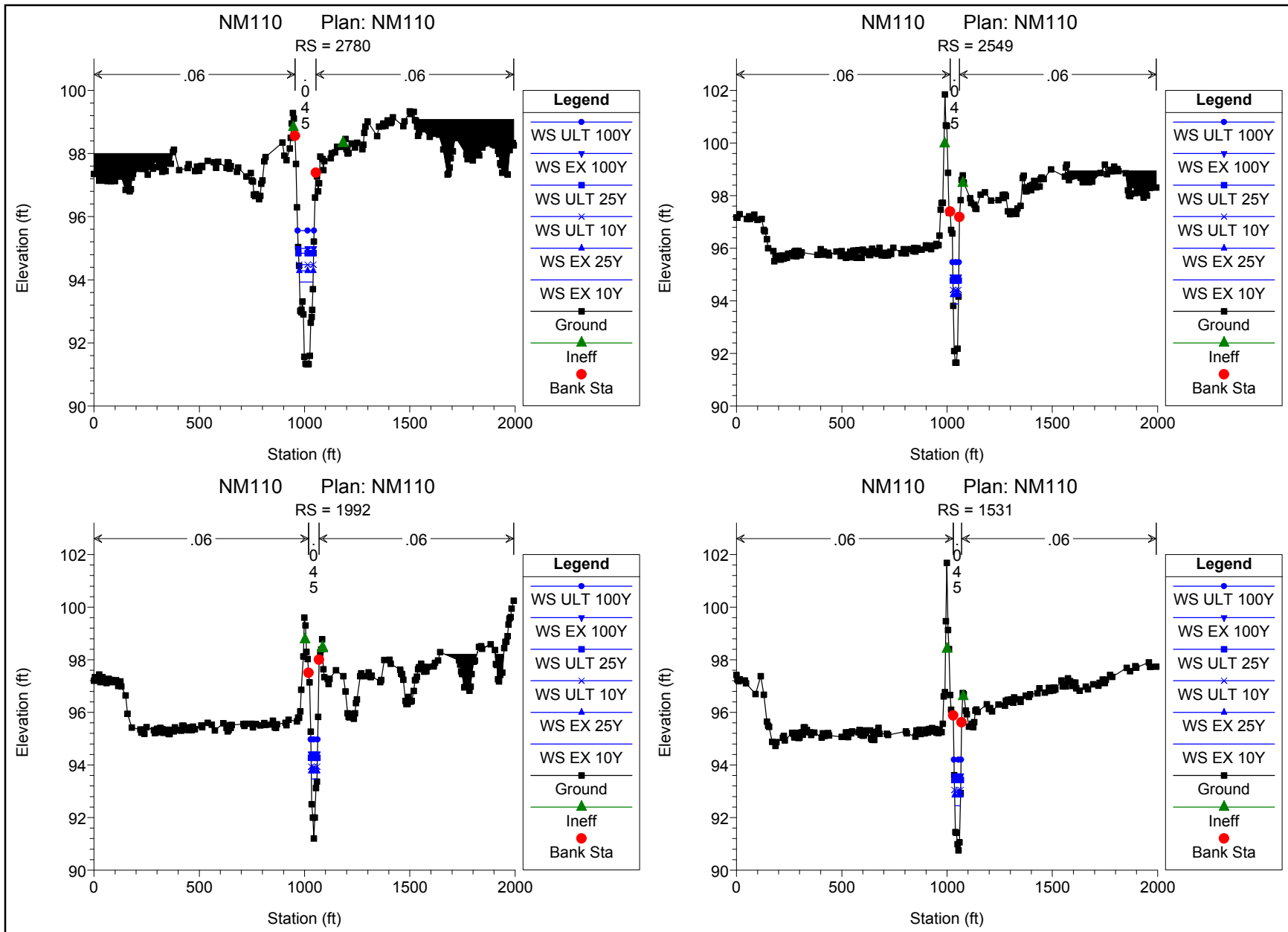
N-NM-110 NM-110

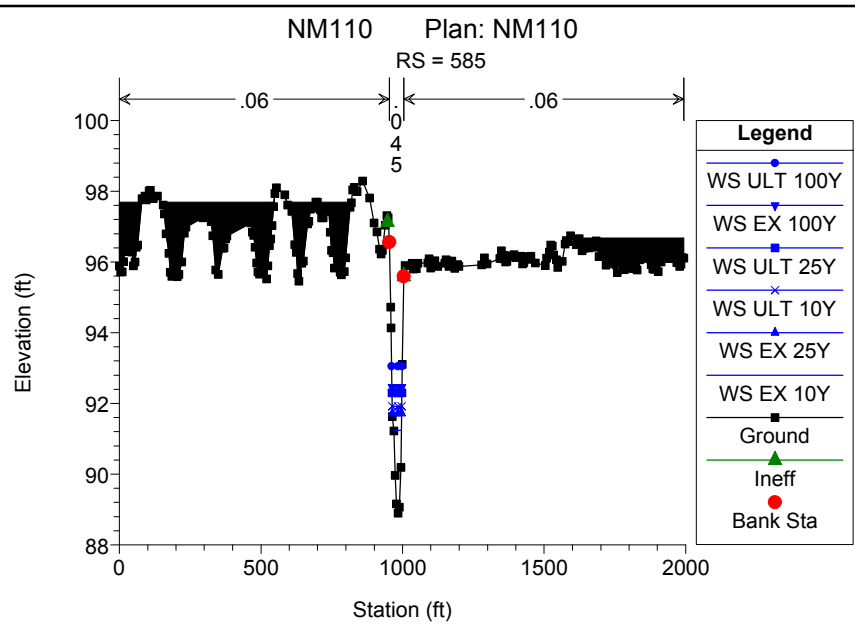
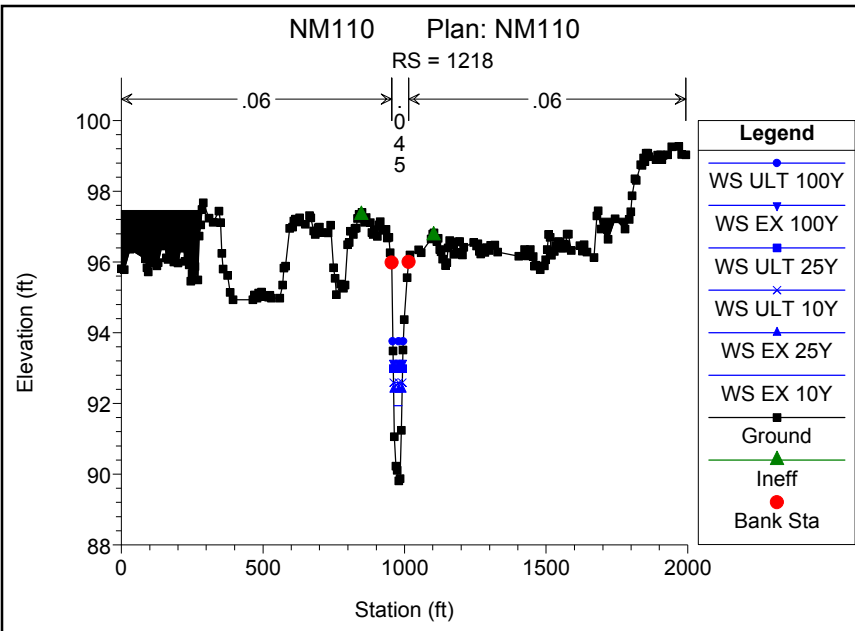


Legend	
WS ULT 100Y	Blue line with circles
WS EX 100Y	Blue line with inverted triangles
WS ULT 25Y	Blue line with squares
WS ULT 10Y	Blue line with crosses
WS EX 25Y	Blue line with triangles
WS EX 10Y	Blue line with inverted triangles
Ground	Black line with squares
LOB	Dashed purple line
ROB	Dotted green line









NM110 OUTPUT REPORT.TXT

HEC-RAS Version 4.1.0 Jan 2010
U.S. Army Corps of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

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X      X  XXXXXXX  XXXX      XXXX      XX      XXXX
X      X  X        X      X      X  X  X  X  X
X      X  X        X        X  X      X  X  X  X
XXXXXXXX XXXX      X        XXX XXXX  XXXXXXX  XXXX
X      X  X        X        X  X      X  X      X
X      X  X        X      X      X  X  X  X  X
X      X  XXXXXXX  XXXX      X  X  X  X  X  XXXXX

```

PROJECT DATA

Project Title: NM110
Project File : NM110.prj

Project in English units

PLAN DATA

Plan Title: NM110
Plan File : K:\2014PROJECTS\COE_MDP_TEDSI\MODEL\APPENDIX C -
HYDRAULICS\NM110\NM110.p01

Geometry Title: NM110
Geometry File : K:\2014PROJECTS\COE_MDP_TEDSI\MODEL\APPENDIX C -
HYDRAULICS\NM110\NM110.g01

Flow Title : NM110 FLOW
Flow File : K:\2014PROJECTS\COE_MDP_TEDSI\MODEL\APPENDIX C -
HYDRAULICS\NM110\NM110.f01

Plan Summary Information:

Number of: Cross Sections	=	14	Multiple Openings	=	0
Culverts	=	0	Inline Structures	=	0
Bridges	=	0	Lateral Structures	=	0

Computational Information

Water surface calculation tolerance	=	0.01
Critical depth calculation tolerance	=	0.01
Maximum number of iterations	=	20
Maximum difference tolerance	=	0.3
Flow tolerance factor	=	0.001

Computation Options

Critical depth computed only where necessary	
Conveyance Calculation Method:	At breaks in n values only
Friction Slope Method:	Average Conveyance
Computational Flow Regime:	Subcritical Flow

NM110 OUTPUT REPORT.TXT

FLOW DATA

Flow Title: NM110 FLOW
 Flow File : K:\2014PROJECTS\COE_MDP_TEDSI\MODEL\APPENDIX C -
 HYDRAULICS\NM110\NM110.f01

Flow Data (cfs)

River EX 100Y	Reach ULT 10Y	RS ULT 25Y	EX 10Y ULT 100Y	EX 25Y
N-NM-110 40	NM-110 25	6481 33	17 51	24
N-NM-110 99	NM-110 67	4133 89	39 140	56
N-NM-110 156	NM-110 106	1531 140	63 220	90

Boundary Conditions

River Downstream	Reach	Profile	Upstream
N-NM-110 Normal S = 0.0011	NM-110	EX 10Y	
N-NM-110 Normal S = 0.0011	NM-110	EX 25Y	
N-NM-110 Normal S = 0.0011	NM-110	EX 100Y	
N-NM-110 Normal S = 0.0011	NM-110	ULT 10Y	

GEOMETRY DATA

Geometry Title: NM110
 Geometry File : K:\2014PROJECTS\COE_MDP_TEDSI\MODEL\APPENDIX C -
 HYDRAULICS\NM110\NM110.g01

CROSS SECTION

RIVER: N-NM-110
 REACH: NM-110 RS: 6481

INPUT

Description:

Station	Elevation	Data	num=	205	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	98.299	969971	98.0134	91992	98.16	49.88	98.05	54.87	98.16		
64.84998	98.2369	83997	98.1494	77991	98.1999	77002	98.32	109.75	98.3		
114.74	98.15	119.72	98.11	129.7	98.19149	6599	97.92154	6499	98.24		
164.62	98.09	169.61	98.1	174.6	98.22	179.59	98.14	184.58	98.31		
194.5499	98.41	214.51	98.28	234.46	98.44	239.45	98.38244	4399	98.53		
254.4199	98.59264	3999	98.86	274.37	98.87	289.34	99.21	294.33	99.22		
304.3099	99.57314	2799	99.4	319.27	99.43	329.25	99.8	339.23	99.72		

NM110 OUTPUT REPORT.TXT

349.2	99.94359	1799	100.52369	1599	99.97374	1499	100.15	379.14	99.8
384.12	99.98	389.11	100.39	394.1	100.28	399.09	99.81	404.08	99.6
409.0699	99.75	434.01	99.99	443.99	99.9	448.98	99.75	453.97	100.05
463.9399	100.08468	9299	99.9473	9199	99.99	498.86	100	508.84	100.29
513.83	100.53523	8099	100.56528	7999	100.67	563.72	100.67	568.71	100.86
593.6499	100.95	598.64	101.28	603.63	101.47	608.61	101.45	613.6	101.7
618.59	102.5	623.58	102.8638	5499	102.24	648.52	102.13	658.5	102.44
668.48	102.2	678.46	102.22688	4299	102.52693	4199	102.49703	3999	102.11
708.39	102.11	713.38	102.25	718.37	102.26	728.34	102.06	733.33	102.2
738.3199	102.17748	2999	102.29753	2899	102.11	758.27	102.12	768.25	101.94
773.24	102808	1599	101.9813	1499	102.19	823.13	102.15	828.12	102.02
833.1	102.05	838.09	101.9848	0699	101.78858	0499	102.04863	0399	102.09
868.0299	102.31	887.98	102.46	897.96	102.26907	9299	102.36912	9199	102.25
917.9099	102.28	937.87	102.14	947.84	102.69	952.83	103.4957	8199	104.39
962.8099	104.5967	7999	104.15	972.79	104	977.78	103.71	992.74	102.27
997.73	101.12	1002.72	99.01	1007.71	98.03	1012.7	97.57	1017.69	97.55
1022.67	98	1027.66	99.52	1032.65	100.82	1037.64	101.19	1042.63	102.14
1047.62	102.5	1052.61	102.6	1057.59	102.49	1082.54	102.68	1087.53	102.8
1122.45	102.96	1137.41	102.46	1147.39	102.49	1152.38	102.05	1157.37	101.32
1162.36	101	1172.33	100.88	1182.31	101.21	1192.29	101.29	1197.28	101.47
1202.26	101.32	1207.25	101.27	1257.14	101.34	1262.13	101.51	1267.12	101.57
1312.01	101.5	1317	101.38	1321.99	101.45	1326.98	101.66	1331.97	101.66
1346.94	101.89	1351.92	101.79	1356.91	101.84	1376.87	101.44	1406.8	101.76
1416.78	101.67	1421.76	101.99	1426.75	102.12	1431.74	101.68	1436.73	101.64
1446.71	101.82	1451.7	101.77	1471.65	101.95	1501.58	101.65	1536.5	101.82
1541.49	101.69	1546.48	101.67	1556.46	101.81	1566.44	101.69	1581.4	101.89
1596.37	101.8	1606.35	101.51	1621.31	101.54	1631.29	101.73	1666.21	101.53
1681.17	101.6	1686.16	101.47	1696.14	101.66	1706.12	101.64	1711.11	101.55
1716.1	101.61	1721.08	101.56	1736.05	101.85	1741.04	101.4	1751.02	101.32
1760.99	101.61	1765.98	101.64	1770.97	101.46	1780.95	101.67	1785.94	101.42
1790.93	101.29	1795.91	101.63	1805.89	101.78	1820.86	101.64	1825.85	101.75
1830.83	101.4	1835.82	101.26	1845.8	101.32	1850.79	101.2	1860.77	101.41
1870.74	101.13	1875.73	101.12	1895.69	101.79	1925.62	101.53	1935.6	101.8
1955.55	101.69	1965.53	101.42	1980.49	101.72	1990.47	101.56	1995.46	101.59

Manning's n Values	num=	3			
Sta	n val	Sta	n val		
0	.06	992.74	.045	1047.62	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.	Expan.
992.74	1047.62	554	554	554	.1	.3	

Ineffective Flow	num=	2	
Sta L	Sta R	Elev	Permanent
0962.1599	103.57		F
1112.49	1995.46	102.83	F

Blocked obstructions	num=	2			
Sta L	Sta R	Elev	Sta L	Sta R	Elev
0623.4299	102.38	1470.25	1995.46	101.87	

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	98.29	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.08	wt. n-val.		0.045
w.s. Elev (ft)	98.21	Reach Len. (ft)	554.00	554.00
554.00				
Crit w.s. (ft)	98.05	Flow Area (sq ft)		7.60
E.G. slope (ft/ft)	0.013080	Area (sq ft)		7.60
Q Total (cfs)	17.00	Flow (cfs)		17.00

NM110 OUTPUT REPORT.TXT

Top width (ft)	16.56	Top width (ft)	16.56
Vel Total (ft/s)	2.24	Avg. Vel. (ft/s)	2.24
Max Chl Dpth (ft)	0.66	Hydr. Depth (ft)	0.46
Conv. Total (cfs)	148.6	Conv. (cfs)	148.6
Length wtd. (ft)	554.00	wetted Per. (ft)	16.65
Min Ch El (ft)	97.55	Shear (lb/sq ft)	0.37
Alpha 0.00	1.00	Stream Power (lb/ft s)	1995.46
Frctn Loss (ft)	1.21	Cum Volume (acre-ft)	6.50
C & E Loss (ft)	0.02	Cum SA (acres)	4.24

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	98.46	Element	Left OB	Channel
Right OB Vel Head (ft)	0.08	wt. n-val.		0.045
W.S. Elev (ft)	98.38	Reach Len. (ft)	554.00	554.00
554.00 Crit w.s. (ft)	98.15	Flow Area (sq ft)		10.59
E.G. slope (ft/ft)	0.009666	Area (sq ft)		10.59
Q Total (cfs)	24.00	Flow (cfs)		24.00
Top width (ft)	18.01	Top width (ft)		18.01
Vel Total (ft/s)	2.27	Avg. Vel. (ft/s)		2.27
Max Chl Dpth (ft)	0.83	Hydr. Depth (ft)		0.59
Conv. Total (cfs)	244.1	Conv. (cfs)		244.1
Length wtd. (ft)	554.00	wetted Per. (ft)		18.14
Min Ch El (ft)	97.55	Shear (lb/sq ft)		0.35
Alpha 0.00	1.00	Stream Power (lb/ft s)	1995.46	0.00
Frctn Loss (ft)	1.19	Cum Volume (acre-ft)		8.08
C & E Loss (ft)	0.02	Cum SA (acres)		4.65

NM110 OUTPUT REPORT.TXT

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	98.80	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.09	wt. n-val.		0.045
W.S. Elev (ft)	98.71	Reach Len. (ft)	554.00	554.00
554.00				
Crit w.s. (ft)	98.32	Flow Area (sq ft)		16.92
E.G. slope (ft/ft)	0.006817	Area (sq ft)		16.92
Q Total (cfs)	40.00	Flow (cfs)		40.00
Top width (ft)	20.75	Top width (ft)		20.75
vel Total (ft/s)	2.36	Avg. vel. (ft/s)		2.36
Max Chl Dpth (ft)	1.16	Hydr. Depth (ft)		0.82
Conv. Total (cfs)	484.5	Conv. (cfs)		484.5
Length wtd. (ft)	554.00	wetted Per. (ft)		20.96
Min Ch El (ft)	97.55	Shear (lb/sq ft)		0.34
Alpha	1.00	Stream Power (lb/ft s)	1995.46	0.00
0.00				
Frctn Loss (ft)	1.18	Cum volume (acre-ft)		11.39
C & E Loss (ft)	0.02	Cum SA (acres)		5.13

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	98.49	Element	Left OB	Channel
Right OB				

NM110 OUTPUT REPORT.TXT				
Vel Head (ft)	0.08	wt. n-Val.		0.045
W.S. Elev (ft)	98.41	Reach Len. (ft)	554.00	554.00
554.00 Crit w.s. (ft)	98.16	Flow Area (sq ft)		11.02
E.G. Slope (ft/ft)	0.009315	Area (sq ft)		11.02
Q Total (cfs)	25.00	Flow (cfs)		25.00
Top width (ft)	18.21	Top width (ft)		18.21
Vel Total (ft/s)	2.27	Avg. Vel. (ft/s)		2.27
Max Chl Dpth (ft)	0.86	Hydr. Depth (ft)		0.61
Conv. Total (cfs)	259.0	Conv. (cfs)		259.0
Length wtd. (ft)	554.00	wetted Per. (ft)		18.35
Min Ch El (ft)	97.55	Shear (lb/sq ft)		0.35
Alpha	1.00	Stream Power (lb/ft s)	1995.46	0.00
0.00 Frctn Loss (ft)	1.19	Cum volume (acre-ft)		8.91
C & E Loss (ft)	0.02	Cum SA (acres)		4.76

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	98.66	Element	Left OB	Channel
Right OB Vel Head (ft)	0.08	wt. n-Val.		0.045
W.S. Elev (ft)	98.57	Reach Len. (ft)	554.00	554.00
554.00 Crit w.s. (ft)	98.25	Flow Area (sq ft)		14.17
E.G. Slope (ft/ft)	0.007759	Area (sq ft)		14.17
Q Total (cfs)	33.00	Flow (cfs)		33.00
Top width (ft)	19.60	Top width (ft)		19.60
Vel Total (ft/s)	2.33	Avg. Vel. (ft/s)		2.33
Max Chl Dpth (ft)	1.02	Hydr. Depth (ft)		0.72
Conv. Total (cfs)	374.6	Conv. (cfs)		374.6

NM110 OUTPUT REPORT.TXT				
Length wtd. (ft)	554.00	Wetted Per. (ft)		19.78
Min Ch El (ft)	97.55	Shear (lb/sq ft)		0.35
Alpha 0.00	1.00	Stream Power (lb/ft s)	1995.46	0.00
Frctn Loss (ft)	1.19	Cum Volume (acre-ft)		10.60
C & E Loss (ft)	0.02	Cum SA (acres)		5.01

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	98.99	Element	Left OB	Channel
Right OB Vel Head (ft)	0.09	wt. n-val.		0.045
W.S. Elev (ft)	98.90	Reach Len. (ft)	554.00	554.00
554.00 Crit w.s. (ft)	98.42	Flow Area (sq ft)		21.00
E.G. slope (ft/ft)	0.005966	Area (sq ft)		21.00
Q Total (cfs)	51.00	Flow (cfs)		51.00
Top width (ft)	22.33	Top width (ft)		22.33
Vel Total (ft/s)	2.43	Avg. vel. (ft/s)		2.43
Max Chl Dpth (ft)	1.35	Hydr. Depth (ft)		0.94
Conv. Total (cfs)	660.3	Conv. (cfs)		660.3
Length wtd. (ft)	554.00	Wetted Per. (ft)		22.59
Min Ch El (ft)	97.55	Shear (lb/sq ft)		0.35
Alpha 0.00	1.00	Stream Power (lb/ft s)	1995.46	0.00
Frctn Loss (ft)	1.17	Cum Volume (acre-ft)		14.20
C & E Loss (ft)	0.02	Cum SA (acres)		5.49

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the

NM110 OUTPUT REPORT.TXT

need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-110
 REACH: NM-110

RS: 5927

INPUT

Description:

Station Elevation Data

num= 190

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	99.1	9.97998	99.1814	95996	99.0624	93994	99.7234
39.90002	99.6644	89001	99.3859	85999	99.2569	82996	98.8589
94.77002	98.39	124.7	98.1713	4.6799	97.9	154.63	98.16
184.5599	98.1818	9.5399	98.34	254.39	98.32	264.37	98.5829
299.28	98.97	304.27	99.19	309.26	99.21	319.23	98.63
339.1899	98.7334	4.1699	98.65	354.15	98.88	359.14	99.13
369.11	99.71	374.1	99.7539	4.0499	99.1839	9.0399	99.31
409.02	99.14	414.01	99.05	423.98	99.3245	3.9099	99.35
468.87	99.58	473.86	99.7	478.85	99.67	483.84	99.53
493.8099	99.2149	8.7999	99.4850	3.7899	99.57	508.78	99.5
523.74	99.31	528.73	99.31	533.72	99.18	538.71	99.37
558.6599	98.87	568.64	99.02	573.62	99.31	588.59	99.51
603.5499	99.7260	8.5399	99.74	613.53	99.65	623.5	101.68
633.48	102.0865	8.4199	102.8166	3.4099	102.38	668.4	102.27
703.3099	102.31	738.23	102.32	748.2	102.0675	3.1899	102.2875
778.13	102	783.12	102.08	788.11	102.26	798.09	102.3580
808.0599	102.5281	3.0499	102.58	823.03	102.32	828.01	102.44
842.98	102.35	847.97	101.99	852.95	102.5186	2.9299	102.5786
872.9099	102.33	877.89	102.33	882.88	102.66	892.86	101.9590
912.8099	102.1917	7.9999	102.2992	2.7899	102.29	932.76	102.67
982.64	101.9498	7.6299	101.88	992.62	101.92	997.61	100.57
1007.58	97.34	1012.57	96.5	1017.56	95.7	1022.55	95.85
1032.52	96.93	1037.51	98.65	1040.28	99.47	1042.5	100.12
1052.48	100.8	1067.44	101.71	1072.43	101.86	1077.42	102.14
1087.39	102.26	1142.26	102.26	1147.25	101.99	1152.24	102.03
1167.2	101.8	1177.18	101.42	1182.17	101.39	1187.15	101.15
1197.13	100.9	1202.12	100.9	1207.11	101.13	1217.08	100.62
1232.05	101.49	1247.01	101.6	1252	101.8	1256.99	101.9
1271.95	102.11	1331.81	102.27	1351.76	101.9	1361.74	102.13
1401.64	102.29	1431.57	102.12	1436.56	102.19	1446.53	102.14
1466.49	101.7	1476.46	101.28	1481.45	101.25	1491.43	100.77
1506.39	100.99	1516.37	100.76	1521.35	101.18	1526.34	101.18
1541.31	101.89	1566.25	102.07	1571.24	101.99	1616.13	101.94
1671	101.23	1675.98	101.39	1685.96	101.94	1745.82	102.01
1765.77	101.58	1780.73	101.32	1790.71	100.79	1795.7	100.88
1810.66	100.71	1820.64	101.26	1825.63	101.28	1840.59	101.9
1850.57	102.1	1910.42	102.26	1915.41	102.05	1925.39	101.8
1950.33	101.9	1955.32	102.15	1960.3	102.19	1965.29	102.07

Manning's n Values

num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	992.62	.045	1067.44	.06

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.	Expan.
	992.62	1067.44		385	388	.1	.3
Ineffective Flow			num=	2			
	Sta L	Sta R	Elev	Permanent			
	0937.1799	102.49		F			
	1119.86	1995.22	102.26	F			

NM110 OUTPUT REPORT.TXT

Blocked Obstructions num= 2
 Sta L Sta R Elev Sta L Sta R Elev
 0647.9299 102.31 1409.11 1995.22 102.21

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	97.05	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	wt. n-val.		0.045
W.S. Elev (ft)	97.04	Reach Len. (ft)	385.00	388.00
390.00				
Crit w.s. (ft)	96.27	Flow Area (sq ft)		19.74
E.G. slope (ft/ft)	0.000866	Area (sq ft)		19.74
Q Total (cfs)	17.00	Flow (cfs)		17.00
Top width (ft)	23.45	Top width (ft)		23.45
vel Total (ft/s)	0.86	Avg. vel. (ft/s)		0.86
Max Chl Dpth (ft)	1.34	Hydr. Depth (ft)		0.84
Conv. Total (cfs)	577.6	Conv. (cfs)		577.6
Length wtd. (ft)	388.00	wetted Per. (ft)		23.65
Min Ch El (ft)	95.70	Shear (lb/sq ft)		0.05
Alpha	1.00	Stream Power (lb/ft s)	1995.22	0.00
0.00				
Frctn Loss (ft)	1.02	Cum volume (acre-ft)		6.33
C & E Loss (ft)	0.02	Cum SA (acres)		3.98

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	97.25	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	wt. n-val.		0.045
W.S. Elev (ft)	97.23	Reach Len. (ft)	385.00	388.00
390.00				
Crit w.s. (ft)	96.37	Flow Area (sq ft)		24.53
E.G. slope (ft/ft)	0.000922	Area (sq ft)		24.53
Q Total (cfs)	24.00	Flow (cfs)		24.00

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Top width (ft)	25.19	Top width (ft)	25.19
Vel Total (ft/s)	0.98	Avg. Vel. (ft/s)	0.98
Max Chl Dpth (ft)	1.53	Hydr. Depth (ft)	0.97
Conv. Total (cfs)	790.4	Conv. (cfs)	790.4
Length wtd. (ft)	388.00	wetted Per. (ft)	25.44
Min Ch El (ft)	95.70	Shear (lb/sq ft)	0.06
Alpha 0.00	1.00	Stream Power (lb/ft s)	1995.22
Frctn Loss (ft)	1.07	Cum Volume (acre-ft)	7.85
C & E Loss (ft)	0.02	Cum SA (acres)	4.37

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	97.60	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-val.		0.045
W.S. Elev (ft)	97.58	Reach Len. (ft)	385.00	388.00
390.00 Crit w.s. (ft)	96.55	Flow Area (sq ft)		33.72
E.G. slope (ft/ft)	0.001029	Area (sq ft)		33.72
Q Total (cfs)	40.00	Flow (cfs)		40.00
Top width (ft)	28.10	Top width (ft)		28.10
Vel Total (ft/s)	1.19	Avg. Vel. (ft/s)		1.19
Max Chl Dpth (ft)	1.88	Hydr. Depth (ft)		1.20
Conv. Total (cfs)	1247.2	Conv. (cfs)		1247.2
Length wtd. (ft)	388.00	wetted Per. (ft)		28.44
Min Ch El (ft)	95.70	Shear (lb/sq ft)		0.08
Alpha 0.00	1.00	Stream Power (lb/ft s)	1995.22	0.00
Frctn Loss (ft)	1.17	Cum Volume (acre-ft)		11.07
C & E Loss (ft)	0.03	Cum SA (acres)		4.82

NM110 OUTPUT REPORT.TXT

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	97.27	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	wt. n-val.		0.045
W.S. Elev (ft)	97.26	Reach Len. (ft)	385.00	388.00
390.00				
Crit w.s. (ft)	96.38	Flow Area (sq ft)		25.12
E.G. slope (ft/ft)	0.000934	Area (sq ft)		25.12
Q Total (cfs)	25.00	Flow (cfs)		25.00
Top width (ft)	25.40	Top width (ft)		25.40
vel Total (ft/s)	1.00	Avg. vel. (ft/s)		1.00
Max Chl Dpth (ft)	1.56	Hydr. Depth (ft)		0.99
Conv. Total (cfs)	817.9	Conv. (cfs)		817.9
Length wtd. (ft)	388.00	wetted Per. (ft)		25.66
Min Ch El (ft)	95.70	Shear (lb/sq ft)		0.06
Alpha	1.00	Stream Power (lb/ft s)	1995.22	0.00
0.00				
Frctn Loss (ft)	1.09	Cum volume (acre-ft)		8.68
C & E Loss (ft)	0.02	Cum SA (acres)		4.48

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	97.46	Element	Left OB	Channel
Right OB				

NM110 OUTPUT REPORT.TXT				
Vel Head (ft)	0.02	wt. n-Val.		0.045
W.S. Elev (ft)	97.44	Reach Len. (ft)	385.00	388.00
390.00 Crit W.S. (ft)	96.48	Flow Area (sq ft)		29.92
E.G. Slope (ft/ft)	0.000985	Area (sq ft)		29.92
Q Total (cfs)	33.00	Flow (cfs)		33.00
Top Width (ft)	26.96	Top Width (ft)		26.96
Vel Total (ft/s)	1.10	Avg. Vel. (ft/s)		1.10
Max Chl Dpth (ft)	1.74	Hydr. Depth (ft)		1.11
Conv. Total (cfs)	1051.3	Conv. (cfs)		1051.3
Length Wtd. (ft)	388.00	wetted Per. (ft)		27.27
Min Ch El (ft)	95.70	Shear (lb/sq ft)		0.07
Alpha 0.00	1.00	Stream Power (lb/ft s)	1995.22	0.00
Frctn Loss (ft)	1.13	Cum Volume (acre-ft)		10.32
C & E Loss (ft)	0.02	Cum SA (acres)		4.71

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	97.80	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	wt. n-Val.		0.045
W.S. Elev (ft)	97.78	Reach Len. (ft)	385.00	388.00
390.00 Crit W.S. (ft)	96.66	Flow Area (sq ft)		39.41
E.G. Slope (ft/ft)	0.001073	Area (sq ft)		39.41
Q Total (cfs)	51.00	Flow (cfs)		51.00
Top Width (ft)	29.73	Top Width (ft)		29.73
Vel Total (ft/s)	1.29	Avg. Vel. (ft/s)		1.29
Max Chl Dpth (ft)	2.08	Hydr. Depth (ft)		1.33
Conv. Total (cfs)	1556.9	Conv. (cfs)		1556.9

NM110 OUTPUT REPORT.TXT

Length wtd. (ft)	388.00	Wetted Per. (ft)	30.12
Min Ch El (ft)	95.70	Shear (lb/sq ft)	0.09
Alpha 0.00	1.00	Stream Power (lb/ft s)	1995.22
Frctn Loss (ft)	1.20	Cum Volume (acre-ft)	13.81
C & E Loss (ft)	0.03	Cum SA (acres)	5.16

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-110
REACH: NM-110

RS: 5540

INPUT

Description:

Station Elevation Data

num= 152

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	97.56	10	97.7	40	97.51	60	97.65	98999	97.48
74.98999	97.579	98999	97.64	134.99	97.44	149.99	97.73	159.99	97.68
164.99	97.52	169.99	97.67	194.99	97.71	199.99	97.6	229.99	97.65
234.99	97.81	249.98	97.81	254.98	97.96	259.98	97.82	294.98	97.99
299.98	97.81	314.98	97.96	349.98	97.83	354.98	97.93	359.98	97.77
369.98	97.85	374.98	98.02	414.97	98.12	419.97	98.24	429.97	98.11
514.97	98.28	519.97	98.18	549.97	98.15	554.97	98.31	559.97	98.28
564.97	98.13	584.96	98.1	599.96	98.33	604.96	98.25	639.96	98.51
649.96	98.33	659.96	98.43	679.96	98.27	684.96	98.41	694.96	98.42
699.96	98.29	709.96	98.46	724.96	98.36	729.96	98.52	734.96	98.52
739.96	98.35	769.95	98.29	774.95	98.44	779.95	98.44	789.95	98.28
804.95	98.44	809.95	98.32	814.95	98.4	834.95	98.47	839.95	98.28
844.95	98.23	854.95	98.45	864.95	98.33	869.95	98.4	879.95	98.28
929.9401	98.45	934.9401	98.61	939.9401	98.54	954.9401	98.86	959.9401	99.34
964.9401	99.99	969.9401	100.25	974.94	100.69	979.94	101.48	984.94	101.83
994.94	101.75	999.94	100.63	1004.94	98.38	1009.94	96.3	1014.94	95.35
1019.94	95.3	1024.94	95.65	1029.94	96.91	1034.94	97.9	1039.94	98.68
1043.03	99.57	1044.94	100.12	1049.94	100.76	1054.94	101.02	1064.94	100.99
1084.94	101.32	1104.93	101.12	1114.93	101.28	1119.93	101.21	1149.93	101.26
1159.93	100.93	1169.93	100.87	1184.93	100.43	1189.93	100.37	1194.93	100.03
1199.93	100.24	1204.93	100.1	1219.93	100.2	1224.93	100.51	1229.93	100.53
1234.93	100.86	1244.93	101.1	1269.92	101.28	1274.92	101.4	1364.92	101.48
1374.92	101.76	1379.92	101.8	1384.92	101.99	1389.92	102.35	1394.92	102.53
1444.91	102.44	1459.91	102.16	1469.91	101.56	1479.91	101.19	1489.91	100.36
1494.91	100.25	1519.91	100.24	1524.91	100.42	1529.91	100.83	1534.91	101.04
1544.91	101.23	1589.9	101.48	1599.9	101.23	1659.9	101.4	1679.9	101.23
1689.9	101.31	1694.9	101.46	1709.9	101.43	1714.9	101.28	1744.9	101.25
1749.89	101.42	1754.89	101.42	1759.89	101.29	1764.89	101.04	1769.89	100.95
1779.89	100.94	1784.89	100.35	1789.89	99.92	1794.89	99.88	1804.89	100.17
1819.89	100.1	1834.89	101.07	1849.89	101.36	1854.89	101.3	1914.88	101.55
1949.88	101.26	1994.88	101.85						

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Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 999.94 .045 1049.94 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 999.94 1049.94 178 178 178 .1 .3

Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 994.94 101.75 F
 1083.37 1994.88 101.22 F
 Blocked Obstructions num= 1
 Sta L Sta R Elev
 1443.02 1994.88 101.6

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	96.01	Element	Left OB	Channel
Right OB Vel Head (ft)	0.18	wt. n-Val.		0.045
W.S. Elev (ft)	95.83	Reach Len. (ft)	178.00	178.00
178.00 Crit w.s. (ft)	95.83	Flow Area (sq ft)		4.94
E.G. Slope (ft/ft)	0.040667	Area (sq ft)		4.94
Q Total (cfs)	17.00	Flow (cfs)		17.00
Top width (ft)	13.22	Top width (ft)		13.22
Vel Total (ft/s)	3.44	Avg. Vel. (ft/s)		3.44
Max Chl Dpth (ft)	0.53	Hydr. Depth (ft)		0.37
Conv. Total (cfs)	84.3	Conv. (cfs)		84.3
Length wtd. (ft)	178.00	wetted Per. (ft)		13.30
Min Ch El (ft)	95.30	Shear (lb/sq ft)		0.94
Alpha	1.00	Stream Power (lb/ft s)	1994.88	0.00
0.00 Frctn Loss (ft)	0.98	Cum Volume (acre-ft)		6.22
C & E Loss (ft)	0.05	Cum SA (acres)		3.82

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
 Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
 Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
 Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a

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valid subcritical answer. The program defaulted to critical depth.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	96.15	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.22	wt. n-Val.		0.045
W.S. Elev (ft)	95.93	Reach Len. (ft)	178.00	178.00
178.00				
Crit W.S. (ft)	95.93	Flow Area (sq ft)		6.37
E.G. Slope (ft/ft)	0.038301	Area (sq ft)		6.37
Q Total (cfs)	24.00	Flow (cfs)		24.00
Top width (ft)	14.18	Top width (ft)		14.18
Vel Total (ft/s)	3.77	Avg. Vel. (ft/s)		3.77
Max Chl Dpth (ft)	0.63	Hydr. Depth (ft)		0.45
Conv. Total (cfs)	122.6	Conv. (cfs)		122.6
Length wtd. (ft)	178.00	wetted Per. (ft)		14.28
Min Ch El (ft)	95.30	Shear (lb/sq ft)		1.07
Alpha	1.00	Stream Power (lb/ft s)	1994.88	0.00
0.00				
Frctn Loss (ft)	0.78	Cum Volume (acre-ft)		7.72
C & E Loss (ft)	0.06	Cum SA (acres)		4.20

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	96.41	Element	Left OB	Channel
Right OB				

NM110 OUTPUT REPORT.TXT				
Vel Head (ft)	0.29	wt. n-Val.		0.045
W.S. Elev (ft)	96.12	Reach Len. (ft)	178.00	178.00
178.00 Crit w.s. (ft)	96.12	Flow Area (sq ft)		9.26
E.G. Slope (ft/ft)	0.035793	Area (sq ft)		9.26
Q Total (cfs)	40.00	Flow (cfs)		40.00
Top width (ft)	15.95	Top width (ft)		15.95
Vel Total (ft/s)	4.32	Avg. Vel. (ft/s)		4.32
Max Ch1 Dpth (ft)	0.82	Hydr. Depth (ft)		0.58
Conv. Total (cfs)	211.4	Conv. (cfs)		211.4
Length wtd. (ft)	178.00	wetted Per. (ft)		16.10
Min Ch El (ft)	95.30	Shear (lb/sq ft)		1.29
Alpha 0.00	1.00	Stream Power (lb/ft s)	1994.88	0.00
Frctn Loss (ft)	0.62	Cum volume (acre-ft)		10.88
C & E Loss (ft)	0.08	Cum SA (acres)		4.62

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

Profile #ULT 10Y				
E.G. Elev (ft)	96.17	Element	Left OB	Channel
Right OB Vel Head (ft)	0.23	wt. n-Val.		0.045
W.S. Elev (ft)	95.94	Reach Len. (ft)	178.00	178.00
178.00 Crit w.s. (ft)	95.94	Flow Area (sq ft)		6.51
E.G. Slope (ft/ft)	0.038929	Area (sq ft)		6.51
Q Total (cfs)	25.00	Flow (cfs)		25.00
Top width (ft)	14.27	Top width (ft)		14.27
Vel Total (ft/s)	3.84	Avg. Vel. (ft/s)		3.84

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Max Chl Dpth (ft)	0.64	Hydr. Depth (ft)	0.46
Conv. Total (cfs)	126.7	Conv. (cfs)	126.7
Length wtd. (ft)	178.00	Wetted Per. (ft)	14.38
Min Ch El (ft)	95.30	Shear (lb/sq ft)	1.10
Alpha 0.00	1.00	Stream Power (lb/ft s)	1994.88
Frctn Loss (ft)	0.69	Cum Volume (acre-ft)	8.54
C & E Loss (ft)	0.06	Cum SA (acres)	4.30

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	96.31	Element	Left OB	Channel
Right OB Vel Head (ft)	0.26	wt. n-Val.		0.045
w.s. Elev (ft)	96.04	Reach Len. (ft)	178.00	178.00
178.00 Crit w.s. (ft)	96.04	Flow Area (sq ft)		7.99
E.G. Slope (ft/ft)	0.037289	Area (sq ft)		7.99
Q Total (cfs)	33.00	Flow (cfs)		33.00
Top width (ft)	15.20	Top width (ft)		15.20
Vel Total (ft/s)	4.13	Avg. Vel. (ft/s)		4.13
Max Chl Dpth (ft)	0.74	Hydr. Depth (ft)		0.53
Conv. Total (cfs)	170.9	Conv. (cfs)		170.9
Length wtd. (ft)	178.00	Wetted Per. (ft)		15.33
Min Ch El (ft)	95.30	Shear (lb/sq ft)		1.21
Alpha	1.00	Stream Power (lb/ft s)	1994.88	0.00

NM110 OUTPUT REPORT.TXT

0.00			
Frctn Loss (ft)	0.61	Cum Volume (acre-ft)	10.16
C & E Loss (ft)	0.07	Cum SA (acres)	4.53

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	96.56	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.33	wt. n-val.		0.045
W.S. Elev (ft)	96.23	Reach Len. (ft)	178.00	178.00
178.00				
Crit w.s. (ft)	96.23	Flow Area (sq ft)		11.09
E.G. slope (ft/ft)	0.034719	Area (sq ft)		11.09
Q Total (cfs)	51.00	Flow (cfs)		51.00
Top width (ft)	16.98	Top width (ft)		16.98
Vel Total (ft/s)	4.60	Avg. vel. (ft/s)		4.60
Max Chl Dpth (ft)	0.93	Hydr. Depth (ft)		0.65
Conv. Total (cfs)	273.7	Conv. (cfs)		273.7
Length wtd. (ft)	178.00	wetted Per. (ft)		17.15
Min Ch El (ft)	95.30	Shear (lb/sq ft)		1.40
Alpha	1.00	Stream Power (lb/ft s)	1994.88	0.00
0.00				
Frctn Loss (ft)	0.44	Cum Volume (acre-ft)		13.59
C & E Loss (ft)	0.09	Cum SA (acres)		4.95

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

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This may indicate the need for additional cross sections.
 Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
 Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-110
 REACH: NM-110 RS: 5361

INPUT

Description:

Station Elevation Data			num= 149						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	97.19	15	97.3524	98999	97.1429	98999	97.21	109.99	97.47
119.99	97.34149	9801	97.37159	9801	97.55164	9801	97.38184	9801	97.38
194.9801	97.7204	9801	97.46224	9701	97.48239	9701	97.65244	9701	97.78
249.9701	98.09254	9701	98.03289	9701	98.06299	9701	97.83329	9601	97.89
334.9601	97.83339	9601	97.9349	9601	97.82354	9601	97.92369	9601	97.74
374.9601	98.1379	9601	97.98394	9601	97.88419	9601	98.19429	9501	98.12
434.9501	97.92454	9501	97.94459	9501	98.09474	9501	98.13479	9501	98
514.9501	98.16524	9501	97.94564	9401	98.19569	9401	98.09589	9401	98.03
599.9401	98.3609	9401	97.98639	9301	98.12644	9301	98.01674	9301	98.1
679.9301	98.25684	9301	98.16699	9301	98.1	729.92	98.28	739.92	98.13
779.92	98.3	784.92	98.2	809.92	98.22	814.92	98.49	824.92	98.41
829.91	98.23	839.91	98.23	844.91	98.36	859.91	98.22	864.91	98.41
879.91	98.18	924.91	98.39	929.9	98.59	944.9	98.62	949.9	98.94
954.9	98.94	959.9	99.38	964.9	99.53	969.9	100.27	974.9	100.79
979.9	103.17	984.9	104.3	989.9	104.27	994.9	102.65	999.9	99.9
1004.9	96.99	1009.9	96.09	1014.9	93.99	1019.9	92.55	1024.9	94.25
1029.9	95.3	1033.73	96.78	1034.89	97.23	1039.89	100.08	1044.89	101.35
1054.89	101.59	1059.89	101.83	1064.89	101.87	1069.89	101.63	1079.89	101.47
1144.88	101.82	1169.88	101.31	1189.88	101.31	1229.88	101.74	1234.87	101.7
1244.87	101.44	1249.87	101.5	1254.87	101.43	1304.87	101.57	1309.87	101.51
1314.87	101.31	1324.87	101.36	1339.86	101.06	1419.86	101.13	1434.86	101.4
1449.85	101.38	1474.85	101	1484.85	100.23	1489.85	100.16	1494.85	99.92
1499.85	99.9	1509.85	100.03	1519.85	99.82	1524.85	100.05	1529.85	100.58
1534.85	100.79	1544.84	101.7	1549.84	101.77	1569.84	101.48	1584.84	101.47
1599.84	101.24	1609.84	101.59	1624.84	101.44	1634.84	101.71	1654.83	101.56
1659.83	101.46	1669.83	101.6	1699.83	101.19	1704.83	101.01	1719.83	101.18
1774.82	101.09	1779.82	100.91	1789.82	101.14	1834.82	101.18	1849.81	100.93
1854.81	100.93	1859.81	101.08	1864.81	101.03	1884.81	101.16	1889.81	100.96
1894.81	101.05	1904.81	101.08	1909.81	100.99	1924.81	101.11	1929.81	101.05
1934.81	100.71	1939.81	100.69	1949.8	100.81	1994.8	100.8		

Manning's n Values			num= 3		
Sta	n Val	Sta	n Val	Sta	n Val
0	.06	994.9	.045	1044.89	.06

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	994.9	1044.89		672	672	672		.1	.3

Ineffective Flow			num= 2		
Sta L	Sta R	Elev	Permanent		
0986.2401	103.31		F		
1066.16	1994.8	101.79	F		

Blocked Obstructions			num= 1		
Sta L	Sta R	Elev			
1562.83	1994.8	101.64			

NM110 OUTPUT REPORT.TXT

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	94.52	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	wt. n-val.		0.045
W.S. Elev (ft)	94.49	Reach Len. (ft)	672.00	672.00
672.00 Crit w.s. (ft)	93.67	Flow Area (sq ft)		11.93
E.G. slope (ft/ft)	0.002069	Area (sq ft)		11.93
Q Total (cfs)	17.00	Flow (cfs)		17.00
Top width (ft)	12.30	Top width (ft)		12.30
vel Total (ft/s)	1.42	Avg. vel. (ft/s)		1.42
Max Chl Dpth (ft)	1.94	Hydr. Depth (ft)		0.97
Conv. Total (cfs)	373.7	Conv. (cfs)		373.7
Length wtd. (ft)	672.00	wetted Per. (ft)		12.91
Min Ch El (ft)	92.55	Shear (lb/sq ft)		0.12
Alpha	1.00	Stream Power (lb/ft s)	1994.80	0.00
0.00 Frctn Loss (ft)	0.36	Cum volume (acre-ft)		6.18
C & E Loss (ft)	0.01	Cum SA (acres)		3.77

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	94.90	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	wt. n-val.		0.045
W.S. Elev (ft)	94.87	Reach Len. (ft)	672.00	672.00
672.00 Crit w.s. (ft)	93.83	Flow Area (sq ft)		17.20
E.G. slope (ft/ft)	0.001593	Area (sq ft)		17.20
Q Total (cfs)	24.00	Flow (cfs)		24.00
Top width (ft)	15.05	Top width (ft)		15.05
vel Total (ft/s)	1.40	Avg. vel. (ft/s)		1.40
Max Chl Dpth (ft)	2.32	Hydr. Depth (ft)		1.14

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Conv. Total (cfs)	601.3	Conv. (cfs)	601.3
Length wtd. (ft)	672.00	wetted Per. (ft)	15.78
Min Ch El (ft)	92.55	Shear (lb/sq ft)	0.11
Alpha 0.00	1.00	Stream Power (lb/ft s)	1994.80
Frctn Loss (ft)	0.35	Cum Volume (acre-ft)	7.67
C & E Loss (ft)	0.01	Cum SA (acres)	4.14

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	95.52	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	wt. n-val.		0.045
W.S. Elev (ft)	95.49	Reach Len. (ft)	672.00	672.00
672.00 Crit w.s. (ft)	94.12	Flow Area (sq ft)		27.80
E.G. slope (ft/ft)	0.001223	Area (sq ft)		27.80
Q Total (cfs)	40.00	Flow (cfs)		40.00
Top width (ft)	19.05	Top width (ft)		19.05
Vel Total (ft/s)	1.44	Avg. Vel. (ft/s)		1.44
Max Chl Dpth (ft)	2.94	Hydr. Depth (ft)		1.46
Conv. Total (cfs)	1143.8	Conv. (cfs)		1143.8
Length wtd. (ft)	672.00	wetted Per. (ft)		19.98
Min Ch El (ft)	92.55	Shear (lb/sq ft)		0.11
Alpha 0.00	1.00	Stream Power (lb/ft s)	1994.80	0.00
Frctn Loss (ft)	0.22	Cum Volume (acre-ft)		10.80
C & E Loss (ft)	0.01	Cum SA (acres)		4.55

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

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CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	95.00	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	wt. n-val.		0.045
W.S. Elev (ft)	94.97	Reach Len. (ft)	672.00	672.00
672.00 Crit w.s. (ft)	93.86	Flow Area (sq ft)		18.79
E.G. slope (ft/ft)	0.001371	Area (sq ft)		18.79
Q Total (cfs)	25.00	Flow (cfs)		25.00
Top width (ft)	15.79	Top width (ft)		15.79
vel Total (ft/s)	1.33	Avg. vel. (ft/s)		1.33
Max chl Dpth (ft)	2.42	Hydr. Depth (ft)		1.19
Conv. Total (cfs)	675.3	Conv. (cfs)		675.3
Length wtd. (ft)	672.00	wetted Per. (ft)		16.55
Min Ch El (ft)	92.55	Shear (lb/sq ft)		0.10
Alpha 0.00	1.00	Stream Power (lb/ft s)	1994.80	0.00
Frctn Loss (ft)	0.25	Cum volume (acre-ft)		8.49
C & E Loss (ft)	0.01	Cum SA (acres)		4.24

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	95.34	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	wt. n-val.		0.045
W.S. Elev (ft)	95.31	Reach Len. (ft)	672.00	672.00
672.00 Crit w.s. (ft)	94.01	Flow Area (sq ft)		24.47
E.G. slope (ft/ft)	0.001192	Area (sq ft)		24.47
Q Total (cfs)	33.00	Flow (cfs)		33.00
Top width (ft)	18.16	Top width (ft)		18.16
vel Total (ft/s)	1.35	Avg. vel. (ft/s)		1.35
Max chl Dpth (ft)	2.76	Hydr. Depth (ft)		1.35

NM110 OUTPUT REPORT.TXT

Conv. Total (cfs)	955.7	Conv. (cfs)	955.7
Length wtd. (ft)	672.00	wetted Per. (ft)	19.02
Min Ch El (ft)	92.55	Shear (lb/sq ft)	0.10
Alpha 0.00	1.00	Stream Power (lb/ft s)	1994.80
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	10.09
C & E Loss (ft)	0.01	Cum SA (acres)	4.46

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	96.02	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	wt. n-val.		0.045
W.S. Elev (ft)	95.99	Reach Len. (ft)	672.00	672.00
672.00 Crit w.s. (ft)	94.28	Flow Area (sq ft)		38.09
E.G. slope (ft/ft)	0.000824	Area (sq ft)		38.09
Q Total (cfs)	51.00	Flow (cfs)		51.00
Top width (ft)	21.57	Top width (ft)		21.57
Vel Total (ft/s)	1.34	Avg. Vel. (ft/s)		1.34
Max Chl Dpth (ft)	3.44	Hydr. Depth (ft)		1.77
Conv. Total (cfs)	1776.4	Conv. (cfs)		1776.4
Length wtd. (ft)	672.00	wetted Per. (ft)		22.69
Min Ch El (ft)	92.55	Shear (lb/sq ft)		0.09
Alpha 0.00	1.00	Stream Power (lb/ft s)	1994.80	0.00
Frctn Loss (ft)	0.15	Cum Volume (acre-ft)		13.49
C & E Loss (ft)	0.01	Cum SA (acres)		4.88

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

NM110 OUTPUT REPORT.TXT

CROSS SECTION

RIVER: N-NM-110
 REACH: NM-110

RS: 4689

INPUT

Description:

Station Elevation Data		num= 147							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	97.0534	98999	96.9649	98999	97.11	114.97	97.22	119.97	97.14
154.96	97.15	159.96	97.37	164.96	97.05199	9501	97.24214	9501	97.21
219.9501	97.08224	9501	97.18244	9401	97.17249	9401	97.32254	9401	97.17
289.9301	97.3294	9301	97.15299	9301	97.11	334.92	97.26	339.92	97.15
349.92	97.09	359.92	97.32	384.91	97.39	389.91	97.24	414.9	97.21
424.9	97.34	434.9	97.24	499.88	97.38	504.88	97.47	519.88	97.52
524.88	97.32	564.87	97.55	569.86	97.33	604.86	97.37	609.85	97.42
614.85	97.22	634.85	97.51	639.85	97.38	654.84	97.53	659.84	97.39
684.84	97.46	689.84	97.58699	8301	97.6704	8301	97.4739	8201	97.6
744.8201	97.2749	8201	97.18764	8201	97.43784	8101	97.51789	8101	97.3
794.8101	97.25	824.8	97.53	839.8	97.44	874.79	97.61	884.79	97.42
919.78	97.64	934.78	97.33	944.78	97.41	964.77	98.2	969.77	98.49
979.77	98.44	984.81	98.52	989.76	97.74	994.76	95.69	999.76	94.34
1004.76	94.29	1009.76	94.13	1014.76	93	1019.76	92.1	1024.76	92.38
1029.75	93.07	1034.75	94.92	1034.81	94.94	1039.75	97.22	1044.75	99.11
1054.75	99.73	1064.75	98.51	1069.74	98.23	1079.74	98.15	1084.74	98.31
1109.74	98.54	1124.73	98.35	1144.73	98.58	1154.72	98.43	1159.72	98.45
1179.72	98.19	1194.71	97.3	1204.71	97.18	1219.71	97.28	1224.71	97.15
1229.71	97.4	1234.7	97.93	1239.7	98.19	1249.7	98.22	1254.7	98.51
1269.7	98.66	1289.69	98.53	1304.69	98.62	1319.68	98.39	1324.68	98.64
1329.68	98.71	1334.68	98.63	1359.67	98.71	1379.67	99.09	1389.67	98.98
1409.66	99.45	1429.66	99.32	1439.65	98.98	1444.65	98.95	1459.65	99.36
1464.65	99.29	1489.64	98.45	1494.64	98	1499.64	97.44	1504.64	97.21
1509.64	97.31	1524.63	97.29	1529.63	97.37	1534.63	97.59	1539.63	98.11
1544.63	98.46	1574.62	99.27	1579.62	99.55	1584.62	99.31	1599.62	99.15
1649.6	99.26	1654.6	99.1	1679.6	99.26	1684.6	99.39	1694.59	99.49
1744.58	99.25	1749.58	99.4	1754.58	99.38	1759.58	99.21	1769.57	99.1
1784.57	98.55	1789.57	98.53	1799.57	97.76	1809.56	97.8	1814.56	97.98
1829.56	97.87	1844.56	98.77	1849.56	98.83	1869.55	99.33	1924.54	99.33
1964.53	99.04	1994.52	99.33						

Manning's n Values		num= 3	
Sta	n Val	Sta	n Val
0	.06	984.81	.045
		1044.75	.06

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	984.81	1044.75		557	556	555		.1	.3
Ineffective Flow	num= 2								
Sta L	Sta R	Elev	Permanent						
0	984.81	98.52	F						
1052.56	1994.52	99.21	F						
Blocked Obstructions	num= 1								
Sta L	Sta R	Elev							
1414.12	1994.52	99.29							

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	94.15	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	wt. n-Val.		0.045

NM110 OUTPUT REPORT.TXT				
W.S. Elev (ft)	94.14	Reach Len. (ft)	557.00	556.00
555.00 Crit W.S. (ft)	92.80	Flow Area (sq ft)		29.02
E.G. Slope (ft/ft)	0.000241	Area (sq ft)		29.02
Q Total (cfs)	17.00	Flow (cfs)		17.00
Top width (ft)	23.31	Top width (ft)		23.31
Vel Total (ft/s)	0.59	Avg. Vel. (ft/s)		0.59
Max Chl Dpth (ft)	2.04	Hydr. Depth (ft)		1.24
Conv. Total (cfs)	1094.4	Conv. (cfs)		1094.4
Length wtd. (ft)	556.00	wetted Per. (ft)		23.77
Min ch El (ft)	92.10	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	1994.52	0.00
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)		5.87
C & E Loss (ft)	0.00	Cum SA (acres)		3.49

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	94.54	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	94.54	Reach Len. (ft)	557.00	556.00
555.00 Crit W.S. (ft)	92.91	Flow Area (sq ft)		41.10
E.G. Slope (ft/ft)	0.000255	Area (sq ft)		41.10
Q Total (cfs)	24.00	Flow (cfs)		24.00
Top width (ft)	34.69	Top width (ft)		34.69
Vel Total (ft/s)	0.58	Avg. Vel. (ft/s)		0.58
Max Chl Dpth (ft)	2.44	Hydr. Depth (ft)		1.18
Conv. Total (cfs)	1503.7	Conv. (cfs)		1503.7
Length wtd. (ft)	556.00	wetted Per. (ft)		35.25
Min ch El (ft)	92.10	Shear (lb/sq ft)		0.02
Alpha	1.00	Stream Power (lb/ft s)	1994.52	0.00

NM110 OUTPUT REPORT.TXT

0.00			
Frctn Loss (ft)	0.16	Cum Volume (acre-ft)	7.22
C & E Loss (ft)	0.00	Cum SA (acres)	3.75

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	95.29	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	95.28	Reach Len. (ft)	557.00	556.00
555.00				
Crit w.s. (ft)	93.12	Flow Area (sq ft)		68.67
E.G. Slope (ft/ft)	0.000152	Area (sq ft)		68.67
Q Total (cfs)	40.00	Flow (cfs)		40.00
Top width (ft)	39.28	Top width (ft)		39.28
Vel Total (ft/s)	0.58	Avg. Vel. (ft/s)		0.58
Max Chl Dpth (ft)	3.18	Hydr. Depth (ft)		1.75
Conv. Total (cfs)	3246.2	Conv. (cfs)		3246.2
Length wtd. (ft)	556.00	wetted Per. (ft)		40.08
Min Ch El (ft)	92.10	Shear (lb/sq ft)		0.02
Alpha	1.00	Stream Power (lb/ft s)	1994.52	0.00
0.00				
Frctn Loss (ft)	0.16	Cum Volume (acre-ft)		10.06
C & E Loss (ft)	0.00	Cum SA (acres)		4.10

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	94.74	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-Val.		0.045

NM110 OUTPUT REPORT.TXT				
W.S. Elev (ft)	94.74	Reach Len. (ft)	557.00	556.00
555.00 Crit W.S. (ft)	92.92	Flow Area (sq ft)		48.19
E.G. Slope (ft/ft)	0.000171	Area (sq ft)		48.19
Q Total (cfs)	25.00	Flow (cfs)		25.00
Top width (ft)	35.98	Top width (ft)		35.98
Vel Total (ft/s)	0.52	Avg. Vel. (ft/s)		0.52
Max Chl Dpth (ft)	2.64	Hydr. Depth (ft)		1.34
Conv. Total (cfs)	1911.8	Conv. (cfs)		1911.8
Length wtd. (ft)	556.00	wetted Per. (ft)		36.60
Min ch El (ft)	92.10	Shear (lb/sq ft)		0.01
Alpha 0.00	1.00	Stream Power (lb/ft s)	1994.52	0.00
Frctn Loss (ft)	0.15	Cum Volume (acre-ft)		7.97
C & E Loss (ft)	0.00	Cum SA (acres)		3.84

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	95.12	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-Val.		0.045
W.S. Elev (ft)	95.12	Reach Len. (ft)	557.00	556.00
555.00 Crit W.S. (ft)	93.03	Flow Area (sq ft)		62.28
E.G. Slope (ft/ft)	0.000138	Area (sq ft)		62.28
Q Total (cfs)	33.00	Flow (cfs)		33.00
Top width (ft)	38.32	Top width (ft)		38.32
Vel Total (ft/s)	0.53	Avg. Vel. (ft/s)		0.53
Max Chl Dpth (ft)	3.02	Hydr. Depth (ft)		1.63
Conv. Total (cfs)	2807.1	Conv. (cfs)		2807.1
Length wtd. (ft)	556.00	wetted Per. (ft)		39.06
Min ch El (ft)	92.10	Shear (lb/sq ft)		0.01
Alpha	1.00	Stream Power (lb/ft s)	1994.52	0.00

NM110 OUTPUT REPORT.TXT

0.00			
Frctn Loss (ft)	0.16	Cum Volume (acre-ft)	9.42
C & E Loss (ft)	0.00	Cum SA (acres)	4.02

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	95.86	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-val.		0.045
W.S. Elev (ft)	95.86	Reach Len. (ft)	557.00	556.00
555.00				
Crit w.s. (ft)	93.22	Flow Area (sq ft)		92.28
E.G. Slope (ft/ft)	0.000103	Area (sq ft)		92.28
Q Total (cfs)	51.00	Flow (cfs)		51.00
Top width (ft)	42.46	Top width (ft)		42.46
Vel Total (ft/s)	0.55	Avg. Vel. (ft/s)		0.55
Max Chl Dpth (ft)	3.76	Hydr. Depth (ft)		2.17
Conv. Total (cfs)	5033.1	Conv. (cfs)		5033.1
Length wtd. (ft)	556.00	wetted Per. (ft)		43.47
Min Ch El (ft)	92.10	Shear (lb/sq ft)		0.01
Alpha	1.00	Stream Power (lb/ft s)	1994.52	0.00
0.00				
Frctn Loss (ft)	0.16	Cum Volume (acre-ft)		12.48
C & E Loss (ft)	0.00	Cum SA (acres)		4.38

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-110
 REACH: NM-110 RS: 4133

INPUT

Description:

Station	Elevation	Data	num=	177					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

NM110 OUTPUT REPORT.TXT

0	98.16	4.98999	98.18	9.98999	98.0824	98.98999	98.1334	97.998	97.92
39.97998		9854.96997	97.9659	96997	98.0869	96997	98.0474	96997	98.18
94.95996	98.399	95996	98.57	124.95	97.98	129.95	97.93154	9399	98.07
159.9299	98.23179	9299	98.09199	9199	97.71204	9199	97.49209	9099	97.45
254.8999	97.76	279.89	97.59	284.88	97.5	289.88	97.3	299.88	97.13
314.87	97.22	334.86	97.03	369.85	97.22	379.85	97.09	384.84	97.18
409.84	97.12	414.83	97.31	419.83	97.32	429.83	97.14	434.83	97.18
439.8199	96.93444	8199	96.92449	8199	97.21464	8099	97.38474	8099	97.61
479.8099	97.56504	7999	97.64509	7999	97.92524	7899	97.9529	7899	97.77
534.7899	97.81	569.77	97.58	579.77	97.79	654.74	97.8	669.73	98.05
679.73	98.02	694.72	97.68	709.72	97.81	714.72	97.7769	6899	97.52
789.6899	97.83794	6799	97.8799	6799	97.91829	6699	97.8859	6599	98.26
864.6599	98.08869	6499	98.11874	6499	97.92879	6499	98.02889	6499	97.71
899.64	97.67	909.64	97.89	914.64	97.9	924.63	98.18	934.63	98.25
939.63	98.39	944.62	98.26	969.62	98.16	974.61	98.62	979.61	98.82
984.61	99.72989	6899	99.9	994.61	98.74	999.6	98.22	1004.6	95.07
1009.6	92.22	1014.6	91.4	1019.6	91.32	1024.59	91.67	1029.59	92.97
1034.59	95.15	1039.59	95.96	1039.7	96.01	1044.59	97.93	1049.58	99.89
1054.58	100.01	1059.58	99.77	1064.58	98.84	1069.58	98.29	1084.57	98.2
1089.57	98.38	1104.56	98.61	1114.56	98.49	1124.55	98.6	1129.55	98.47
1134.55	98.46	1139.55	98.58	1174.53	98.46	1184.53	98.17	1189.53	98.13
1194.53	97.98	1199.52	97.49	1204.52	97.18	1219.52	97.36	1234.51	97.33
1239.51	97.58	1244.51	97.96	1254.5	98.24	1259.5	98.22	1274.49	98.37
1279.49	98.35	1294.49	98.58	1304.48	98.55	1309.48	98.44	1314.48	98.52
1329.47	98.44	1334.47	98.79	1339.47	98.53	1349.46	98.59	1354.46	98.46
1369.46	98.39	1374.45	98.54	1384.45	98.49	1399.44	98.01	1404.44	98.02
1409.44	98.2	1419.44	98.2	1424.44	98.08	1449.43	98.35	1454.42	98.31
1459.42	98.12	1464.42	98.04	1474.42	98.04	1479.41	97.92	1494.41	97.81
1499.41	97.43	1504.4	97.23	1524.4	97.3	1539.39	97.61	1544.39	97.86
1549.39	97.97	1554.38	97.93	1579.37	98.07	1589.37	98.28	1594.37	98.21
1649.35	98.52	1654.34	98.86	1664.34	98.97	1689.33	98.83	1699.33	98.99
1704.32	98.85	1764.3	98.92	1769.3	98.86	1779.29	98.91	1789.29	98.72
1794.29	98.34	1799.29	97.76	1804.29	97.72	1809.28	97.49	1814.28	97.72
1834.27	97.7	1839.27	98.13	1864.26	98.46	1874.26	98.98	1879.26	99.13
1884.25	99.4	1889.25	99.44	1934.23	99.04	1939.23	98.77	1944.23	98.68
1964.22	98.83	1994.21	98.65						

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06989.6899 .045 1049.58 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 989.6899 1049.58 242 243 240 .1 .3

Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0989.6899 99.9 F
 1049.58 1994.21 99.89 F

Blocked Obstructions num= 2
 Sta L Sta R Elev Sta L Sta R Elev
 0 104.58 98.38 1345.3 1994.21 98.56

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	94.01	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	wt. n-val.		0.045
W.S. Elev (ft)	94.00	Reach Len. (ft)	242.00	243.00
240.00				
Crit w.s. (ft)	92.13	Flow Area (sq ft)		49.03
E.G. slope (ft/ft)	0.000254	Area (sq ft)		49.03

NM110 OUTPUT REPORT.TXT

Q Total (cfs)	39.00	Flow (cfs)	39.00
Top width (ft)	25.47	Top width (ft)	25.47
Vel Total (ft/s)	0.80	Avg. Vel. (ft/s)	0.80
Max Chl Dpth (ft)	2.68	Hydr. Depth (ft)	1.92
Conv. Total (cfs)	2446.1	Conv. (cfs)	2446.1
Length wtd. (ft)	243.00	wetted Per. (ft)	26.41
Min Ch El (ft)	91.32	Shear (lb/sq ft)	0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	1994.21
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	5.37
C & E Loss (ft)	0.00	Cum SA (acres)	3.18

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	94.38	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	94.36	Reach Len. (ft)	242.00	243.00
240.00 Crit w.s. (ft)	92.30	Flow Area (sq ft)		58.61
E.G. Slope (ft/ft)	0.000314	Area (sq ft)		58.61
Q Total (cfs)	56.00	Flow (cfs)		56.00
Top width (ft)	26.95	Top width (ft)		26.95
Vel Total (ft/s)	0.96	Avg. Vel. (ft/s)		0.96
Max Chl Dpth (ft)	3.04	Hydr. Depth (ft)		2.17
Conv. Total (cfs)	3162.7	Conv. (cfs)		3162.7
Length wtd. (ft)	243.00	wetted Per. (ft)		28.06
Min Ch El (ft)	91.32	Shear (lb/sq ft)		0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	1994.21	0.00
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)		6.58
C & E Loss (ft)	0.00	Cum SA (acres)		3.36

NM110 OUTPUT REPORT.TXT

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	95.12	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-val.		0.045
W.S. Elev (ft)	95.10	Reach Len. (ft)	242.00	243.00
240.00 Crit w.s. (ft)	92.63	Flow Area (sq ft)		79.49
E.G. slope (ft/ft)	0.000412	Area (sq ft)		79.49
Q Total (cfs)	99.00	Flow (cfs)		99.00
Top width (ft)	29.92	Top width (ft)		29.92
Vel Total (ft/s)	1.25	Avg. Vel. (ft/s)		1.25
Max Chl Dpth (ft)	3.78	Hydr. Depth (ft)		2.66
Conv. Total (cfs)	4878.4	Conv. (cfs)		4878.4
Length wtd. (ft)	243.00	wetted Per. (ft)		31.37
Min Ch El (ft)	91.32	Shear (lb/sq ft)		0.07
Alpha 0.00	1.00	Stream Power (lb/ft s)	1994.21	0.00
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)		9.11
C & E Loss (ft)	0.01	Cum SA (acres)		3.66

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	94.59	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-val.		0.045
W.S. Elev (ft)	94.57	Reach Len. (ft)	242.00	243.00
240.00 Crit w.s. (ft)	92.39	Flow Area (sq ft)		64.23
E.G. slope (ft/ft)	0.000345	Area (sq ft)		64.23

NM110 OUTPUT REPORT.TXT

Q Total (cfs)	67.00	Flow (cfs)	67.00
Top width (ft)	27.78	Top width (ft)	27.78
Vel Total (ft/s)	1.04	Avg. Vel. (ft/s)	1.04
Max Chl Dpth (ft)	3.25	Hydr. Depth (ft)	2.31
Conv. Total (cfs)	3604.9	Conv. (cfs)	3604.9
Length wtd. (ft)	243.00	wetted Per. (ft)	28.99
Min Ch El (ft)	91.32	Shear (lb/sq ft)	0.05
Alpha 0.00	1.00	Stream Power (lb/ft s)	1994.21
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	7.26
C & E Loss (ft)	0.00	Cum SA (acres)	3.44

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	94.96	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-Val.		0.045
W.S. Elev (ft)	94.94	Reach Len. (ft)	242.00	243.00
240.00 Crit w.s. (ft)	92.56	Flow Area (sq ft)		74.87
E.G. Slope (ft/ft)	0.000394	Area (sq ft)		74.87
Q Total (cfs)	89.00	Flow (cfs)		89.00
Top width (ft)	29.29	Top width (ft)		29.29
Vel Total (ft/s)	1.19	Avg. Vel. (ft/s)		1.19
Max Chl Dpth (ft)	3.62	Hydr. Depth (ft)		2.56
Conv. Total (cfs)	4481.7	Conv. (cfs)		4481.7
Length wtd. (ft)	243.00	wetted Per. (ft)		30.67
Min Ch El (ft)	91.32	Shear (lb/sq ft)		0.06
Alpha 0.00	1.00	Stream Power (lb/ft s)	1994.21	0.00
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)		8.54
C & E Loss (ft)	0.01	Cum SA (acres)		3.59

NM110 OUTPUT REPORT.TXT

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	95.70	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	wt. n-Val.		0.045
W.S. Elev (ft)	95.67	Reach Len. (ft)	242.00	243.00
240.00 Crit w.s. (ft)	92.90	Flow Area (sq ft)		97.79
E.G. Slope (ft/ft)	0.000493	Area (sq ft)		97.79
Q Total (cfs)	140.00	Flow (cfs)		140.00
Top width (ft)	34.17	Top width (ft)		34.17
Vel Total (ft/s)	1.43	Avg. Vel. (ft/s)		1.43
Max Chl Dpth (ft)	4.35	Hydr. Depth (ft)		2.86
Conv. Total (cfs)	6305.1	Conv. (cfs)		6305.1
Length wtd. (ft)	243.00	wetted Per. (ft)		35.84
Min Ch El (ft)	91.32	Shear (lb/sq ft)		0.08
Alpha 0.00	1.00	Stream Power (lb/ft s)	1994.21	0.00
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)		11.27
C & E Loss (ft)	0.01	Cum SA (acres)		3.89

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-110
REACH: NM-110

RS: 3890

INPUT

Description:

Station Elevation Data		num=	166						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	97.78	5	97.94	10	97.819	98999	97.7944	97998	98.24
54.97998	98.259	97998	98.26	124.95	98.1144	9399	96.87149	9399	96.82

NM110 OUTPUT REPORT.TXT

154.9399	96.44164.9299	96.63169.9299	96.65174.9299	96.57179.9299	96.63
184.9299	96.91189.9199	96.98194.9199	97.28204.9199	97.57209.9199	97.63
214.9099	97.49219.9099	97.51224.9099	97.85229.9099	97.97 284.89	98.14
304.88	97.96 314.87	98.61 329.87	98.96 389.85	98.81 399.84	98.95
424.83	98.59 434.83	98.61 439.83	98.26444.8199	97.84449.8199	97.74
454.8199	97.32459.8199	97.4464.8199	97.34479.8099	97.41484.8099	97.83
489.8099	97.87494.7999	98.32504.7999	98.53509.7999	98.43514.7999	98.46
519.7899	98.63524.7899	98.69 574.77	98.72 579.77	98.59 584.77	98.33
599.76	98.33 604.76	98.19 624.75	98.55 719.71	98.3 724.71	98.16
739.71	98.16 749.7	97.7 754.7	97.22779.6899	97.4784.6899	97.88
809.6799	98.48814.6799	98.52819.6799	98.72824.6699	98.6859.6599	98.69
864.6599	98.81869.6599	98.7874.6499	98.87879.6499	98.91884.6499	99.26
889.6499	98.76 899.64	98.68 904.64	98.95 909.64	98.8 914.64	98.55
924.63	98.47 929.63	99.14 934.63	98.62 939.63	96.75944.0599	96.49
944.63	96.46 949.62	94.87 954.62	92.92 959.62	91.6 964.62	91.37
969.62	91.35 974.61	91.34 979.61	91.3 984.61	91.28 989.61	91.37
994.61	92.1 995.64	92.28 999.6	92.95 1004.6	93.21 1009.6	94.26
1014.6	95.93 1019.6	97.03 1024.59	97.31 1034.59	96.74 1039.59	96.58
1059.58	96.79 1104.56	96.78 1109.56	96.6 1119.56	96.84 1134.55	96.65
1144.55	96.73 1154.54	96.55 1204.52	96.71 1244.51	97.31 1254.5	98.15
1314.48	98.29 1319.48	98.47 1364.46	97.82 1374.45	97.41 1379.45	97.35
1404.44	97.4 1414.44	97.11 1424.44	97.33 1429.43	97.64 1434.43	97.73
1439.43	97.47 1444.43	97.34 1449.43	97.4 1454.42	97.16 1459.42	97.04
1469.42	97.3 1479.41	97.78 1539.39	98.4 1544.39	98.32 1564.38	98.38
1584.37	98.22 1594.37	98.39 1599.37	98.32 1609.36	97.65 1614.36	97.47
1624.36	97.5 1629.35	97.26 1649.35	97.12 1654.34	96.8 1659.34	96.62
1664.34	96.63 1669.34	96.76 1684.33	96.78 1689.33	96.66 1709.32	96.62
1714.32	96.7 1719.32	96.64 1769.3	96.61 1774.3	96.48 1779.29	96.58
1789.29	96.52 1794.29	96.57 1799.29	96.8 1814.28	96.58 1819.28	96.64
1844.27	96.61 1854.27	96.75 1899.25	96.64 1909.24	96.81 1929.24	96.6
1964.22	97.06 1974.22	97.49 1979.22	97.94 1984.21	98.01 1989.21	98.28
1994.21	98.04				

Manning's n values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 934.63 .045 1019.6 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 934.63 1019.6 463 464 464 .1 .3
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 934.63 98.62 F
 1023.71 1994.21 97.2 F
 Blocked Obstructions num= 2
 Sta L Sta R Elev Sta L Sta R Elev
 0331.0299 98.84 1316.76 1994.21 98.39

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	93.99	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-Val.		0.045
w.s. Elev (ft)	93.98	Reach Len. (ft)	463.00	464.00
464.00 Crit w.s. (ft)	91.73	Flow Area (sq ft)		113.40
E.G. Slope (ft/ft)	0.000043	Area (sq ft)		113.40
Q Total (cfs)	39.00	Flow (cfs)		39.00
Top width (ft)	56.39	Top width (ft)		56.39

NM110 OUTPUT REPORT.TXT

Vel Total (ft/s)	0.34	Avg. Vel. (ft/s)		0.34
Max Chl Dpth (ft)	2.70	Hydr. Depth (ft)		2.01
Conv. Total (cfs)	5924.3	Conv. (cfs)		5924.3
Length Wtd. (ft)	464.00	Wetted Per. (ft)		56.98
Min Ch El (ft)	91.28	Shear (lb/sq ft)		0.01
Alpha 0.00	1.00	Stream Power (lb/ft s)	1994.21	0.00
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)		4.91
C & E Loss (ft)	0.00	Cum SA (acres)		2.95

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	94.35	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-Val.		0.045
w.s. Elev (ft)	94.35	Reach Len. (ft)	463.00	464.00
464.00 Crit w.s. (ft)	91.83	Flow Area (sq ft)		134.33
E.G. Slope (ft/ft)	0.000054	Area (sq ft)		134.33
Q Total (cfs)	56.00	Flow (cfs)		56.00
Top width (ft)	58.90	Top width (ft)		58.90
Vel Total (ft/s)	0.42	Avg. Vel. (ft/s)		0.42
Max Chl Dpth (ft)	3.07	Hydr. Depth (ft)		2.28
Conv. Total (cfs)	7625.5	Conv. (cfs)		7625.5
Length Wtd. (ft)	464.00	Wetted Per. (ft)		59.60
Min Ch El (ft)	91.28	Shear (lb/sq ft)		0.01
Alpha 0.00	1.00	Stream Power (lb/ft s)	1994.21	0.00
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)		6.04
C & E Loss (ft)	0.00	Cum SA (acres)		3.12

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

NM110 OUTPUT REPORT.TXT

E.G. Elev (ft)	95.08	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-val.		0.045
W.S. Elev (ft)	95.08	Reach Len. (ft)	463.00	464.00
464.00 Crit W.S. (ft)	92.03	Flow Area (sq ft)		178.90
E.G. Slope (ft/ft)	0.000071	Area (sq ft)		178.90
Q Total (cfs)	99.00	Flow (cfs)		99.00
Top width (ft)	63.08	Top width (ft)		63.08
Vel Total (ft/s)	0.55	Avg. Vel. (ft/s)		0.55
Max chl Dpth (ft)	3.80	Hydr. Depth (ft)		2.84
Conv. Total (cfs)	11718.7	Conv. (cfs)		11718.7
Length wtd. (ft)	464.00	wetted Per. (ft)		64.03
Min ch El (ft)	91.28	Shear (lb/sq ft)		0.01
Alpha 0.00	1.00	Stream Power (lb/ft s)	1994.21	0.00
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)		8.39
C & E Loss (ft)	0.00	Cum SA (acres)		3.40

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	94.55	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-val.		0.045
W.S. Elev (ft)	94.55	Reach Len. (ft)	463.00	464.00
464.00 Crit W.S. (ft)	91.89	Flow Area (sq ft)		146.47
E.G. Slope (ft/ft)	0.000059	Area (sq ft)		146.47
Q Total (cfs)	67.00	Flow (cfs)		67.00
Top width (ft)	60.03	Top width (ft)		60.03
Vel Total (ft/s)	0.46	Avg. Vel. (ft/s)		0.46
Max chl Dpth (ft)	3.27	Hydr. Depth (ft)		2.44
Conv. Total (cfs)	8691.4	Conv. (cfs)		8691.4
Length wtd. (ft)	464.00	wetted Per. (ft)		60.81

NM110 OUTPUT REPORT.TXT				
Min Ch El (ft)	91.28	Shear (lb/sq ft)		0.01
Alpha 0.00	1.00	Stream Power (lb/ft s)	1994.21	0.00
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)		6.67
C & E Loss (ft)	0.00	Cum SA (acres)		3.19

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	94.93	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-Val.		0.045
W.S. Elev (ft)	94.92	Reach Len. (ft)	463.00	464.00
464.00 Crit w.s. (ft)	91.99	Flow Area (sq ft)		169.15
E.G. Slope (ft/ft)	0.000068	Area (sq ft)		169.15
Q Total (cfs)	89.00	Flow (cfs)		89.00
Top width (ft)	62.13	Top width (ft)		62.13
Vel Total (ft/s)	0.53	Avg. Vel. (ft/s)		0.53
Max Chl Dpth (ft)	3.64	Hydr. Depth (ft)		2.72
Conv. Total (cfs)	10786.5	Conv. (cfs)		10786.5
Length wtd. (ft)	464.00	wetted Per. (ft)		63.03
Min Ch El (ft)	91.28	Shear (lb/sq ft)		0.01
Alpha 0.00	1.00	Stream Power (lb/ft s)	1994.21	0.00
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)		7.86
C & E Loss (ft)	0.00	Cum SA (acres)		3.34

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	95.66	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	95.65	Reach Len. (ft)	463.00	464.00
464.00 Crit w.s. (ft)	92.20	Flow Area (sq ft)		215.93

NM110 OUTPUT REPORT.TXT

E.G. slope (ft/ft)	0.000082	Area (sq ft)	215.93
Q Total (cfs)	140.00	Flow (cfs)	140.00
Top width (ft)	66.58	Top width (ft)	66.58
Vel Total (ft/s)	0.65	Avg. Vel. (ft/s)	0.65
Max chl Dpth (ft)	4.37	Hydr. Depth (ft)	3.24
Conv. Total (cfs)	15446.6	Conv. (cfs)	15446.6
Length wtd. (ft)	464.00	wetted Per. (ft)	67.72
Min ch El (ft)	91.28	shear (lb/sq ft)	0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	1994.21
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	10.39
C & E Loss (ft)	0.00	Cum SA (acres)	3.61

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-110
 REACH: NM-110 RS: 3427

INPUT

Description:

Station Elevation Data		num=	195						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	98.0614	98999	98.0119	98999	98.1124	98999	97.9239	97998	97.93
44.97998	97.8254	97998	98.0364	96997	97.869	96997	97.89124	9399	97.75
134.9301	97.45139	9301	97.38144	9301	97.15149	9301	96.68	154.92	96.33
174.91	96.38	184.91	96.88	189.91	96.97	204.9	97.54	209.9	97.56
219.89	97.76	274.86	98.16	279.86	98.06	289.86	98.19	304.85	98.11
309.85	98.36	324.84	98.49	329.84	98.39	334.83	98.64364	8199	98.4
369.8199	98.11379	8101	98.2384	8101	98.1	394.8	98.23	399.8	98.19
409.8	98.47	429.79	98.14	434.78	98.13	444.78	97.84	454.77	97.32
474.76	97.37	484.76	97.57	489.76	97.9	494.75	98.37	499.75	98.58
509.75	98.64	519.74	98.29	529.74	98.57	564.72	98.6	574.71	98.37
584.71	98.4	594.7	98.22614	6899	98.19619	6899	98.35639	6801	98.48
654.67	98.3	659.67	98.34	664.67	98.62	714.64	98.74	719.64	98.46
734.63	98.3	744.63	97.78	749.63	97.24	759.62	97.13	764.62	97.29
769.62	97.15	774.61	97.14	779.61	97	794.6	97.93	809.6	98.1
814.59	98.3	824.59	98.49874	5601	98.44	894.55	98.71	904.55	98.57
909.55	98.61	919.54	98.47	924.54	98.52	934.53	99.06	944.53	98.95
949.53	97.91	954.52	95.56	958.66	93.77	959.52	93.41	964.52	91.84
969.52	91.34	974.51	91.34	979.51	91.35	984.51	91.36	989.51	91.36
994.5	91.4	999.5	91.82	1004.5	92.77	1008.68	92.76	1009.5	92.75
1014.49	93.25	1019.49	95.27	1024.49	97.33	1029.49	98.24	1034.48	98
1039.48	96.89	1049.48	96.78	1054.47	96.95	1064.47	97.01	1069.47	97.23
1074.46	97.34	1079.46	97.33	1084.46	97.2	1099.45	97.21	1104.45	97.33
1109.45	97.72	1114.44	97.96	1119.44	97.87	1124.44	98.34	1139.43	98.62
1144.43	98.57	1149.43	98.7	1154.42	98.66	1169.42	98.74	1179.41	98.62

NM110 OUTPUT REPORT.TXT

1184.41	98.69	1189.41	98.62	1199.4	98.31	1209.4	98.29	1214.39	98.16
1219.39	97.9	1224.39	97.78	1234.38	97.32	1244.38	97.2	1269.37	97.34
1274.36	97.5	1279.36	97.87	1284.36	98.14	1294.35	98.28	1299.35	98.53
1304.35	98.53	1309.35	98.41	1329.33	98.88	1339.33	98.77	1349.32	98.46
1354.32	98.38	1364.32	98.43	1384.31	98.87	1404.3	98.82	1409.29	98.62
1414.29	98.54	1419.29	98.26	1429.28	98.11	1464.27	98.41	1469.26	98.58
1509.24	98.26	1514.24	97.86	1529.23	97.67	1534.23	97.49	1539.23	97.44
1544.23	97.29	1549.22	97.28	1559.22	96.61	1564.22	96.77	1579.21	96.98
1599.2	96.85	1614.19	97.05	1624.19	96.93	1644.18	97.02	1654.17	97.24
1664.17	97.17	1669.16	97.01	1679.16	96.92	1689.15	97.12	1704.15	97.17
1714.14	96.91	1799.1	96.95	1804.1	97.04	1814.09	96.96	1824.09	97.21
1834.08	97.17	1839.08	96.84	1844.08	96.98	1854.07	96.87	1864.07	97.12
1869.06	96.89	1874.06	96.84	1879.06	96.93	1894.05	96.92	1899.05	97.07
1904.05	97.08	1914.04	96.91	1919.04	97.01	1944.03	96.88	1949.02	96.97
1969.01	96.79	1979.01	96.91	1984	97.29	1989	97.37	1994	97.76

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 944.53 .045 1029.49 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 944.53 1029.49 646 646 646 .1 .3

Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 944.53 98.95 F
 1029.49 1994 98.24 F

Blocked Obstructions num= 2
 Sta L Sta R Elev Sta L Sta R Elev
 0 342.24 98.48 1337.48 1994 98.62

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	93.97	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-Val.		0.045
w.s. Elev (ft)	93.96	Reach Len. (ft)	646.00	646.00
646.00				
Crit w.s. (ft)	91.76	Flow Area (sq ft)		115.65
E.G. Slope (ft/ft)	0.000042	Area (sq ft)		115.65
Q Total (cfs)	39.00	Flow (cfs)		39.00
Top width (ft)	58.05	Top width (ft)		58.05
Vel Total (ft/s)	0.34	Avg. Vel. (ft/s)		0.34
Max Chl Dpth (ft)	2.62	Hydr. Depth (ft)		1.99
Conv. Total (cfs)	6002.1	Conv. (cfs)		6002.1
Length wtd. (ft)	646.00	wetted Per. (ft)		58.70
Min Ch El (ft)	91.34	Shear (lb/sq ft)		0.01
Alpha	1.00	Stream Power (lb/ft s)	1994.00	0.00
0.00				
Frctn Loss (ft)	0.03	cum volume (acre-ft)		3.69
C & E Loss (ft)	0.00	cum SA (acres)		2.34

NM110 OUTPUT REPORT.TXT

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	94.32	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-val.		0.045
W.S. Elev (ft)	94.32	Reach Len. (ft)	646.00	646.00
646.00 Crit w.s. (ft)	91.86	Flow Area (sq ft)		136.75
E.G. Slope (ft/ft)	0.000052	Area (sq ft)		136.75
Q Total (cfs)	56.00	Flow (cfs)		56.00
Top width (ft)	59.76	Top width (ft)		59.76
Vel Total (ft/s)	0.41	Avg. Vel. (ft/s)		0.41
Max Ch1 Dpth (ft)	2.98	Hydr. Depth (ft)		2.29
Conv. Total (cfs)	7772.2	Conv. (cfs)		7772.2
Length wtd. (ft)	646.00	wetted Per. (ft)		60.55
Min Ch El (ft)	91.34	Shear (lb/sq ft)		0.01
Alpha	1.00	Stream Power (lb/ft s)	1994.00	0.00
0.00 Frctn Loss (ft)	0.04	Cum Volume (acre-ft)		4.60
C & E Loss (ft)	0.00	Cum SA (acres)		2.49

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	95.05	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-val.		0.045
W.S. Elev (ft)	95.05	Reach Len. (ft)	646.00	646.00
646.00 Crit w.s. (ft)	92.06	Flow Area (sq ft)		181.23
E.G. Slope (ft/ft)	0.000069	Area (sq ft)		181.23
Q Total (cfs)	99.00	Flow (cfs)		99.00
Top width (ft)	63.23	Top width (ft)		63.23
Vel Total (ft/s)	0.55	Avg. Vel. (ft/s)		0.55

NM110 OUTPUT REPORT.TXT

Max Chl Dpth (ft)	3.71	Hydr. Depth (ft)	2.87
Conv. Total (cfs)	11939.2	Conv. (cfs)	11939.2
Length wtd. (ft)	646.00	Wetted Per. (ft)	64.31
Min Ch El (ft)	91.34	Shear (lb/sq ft)	0.01
Alpha 0.00	1.00	Stream Power (lb/ft s)	1994.00
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	6.47
C & E Loss (ft)	0.00	Cum SA (acres)	2.72

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	94.53	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-Val.		0.045
W.S. Elev (ft)	94.52	Reach Len. (ft)	646.00	646.00
646.00 Crit w.s. (ft)	91.92	Flow Area (sq ft)		148.89
E.G. Slope (ft/ft)	0.000057	Area (sq ft)		148.89
Q Total (cfs)	67.00	Flow (cfs)		67.00
Top width (ft)	60.73	Top width (ft)		60.73
Vel Total (ft/s)	0.45	Avg. Vel. (ft/s)		0.45
Max Chl Dpth (ft)	3.18	Hydr. Depth (ft)		2.45
Conv. Total (cfs)	8854.9	Conv. (cfs)		8854.9
Length wtd. (ft)	646.00	Wetted Per. (ft)		61.60
Min Ch El (ft)	91.34	Shear (lb/sq ft)		0.01
Alpha 0.00	1.00	Stream Power (lb/ft s)	1994.00	0.00
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)		5.09
C & E Loss (ft)	0.00	Cum SA (acres)		2.55

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

NM110 OUTPUT REPORT.TXT				
	94.90	Element	Left OB	Channel
E.G. Elev (ft)	94.90			
Right OB				
Vel Head (ft)	0.00	wt. n-Val.		0.045
W.S. Elev (ft)	94.89	Reach Len. (ft)	646.00	646.00
646.00				
Crit w.s. (ft)	92.01	Flow Area (sq ft)		171.53
E.G. Slope (ft/ft)	0.000066	Area (sq ft)		171.53
Q Total (cfs)	89.00	Flow (cfs)		89.00
Top width (ft)	62.49	Top width (ft)		62.49
Vel Total (ft/s)	0.52	Avg. Vel. (ft/s)		0.52
Max Chl Dpth (ft)	3.55	Hydr. Depth (ft)		2.75
Conv. Total (cfs)	10984.7	Conv. (cfs)		10984.7
Length wtd. (ft)	646.00	wetted Per. (ft)		63.51
Min Ch El (ft)	91.34	Shear (lb/sq ft)		0.01
Alpha	1.00	Stream Power (lb/ft s)	1994.00	0.00
0.00				
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)		6.05
C & E Loss (ft)	0.00	Cum SA (acres)		2.67

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

	95.62	Element	Left OB	Channel
E.G. Elev (ft)	95.62			
Right OB				
Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	95.61	Reach Len. (ft)	646.00	646.00
646.00				
Crit w.s. (ft)	92.22	Flow Area (sq ft)		217.79
E.G. Slope (ft/ft)	0.000079	Area (sq ft)		217.79
Q Total (cfs)	140.00	Flow (cfs)		140.00
Top width (ft)	65.91	Top width (ft)		65.91
Vel Total (ft/s)	0.64	Avg. Vel. (ft/s)		0.64
Max Chl Dpth (ft)	4.27	Hydr. Depth (ft)		3.30
Conv. Total (cfs)	15745.6	Conv. (cfs)		15745.6
Length wtd. (ft)	646.00	wetted Per. (ft)		67.22
Min Ch El (ft)	91.34	Shear (lb/sq ft)		0.02

	NM110 OUTPUT REPORT.TXT		
Alpha	1.00	Stream Power (lb/ft s)	1994.00
0.00			0.00
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)	8.08
C & E Loss (ft)	0.00	Cum SA (acres)	2.91

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-110
 REACH: NM-110 RS: 2780

INPUT

Description:

Station Elevation Data		num=	172						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	97.3524	97998	97.1429	97998	97.2444	96997	97.2749	95996	97.14
64.94995	97.1369	94995	97.2179	93994	97.1289	93994	97.2499	92993	97.13
129.9099	97.27149	8999	96.85	164.89	96.89	169.88	96.8	174.88	96.87
179.88	97.24	184.88	97.35	224.85	97.51	254.83	97.33	259.83	97.58
264.8199	97.7279	8099	97.52289	8099	97.81294	7999	97.82299	7999	97.57
309.7899	97.72319	7899	97.63324	7799	97.42329	7799	97.53	339.77	97.44
349.77	97.69	364.76	97.68	374.75	98.05	379.75	98.12	404.73	97.47
444.71	97.54	449.7	97.66479	6799	97.44489	6799	97.59494	6699	97.57
499.6699	97.45509	6599	97.61514	6599	97.57539	6499	97.77	569.63	97.72
579.62	97.55	589.61	97.74	629.59	97.55	634.58	97.72	639.58	97.7
644.58	97.52649	5699	97.6679	5499	97.42684	5499	97.56724	5299	97.27
744.51	97.38	749.51	97.15	754.51	97.11	759.5	96.7	764.5	96.65
769.5	96.71	784.49	96.55	789.48	96.66	794.48	97.04	799.48	97.15
809.47	97.75	814.47	97.89894	4199	98.35904	4099	97.93914	3999	97.79
929.39	98.16	934.39	98.5	939.39	98.95	944.38	99.28	949.38	99.11
954.38	98.56	959.37	97.67	964.37	96.3	969.37	95.04	974.36	94.44
979.36	93.02	984.36	92.97985	5699	93.05	989.35	93.31	994.35	92.9
999.35	91.56	1004.34	91.34	1009.34	91.33	1014.34	91.32	1019.33	91.33
1024.33	91.59	1029.33	92.64	1034.33	92.82	1035.6	93.05	1039.32	93.7
1044.32	95.21	1049.32	96.61	1054.31	97.39	1059.31	97.28	1064.31	96.8
1069.3	97.06	1074.3	97.9	1084.29	97.83	1089.29	97.47	1094.29	97.76
1124.27	97.85	1129.26	98.01	1144.25	98.04	1154.25	98.21	1174.24	98.21
1194.22	98.46	1199.22	98.14	1204.22	98	1209.21	98.02	1224.2	98.32
1239.19	98.19	1249.19	98.34	1274.17	98.14	1279.17	98.28	1284.17	98.66
1289.16	98.85	1299.16	99.01	1344.13	98.55	1354.12	98.85	1369.11	98.86
1374.11	98.95	1384.1	98.88	1394.09	99.05	1409.09	98.97	1414.08	99.01
1419.08	99.15	1469.05	98.87	1474.04	99.02	1499.03	99.34	1504.02	99.25
1519.01	99.32	1524.01	99.06	1529.01	99.04	1534.01	98.85	1539	98.56
1544	98.67	1558.99	98.77	1593.97	98.53	1613.95	98.8	1618.95	98.63
1638.94	98.6	1658.92	98.13	1678.91	97.34	1683.91	97.37	1688.91	97.56
1693.9	97.85	1703.9	98.07	1713.89	98.49	1718.89	98.51	1768.85	97.97
1773.85	97.82	1798.84	97.78	1828.82	97.94	1843.81	98.19	1893.77	98.29
1898.77	98.48	1903.77	98.26	1913.76	98.32	1918.76	98.09	1923.75	97.99
1928.75	97.69	1933.75	97.63	1938.75	97.39	1963.73	97.34	1973.72	98.11
1988.71	98.33	1993.71	98.26						

Manning's n Values		num=	3
Sta	n Val	Sta	n Val
0	.06	954.38	.045
		1054.31	.06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

NM110 OUTPUT REPORT.TXT

954.38	1054.31		231	231	231	.1	.3
Ineffective Flow		num=	2				
Sta L	Sta R	Elev	Permanent				
0	947.09	98.83	F				
1183.05	1993.71	98.34	F				
Blocked Obstructions		num=	2				
Sta L	Sta R	Elev	Sta L	Sta R	Elev		
0	378.11	98	1506.55	1993.71	99.08		

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	93.93	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-val.		0.045
W.S. Elev (ft)	93.93	Reach Len. (ft)	231.00	231.00
231.00				
Crit w.s. (ft)	91.80	Flow Area (sq ft)		104.93
E.G. slope (ft/ft)	0.000066	Area (sq ft)		104.93
Q Total (cfs)	39.00	Flow (cfs)		39.00
Top width (ft)	63.93	Top width (ft)		63.93
Vel Total (ft/s)	0.37	Avg. Vel. (ft/s)		0.37
Max Chl Dpth (ft)	2.61	Hydr. Depth (ft)		1.64
Conv. Total (cfs)	4792.9	Conv. (cfs)		4792.9
Length wtd. (ft)	231.00	wetted Per. (ft)		64.49
Min Ch El (ft)	91.32	Shear (lb/sq ft)		0.01
Alpha	1.00	Stream Power (lb/ft s)	1993.71	0.00
0.00				
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)		2.06
C & E Loss (ft)	0.00	Cum SA (acres)		1.44

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	94.29	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-val.		0.045
W.S. Elev (ft)	94.28	Reach Len. (ft)	231.00	231.00
231.00				
Crit w.s. (ft)	91.92	Flow Area (sq ft)		127.86
E.G. slope (ft/ft)	0.000074	Area (sq ft)		127.86

NM110 OUTPUT REPORT.TXT

Q Total (cfs)	56.00	Flow (cfs)	56.00
Top width (ft)	66.33	Top width (ft)	66.33
Vel Total (ft/s)	0.44	Avg. Vel. (ft/s)	0.44
Max Chl Dpth (ft)	2.96	Hydr. Depth (ft)	1.93
Conv. Total (cfs)	6495.3	Conv. (cfs)	6495.3
Length wtd. (ft)	231.00	wetted Per. (ft)	67.00
Min Ch El (ft)	91.32	Shear (lb/sq ft)	0.01
Alpha 0.00	1.00	Stream Power (lb/ft s)	1993.71
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	2.64
C & E Loss (ft)	0.00	Cum SA (acres)	1.55

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	95.00	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-Val.		0.045
W.S. Elev (ft)	94.99	Reach Len. (ft)	231.00	231.00
231.00 Crit w.s. (ft)	92.16	Flow Area (sq ft)		177.61
E.G. Slope (ft/ft)	0.000090	Area (sq ft)		177.61
Q Total (cfs)	99.00	Flow (cfs)		99.00
Top width (ft)	73.86	Top width (ft)		73.86
Vel Total (ft/s)	0.56	Avg. Vel. (ft/s)		0.56
Max Chl Dpth (ft)	3.67	Hydr. Depth (ft)		2.40
Conv. Total (cfs)	10448.5	Conv. (cfs)		10448.5
Length wtd. (ft)	231.00	wetted Per. (ft)		74.69
Min Ch El (ft)	91.32	Shear (lb/sq ft)		0.01
Alpha 0.00	1.00	Stream Power (lb/ft s)	1993.71	0.00
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)		3.81
C & E Loss (ft)	0.00	Cum SA (acres)		1.71

NM110 OUTPUT REPORT.TXT

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	94.48	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-val.		0.045
W.S. Elev (ft)	94.48	Reach Len. (ft)	231.00	231.00
231.00 Crit w.s. (ft)	91.98	Flow Area (sq ft)		141.15
E.G. slope (ft/ft)	0.000079	Area (sq ft)		141.15
Q Total (cfs)	67.00	Flow (cfs)		67.00
Top width (ft)	67.88	Top width (ft)		67.88
Vel Total (ft/s)	0.47	Avg. Vel. (ft/s)		0.47
Max Chl Dpth (ft)	3.16	Hydr. Depth (ft)		2.08
Conv. Total (cfs)	7539.6	Conv. (cfs)		7539.6
Length wtd. (ft)	231.00	wetted Per. (ft)		68.60
Min Ch El (ft)	91.32	Shear (lb/sq ft)		0.01
Alpha 0.00	1.00	Stream Power (lb/ft s)	1993.71	0.00
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)		2.94
C & E Loss (ft)	0.00	Cum SA (acres)		1.59

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	94.85	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-val.		0.045
W.S. Elev (ft)	94.84	Reach Len. (ft)	231.00	231.00
231.00 Crit w.s. (ft)	92.10	Flow Area (sq ft)		166.49
E.G. slope (ft/ft)	0.000087	Area (sq ft)		166.49

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Q Total (cfs)	89.00	Flow (cfs)	89.00
Top width (ft)	72.09	Top width (ft)	72.09
Vel Total (ft/s)	0.53	Avg. Vel. (ft/s)	0.53
Max Chl Dpth (ft)	3.52	Hydr. Depth (ft)	2.31
Conv. Total (cfs)	9534.7	Conv. (cfs)	9534.7
Length wtd. (ft)	231.00	wetted Per. (ft)	72.89
Min Ch El (ft)	91.32	Shear (lb/sq ft)	0.01
Alpha 0.00	1.00	Stream Power (lb/ft s)	1993.71
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	3.54
C & E Loss (ft)	0.00	Cum SA (acres)	1.67

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	95.56	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	95.56	Reach Len. (ft)	231.00	231.00
231.00 Crit w.s. (ft)	92.35	Flow Area (sq ft)		220.33
E.G. Slope (ft/ft)	0.000095	Area (sq ft)		220.33
Q Total (cfs)	140.00	Flow (cfs)		140.00
Top width (ft)	78.23	Top width (ft)		78.23
Vel Total (ft/s)	0.64	Avg. Vel. (ft/s)		0.64
Max Chl Dpth (ft)	4.24	Hydr. Depth (ft)		2.82
Conv. Total (cfs)	14390.2	Conv. (cfs)		14390.2
Length wtd. (ft)	231.00	wetted Per. (ft)		79.21
Min Ch El (ft)	91.32	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	1993.71	0.00
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)		4.83
C & E Loss (ft)	0.00	Cum SA (acres)		1.84

NM110 OUTPUT REPORT.TXT

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-110
 REACH: NM-110

RS: 2549

INPUT

Description:

Station Elevation Data			num= 183								
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	97.17	5	97.1614	98999	97.2949	96997	97.1159	95996	97.21		
64.95996	97.1179	94995	97.1684	94006	97.2899	93005	97.08	119.92	97.11		
129.91	96.7	134.91	96.64	144.9	96.34	149.9	96	174.88	95.89		
179.88	95.5	184.88	95.68	199.87	95.6	204.86	95.71	209.86	95.57		
214.86	95.71	219.85	95.72	224.85	95.6	239.84	95.64	244.83	95.79		
264.8199	95.81269	8199	95.7274	8101	95.86279	8101	95.9284	8101	95.69		
294.8	95.9	304.79	95.73	309.79	95.84	384.74	95.75	399.73	95.96		
409.72	95.76	414.72	95.87	434.7	95.83	439.7	95.73474	6801	95.87		
494.66	95.7	499.66	95.89	519.65	95.64	524.64	95.76	534.64	95.73		
539.63	95.86	544.63	95.66	549.63	95.7	554.62	95.91	559.62	95.77		
564.61	95.91	569.61	95.64	574.61	95.65	579.6	95.93	589.6	95.64		
594.59	95.64	599.59	95.95	604.59	95.83624	5699	95.88629	5699	95.75		
634.5699	95.74644	5601	95.98649	5601	95.82	664.55	95.89	669.54	95.78		
679.54	96.02	689.53	95.73	699.52	95.83	704.52	95.72	709.52	95.81		
719.51	95.73	729.5	95.86	734.5	95.78	744.49	96.02	784.46	95.81		
794.46	95.96	799.45	95.93	804.45	95.8824	4401	95.96839	4301	95.89		
844.42	96.01	849.42	95.87	859.41	96	879.4	95.95	899.38	96.11		
904.38	96.01	919.37	96.06	924.37	95.96	929.36	96.1	944.35	96.08		
949.35	96.16	959.34	96.12	964.34	96.48	969.34	97.47	974.33	97.72		
979.33	97.73	989.32	101.85	994.32	100.67	999.32	100.65	1004.31	98.87		
1009.31	97.35	1014.31	97.39	1019.3	96.7	1024.3	96.56	1029.3	93.81		
1034.29	92.09	1039.29	91.65	1044.28	91.65	1049.28	92.18	1054.28	94.16		
1059.27	97.19	1064.27	97.83	1069.27	98.6	1074.26	98.77	1079.26	98.5		
1109.24	97.9	1114.24	97.72	1129.23	97.66	1134.22	97.51	1139.22	97.49		
1159.21	98.04	1179.19	98.13	1209.17	97.81	1244.15	97.83	1264.13	98.03		
1269.13	97.91	1274.13	98.04	1279.12	97.98	1289.12	97.4	1299.11	97.29		
1309.1	97.4	1329.09	97.3	1334.09	97.51	1349.08	97.61	1359.07	98.67		
1364.07	98.76	1369.06	98.32	1374.06	98.16	1379.05	98.17	1384.05	98.29		
1394.04	98.37	1399.04	98.21	1404.04	98.41	1414.03	98.56	1419.03	98.52		
1424.02	98.32	1439.01	98.34	1444.01	98.62	1449.01	98.69	1459	98.63		
1493.98	99	1558.93	98.72	1563.93	99.07	1568.92	99.18	1573.92	98.78		
1578.92	98.59	1633.88	98.68	1643.87	98.51	1673.85	98.51	1683.84	98.64		
1688.84	98.53	1728.81	98.86	1748.8	99.18	1758.79	98.81	1773.78	98.98		
1783.78	98.92	1793.77	99.1	1798.76	99	1808.76	99.01	1813.75	98.93		
1848.73	98.85	1858.72	98.2	1863.72	98.02	1868.72	97.98	1873.71	98.07		
1878.71	98.49	1883.71	98.41	1893.7	98.09	1933.67	97.93	1938.67	98.02		
1948.66	98	1963.65	98.29	1993.63	98.31						

Manning's n Values			num= 3		
Sta	n Val	Sta	n Val	Sta	n Val
0	.06	1014.31	.045	1059.27	.06

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.	Expan.
	1014.31	1059.27		558	558	.1	.3

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Ineffective Flow      num=      2
  Sta L   Sta R   Elev Permanent
    0   988.87   99.97         F
1074.51 1993.63   98.47         F
Blocked Obstructions num=      1
  Sta L   Sta R   Elev
1565.47 1993.63   98.94
    
```

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	93.90	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	wt. n-Val.		0.045
W.S. Elev (ft)	93.88	Reach Len. (ft)	558.00	558.00
558.00				
Crit w.s. (ft)	92.41	Flow Area (sq ft)		39.37
E.G. Slope (ft/ft)	0.000494	Area (sq ft)		39.37
Q Total (cfs)	39.00	Flow (cfs)		39.00
Top width (ft)	24.41	Top width (ft)		24.41
Vel Total (ft/s)	0.99	Avg. Vel. (ft/s)		0.99
Max Chl Dpth (ft)	2.23	Hydr. Depth (ft)		1.61
Conv. Total (cfs)	1755.3	Conv. (cfs)		1755.3
Length wtd. (ft)	558.00	wetted Per. (ft)		25.09
Min Ch El (ft)	91.65	Shear (lb/sq ft)		0.05
Alpha	1.00	Stream Power (lb/ft s)	1993.63	0.00
0.00				
Frctn Loss (ft)	0.41	Cum Volume (acre-ft)		1.68
C & E Loss (ft)	0.00	Cum SA (acres)		1.21

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	94.25	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	wt. n-Val.		0.045
W.S. Elev (ft)	94.23	Reach Len. (ft)	558.00	558.00
558.00				
Crit w.s. (ft)	92.57	Flow Area (sq ft)		47.97
E.G. Slope (ft/ft)	0.000572	Area (sq ft)		47.97

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Q Total (cfs)	56.00	Flow (cfs)	56.00
Top width (ft)	25.84	Top width (ft)	25.84
Vel Total (ft/s)	1.17	Avg. Vel. (ft/s)	1.17
Max Chl Dpth (ft)	2.58	Hydr. Depth (ft)	1.86
Conv. Total (cfs)	2342.3	Conv. (cfs)	2342.3
Length wtd. (ft)	558.00	wetted Per. (ft)	26.68
Min Ch El (ft)	91.65	Shear (lb/sq ft)	0.06
Alpha 0.00	1.00	Stream Power (lb/ft s)	1993.63
Frctn Loss (ft)	0.45	Cum Volume (acre-ft)	2.17
C & E Loss (ft)	0.00	Cum SA (acres)	1.31

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	94.95	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	wt. n-Val.		0.045
w.s. Elev (ft)	94.92	Reach Len. (ft)	558.00	558.00
558.00 Crit w.s. (ft)	92.91	Flow Area (sq ft)		66.71
E.G. Slope (ft/ft)	0.000679	Area (sq ft)		66.71
Q Total (cfs)	99.00	Flow (cfs)		99.00
Top width (ft)	28.24	Top width (ft)		28.24
Vel Total (ft/s)	1.48	Avg. Vel. (ft/s)		1.48
Max Chl Dpth (ft)	3.27	Hydr. Depth (ft)		2.36
Conv. Total (cfs)	3799.4	Conv. (cfs)		3799.4
Length wtd. (ft)	558.00	wetted Per. (ft)		29.45
Min Ch El (ft)	91.65	Shear (lb/sq ft)		0.10
Alpha 0.00	1.00	Stream Power (lb/ft s)	1993.63	0.00
Frctn Loss (ft)	0.48	Cum Volume (acre-ft)		3.16
C & E Loss (ft)	0.00	Cum SA (acres)		1.44

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Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	94.44	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	wt. n-Val.		0.045
W.S. Elev (ft)	94.42	Reach Len. (ft)	558.00	558.00
558.00				
Crit w.s. (ft)	92.67	Flow Area (sq ft)		53.01
E.G. Slope (ft/ft)	0.000609	Area (sq ft)		53.01
Q Total (cfs)	67.00	Flow (cfs)		67.00
Top width (ft)	26.51	Top width (ft)		26.51
Vel Total (ft/s)	1.26	Avg. Vel. (ft/s)		1.26
Max chl Dpth (ft)	2.77	Hydr. Depth (ft)		2.00
Conv. Total (cfs)	2714.6	Conv. (cfs)		2714.6
Length wtd. (ft)	558.00	wetted Per. (ft)		27.45
Min ch El (ft)	91.65	shear (lb/sq ft)		0.07
Alpha	1.00	Stream Power (lb/ft s)	1993.63	0.00
0.00				
Frctn Loss (ft)	0.47	Cum Volume (acre-ft)		2.43
C & E Loss (ft)	0.00	Cum SA (acres)		1.34

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	94.80	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.03	wt. n-Val.		0.045
W.S. Elev (ft)	94.77	Reach Len. (ft)	558.00	558.00
558.00				
Crit w.s. (ft)	92.83	Flow Area (sq ft)		62.55
E.G. Slope (ft/ft)	0.000662	Area (sq ft)		62.55
Q Total (cfs)	89.00	Flow (cfs)		89.00
Top width (ft)	27.73	Top width (ft)		27.73

NM110 OUTPUT REPORT.TXT

Vel Total (ft/s)	1.42	Avg. Vel. (ft/s)		1.42
Max Chl Dpth (ft)	3.12	Hydr. Depth (ft)		2.26
Conv. Total (cfs)	3459.7	Conv. (cfs)		3459.7
Length Wtd. (ft)	558.00	Wetted Per. (ft)		28.86
Min Ch El (ft)	91.65	Shear (lb/sq ft)		0.09
Alpha 0.00	1.00	Stream Power (lb/ft s)	1993.63	0.00
Frctn Loss (ft)	0.48	Cum Volume (acre-ft)		2.94
C & E Loss (ft)	0.00	Cum SA (acres)		1.41

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	95.51	Element	Left OB	Channel
Right OB Vel Head (ft)	0.04	wt. n-Val.		0.045
w.s. Elev (ft)	95.47	Reach Len. (ft)	558.00	558.00
558.00 Crit w.s. (ft)	93.17	Flow Area (sq ft)		82.74
E.G. Slope (ft/ft)	0.000729	Area (sq ft)		82.74
Q Total (cfs)	140.00	Flow (cfs)		140.00
Top width (ft)	30.14	Top width (ft)		30.14
Vel Total (ft/s)	1.69	Avg. Vel. (ft/s)		1.69
Max Chl Dpth (ft)	3.82	Hydr. Depth (ft)		2.74
Conv. Total (cfs)	5184.4	Conv. (cfs)		5184.4
Length Wtd. (ft)	558.00	Wetted Per. (ft)		31.65
Min Ch El (ft)	91.65	Shear (lb/sq ft)		0.12
Alpha 0.00	1.00	Stream Power (lb/ft s)	1993.63	0.00
Frctn Loss (ft)	0.49	Cum Volume (acre-ft)		4.03
C & E Loss (ft)	0.00	Cum SA (acres)		1.55

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

NM110 OUTPUT REPORT.TXT

RIVER: N-NM-110
 REACH: NM-110

RS: 1992

INPUT

Description:

Station Elevation Data			num= 188						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	97.2	5	97.34	10	97.2119.98999	97.2324.97998	97.44		
29.97998	97.1534.97998		97.339.96997		97.3459.94995	97.1169.94995	97.28		
79.94006	97.1784.93005		97.2389.93005		97.15 104.92	97.22 114.91	97		
124.9	97.18 129.9		96.99 149.88		96.64 159.87	95.95 179.86	95.42		
219.8199	95.35224.8199		95.23229.8199		95.34239.8101	95.19 249.8	95.44		
284.77	95.32 289.77		95.21 294.76		95.24 299.76	95.38 309.75	95.25		
314.75	95.41 324.74		95.37 329.73		95.22 334.73	95.31 344.72	95.25		
349.72	95.34 354.71		95.18 359.71		95.18 369.7	95.33379.6901	95.28		
384.6901	95.43389.6901		95.33 414.66		95.3 419.66	95.49 424.66	95.49		
434.65	95.34 444.64		95.43 449.64		95.32 464.62	95.32 469.62	95.46		
479.61	95.36 509.59		95.5 514.58		95.44539.5601	95.6 559.55	95.53		
574.53	95.31 614.5		95.58 629.49		95.41 634.48	95.28 639.48	95.33		
644.48	95.51 649.47		95.41 654.47		95.52 709.42	95.56 714.42	95.48		
719.42	95.57 749.39		95.57 754.39		95.43 769.37	95.56 789.36	95.5		
809.34	95.59 814.34		95.52844.3101		95.54849.3101	95.68 859.3	95.43		
864.3	95.41 869.29		95.55 909.26		95.6 914.26	95.51 924.25	95.72		
964.22	95.66 969.21		95.8 974.21		95.79 979.2	96.04 984.2	96.86		
994.19	98.13 999.19		99.6 1004.18		99.3 1009.18	98.3 1014.17	98.03		
1019.17	97.5 1024.17		97.14 1029.16		95.27 1034.16	92.51 1039.15	92		
1044.15	91.2 1049.15		92 1054.14		93.12 1059.14	93.37 1064.13	95.83		
1069.13	98 1074.13		98.28 1079.12		98.39 1084.12	98.78 1089.11	97.64		
1094.11	97.34 1109.1		97.27 1114.09		97.08 1119.09	97.28 1149.07	97.6		
1184.04	97.38 1194.03		96.8 1204.02		95.96 1209.02	95.83 1214.01	95.81		
1219.01	95.95 1234		95.76 1238.99		95.96 1243.99	96.35 1248.98	96.49		
1263.97	97.38 1268.97		97.48 1288.95		97.38 1303.94	97.52 1313.93	97.34		
1318.93	97.39 1358.89		97.15 1363.89		97.23 1378.88	97.99 1403.86	98		
1408.85	97.85 1453.82		97.62 1458.81		97.47 1463.81	97.45 1468.81	97.24		
1478.8	96.43 1483.79		96.32 1488.79		96.32 1493.79	96.59 1503.78	96.41		
1508.77	96.43 1518.77		96.81 1523.76		97.22 1528.76	97.24 1533.75	97.36		
1538.75	97.64 1543.74		97.72 1548.74		97.7 1553.74	97.85 1563.73	97.73		
1568.72	97.55 1578.72		97.56 1583.71		97.73 1613.69	97.75 1618.68	97.88		
1633.67	97.97 1643.66		98.29 1733.59		97.98 1738.59	97.82 1743.58	97.56		
1748.58	97.46 1758.57		96.95 1763.57		96.98 1783.55	96.82 1788.55	96.98		
1793.54	97.46 1803.53		97.93 1808.53		97.96 1828.51	98.49 1838.51	98.52		
1843.5	98.42 1883.47		98.59 1903.45		98.37 1908.45	97.84 1913.44	97.8		
1918.44	97.26 1923.44		97.18 1928.43		97.42 1938.42	97.51 1948.42	98.44		
1953.41	98.68 1958.41		98.69 1963.4		98.9 1968.4	99.34 1973.4	99.57		
1978.39	99.62 1983.39		99.95 1993.38		100.24				

Manning's n Values			num= 3		
Sta	n Val	Sta	n Val	Sta	n Val
0	.06	1019.17	.045	1069.13	.06

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.	Expan.
	1019.17	1069.13		463	461	.1	.3
Ineffective Flow	num= 2						
Sta L	Sta R	Elev	Permanent				
0	1001.94	98.77	F				
1085.67	1993.38	98.47	F				
Blocked Obstructions	num= 1						
Sta L	Sta R	Elev					
1658.46	1993.38	98.21					

NM110 OUTPUT REPORT.TXT

E.G. Elev (ft)	93.49	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-val.		0.045
W.S. Elev (ft)	93.46	Reach Len. (ft)	463.00	461.00
460.00 Crit W.S. (ft)	92.39	Flow Area (sq ft)		31.07
E.G. Slope (ft/ft)	0.001225	Area (sq ft)		31.07
Q Total (cfs)	39.00	Flow (cfs)		39.00
Top width (ft)	26.89	Top width (ft)		26.89
Vel Total (ft/s)	1.26	Avg. Vel. (ft/s)		1.26
Max chl Dpth (ft)	2.26	Hydr. Depth (ft)		1.16
Conv. Total (cfs)	1114.3	Conv. (cfs)		1114.3
Length wtd. (ft)	461.00	wetted Per. (ft)		27.44
Min ch El (ft)	91.20	Shear (lb/sq ft)		0.09
Alpha 0.00	1.00	Stream Power (lb/ft s)	1993.38	0.00
Frctn Loss (ft)	0.96	Cum Volume (acre-ft)		1.22
C & E Loss (ft)	0.00	Cum SA (acres)		0.88

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	93.80	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	wt. n-val.		0.045
W.S. Elev (ft)	93.76	Reach Len. (ft)	463.00	461.00
460.00 Crit W.S. (ft)	92.57	Flow Area (sq ft)		39.36
E.G. Slope (ft/ft)	0.001221	Area (sq ft)		39.36
Q Total (cfs)	56.00	Flow (cfs)		56.00
Top width (ft)	28.05	Top width (ft)		28.05
Vel Total (ft/s)	1.42	Avg. Vel. (ft/s)		1.42
Max chl Dpth (ft)	2.56	Hydr. Depth (ft)		1.40
Conv. Total (cfs)	1602.6	Conv. (cfs)		1602.6
Length wtd. (ft)	461.00	wetted Per. (ft)		28.75

NM110 OUTPUT REPORT.TXT				
Min Ch El (ft)	91.20	Shear (lb/sq ft)		0.10
Alpha 0.00	1.00	Stream Power (lb/ft s)	1993.38	0.00
Frctn Loss (ft)	0.88	Cum Volume (acre-ft)		1.61
C & E Loss (ft)	0.00	Cum SA (acres)		0.96

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	94.47	Element	Left OB	Channel
Right OB Vel Head (ft)	0.04	wt. n-Val.		0.045
W.S. Elev (ft)	94.42	Reach Len. (ft)	463.00	461.00
460.00 Crit w.s. (ft)	92.90	Flow Area (sq ft)		58.66
E.G. Slope (ft/ft)	0.001145	Area (sq ft)		58.66
Q Total (cfs)	99.00	Flow (cfs)		99.00
Top width (ft)	30.58	Top width (ft)		30.58
Vel Total (ft/s)	1.69	Avg. Vel. (ft/s)		1.69
Max Chl Dpth (ft)	3.22	Hydr. Depth (ft)		1.92
Conv. Total (cfs)	2925.7	Conv. (cfs)		2925.7
Length wtd. (ft)	461.00	wetted Per. (ft)		31.60
Min Ch El (ft)	91.20	Shear (lb/sq ft)		0.13
Alpha 0.00	1.00	Stream Power (lb/ft s)	1993.38	0.00
Frctn Loss (ft)	0.77	Cum Volume (acre-ft)		2.36
C & E Loss (ft)	0.00	Cum SA (acres)		1.06

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	93.98	Element	Left OB	Channel
Right OB Vel Head (ft)	0.04	wt. n-Val.		0.045
W.S. Elev (ft)	93.94	Reach Len. (ft)	463.00	461.00
460.00 Crit w.s. (ft)	92.66	Flow Area (sq ft)		44.34

NM110 OUTPUT REPORT.TXT

E.G. Slope (ft/ft)	0.001217	Area (sq ft)		44.34
Q Total (cfs)	67.00	Flow (cfs)		67.00
Top width (ft)	28.73	Top width (ft)		28.73
Vel Total (ft/s)	1.51	Avg. Vel. (ft/s)		1.51
Max Chl Dpth (ft)	2.74	Hydr. Depth (ft)		1.54
Conv. Total (cfs)	1920.8	Conv. (cfs)		1920.8
Length wtd. (ft)	461.00	wetted Per. (ft)		29.51
Min Ch El (ft)	91.20	Shear (lb/sq ft)		0.11
Alpha 0.00	1.00	Stream Power (lb/ft s)	1993.38	0.00
Frctn Loss (ft)	0.85	Cum Volume (acre-ft)		1.81
C & E Loss (ft)	0.00	Cum SA (acres)		0.99

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	94.32	Element	Left OB	Channel
Right OB Vel Head (ft)	0.04	wt. n-Val.		0.045
w.s. Elev (ft)	94.28	Reach Len. (ft)	463.00	461.00
460.00 Crit w.s. (ft)	92.83	Flow Area (sq ft)		54.21
E.G. Slope (ft/ft)	0.001172	Area (sq ft)		54.21
Q Total (cfs)	89.00	Flow (cfs)		89.00
Top width (ft)	30.02	Top width (ft)		30.02
Vel Total (ft/s)	1.64	Avg. Vel. (ft/s)		1.64
Max Chl Dpth (ft)	3.08	Hydr. Depth (ft)		1.81
Conv. Total (cfs)	2600.0	Conv. (cfs)		2600.0
Length wtd. (ft)	461.00	wetted Per. (ft)		30.97
Min Ch El (ft)	91.20	Shear (lb/sq ft)		0.13
Alpha 0.00	1.00	Stream Power (lb/ft s)	1993.38	0.00
Frctn Loss (ft)	0.79	Cum Volume (acre-ft)		2.19
C & E Loss (ft)	0.00	Cum SA (acres)		1.04

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Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	95.02	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.05	wt. n-Val.		0.045
W.S. Elev (ft)	94.97	Reach Len. (ft)	463.00	461.00
460.00				
Crit W.S. (ft)	93.18	Flow Area (sq ft)		75.99
E.G. Slope (ft/ft)	0.001064	Area (sq ft)		75.99
Q Total (cfs)	140.00	Flow (cfs)		140.00
Top width (ft)	32.68	Top width (ft)		32.68
Vel Total (ft/s)	1.84	Avg. Vel. (ft/s)		1.84
Max chl Dpth (ft)	3.77	Hydr. Depth (ft)		2.32
Conv. Total (cfs)	4291.2	Conv. (cfs)		4291.2
Length wtd. (ft)	461.00	wetted Per. (ft)		33.97
Min ch El (ft)	91.20	shear (lb/sq ft)		0.15
Alpha	1.00	Stream Power (lb/ft s)	1993.38	0.00
0.00				
Frctn Loss (ft)	0.71	Cum Volume (acre-ft)		3.01
C & E Loss (ft)	0.01	Cum SA (acres)		1.15

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-110
 REACH: NM-110

RS: 1531

INPUT

Description:

Station	Elevation	Data	num=	169					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	97.42	5	97.249	990112	97.1914	99011	97.2639	97009	97.21
44.97009	97.189	94006	96.7	114.92	97.38	129.91	96.67	144.9	95.65
149.89	95.49	154.89	95.45	169.88	94.88184	.8701	94.72189	.8601	94.87
219.8401	95.03224	.8401	95.1229	.8401	94.93264	.8101	95.22269	.8101	95.19
274.8	95.05	279.8	95.05	284.8	95.22	289.79	95.18	294.79	95.02
299.78	95.04	309.78	95.24	314.77	95.15	319.77	95.43	324.77	95.43
329.76	95.25	334.76	95.33	349.75	95.24354	.7401	95.14369	.7301	95.23
404.7101	95.04409	.7001	95.2419	.7001	95.1434	.6901	95.21439	.6801	95.12
499.64	95.07519	.6201	95.24529	.6201	95.06534	.6101	95.24544	.6101	95.2

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549.6001	95.28579.5801	95.24584.5801	95.33589.5701	95.15594.5701	95.2
599.5701	95.11604.5601	95.12609.5601	95.31614.5601	95.21 634.54	95.31
639.54	95.01 644.53	94.96 649.53	95.1 654.53	94.95 659.52	95.25
669.52	95.28 674.51	95.41 679.51	95.19714.4801	95.19719.4801	95.14
804.42	95.28 809.41	95.2 849.39	95.08 854.38	95.31 859.38	95.22
869.3701	95.34874.3701	95.18894.3501	95.2899.3501	95.34909.3401	95.23
914.3401	95.37919.3401	95.31929.3301	95.4934.3201	95.28944.3201	95.37
949.3101	95.23954.3101	95.3959.3101	95.21 964.3	95.34 974.3	95.25
979.29	95.57 984.29	96.61 989.28	96.77 994.28	99.47 999.28	101.68
1004.27	99.13 1009.27	98.41 1014.27	96.66 1019.26	96.1 1029.26	95.88
1034.25	93.61 1039.25	91.45 1044.24	91.42 1049.24	90.99 1054.24	90.75
1059.23	91.06 1064.23	92.93 1069.23	95.62 1074.22	96.73 1079.22	96.69
1089.21	96.06 1094.21	95.93 1104.2	95.46 1119.19	95.57 1124.19	95.44
1129.18	95.63 1134.18	96.06 1139.18	96.11 1144.17	96.02 1189.14	96.31
1199.13	96.13 1204.13	96.16 1214.12	96.04 1244.1	96.3 1274.08	96.25
1279.08	96.44 1289.07	96.48 1294.06	96.4 1304.06	96.49 1314.05	96.37
1319.05	96.57 1344.03	96.5 1349.02	96.4 1374.01	96.63 1389	96.59
1393.99	96.69 1428.97	96.72 1438.96	96.91 1463.94	96.75 1483.93	96.93
1488.92	96.81 1493.92	96.87 1503.91	96.83 1508.91	96.94 1513.91	96.87
1543.88	97.21 1548.88	96.99 1553.88	97.06 1563.87	96.99 1573.86	97.29
1578.86	97.18 1583.86	97.19 1593.85	97 1598.84	97.13 1608.84	97.13
1613.83	96.91 1628.82	96.82 1658.8	96.98 1668.79	96.88 1693.78	97.07
1718.76	97.01 1723.75	97.12 1738.74	97.25 1748.74	97.11 1753.73	97.24
1773.72	97.42 1783.71	97.35 1853.66	97.69 1868.65	97.57 1893.63	97.76
1898.63	97.7 1958.59	97.9 1963.58	97.73 1993.56	97.74	

Manning's n Values

Sta	n Val	Sta	num=	3	
0	.06	1029.26	n val	Sta	n val
			.045	1069.23	.06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

1029.26	1069.23	307	313	307	.1	.3
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Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	1000.22	98.41	F
1076.34	1993.56	96.61	F

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	92.52	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.06	wt. n-val.		0.045
W.S. Elev (ft)	92.46	Reach Len. (ft)	307.00	313.00
307.00				
Crit w.s. (ft)	91.77	Flow Area (sq ft)		30.79
E.G. Slope (ft/ft)	0.003148	Area (sq ft)		30.79
Q Total (cfs)	63.00	Flow (cfs)		63.00
Top width (ft)	26.04	Top width (ft)		26.04
Vel Total (ft/s)	2.05	Avg. vel. (ft/s)		2.05
Max Chl Dpth (ft)	1.71	Hydr. Depth (ft)		1.18
Conv. Total (cfs)	1122.9	Conv. (cfs)		1122.9
Length wtd. (ft)	313.00	wetted Per. (ft)		26.54
Min ch El (ft)	90.75	Shear (lb/sq ft)		0.23

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Alpha	1.00	Stream Power (lb/ft s)	1993.56	0.00
0.00				
Frctn Loss (ft)	0.54	Cum Volume (acre-ft)		0.90
C & E Loss (ft)	0.01	Cum SA (acres)		0.60

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	92.92	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.07	wt. n-val.		0.045
W.S. Elev (ft)	92.85	Reach Len. (ft)	307.00	313.00
307.00				
Crit w.s. (ft)	91.94	Flow Area (sq ft)		41.41
E.G. slope (ft/ft)	0.002651	Area (sq ft)		41.41
Q Total (cfs)	90.00	Flow (cfs)		90.00
Top width (ft)	28.00	Top width (ft)		28.00
vel Total (ft/s)	2.17	Avg. vel. (ft/s)		2.17
Max Chl Dpth (ft)	2.10	Hydr. Depth (ft)		1.48
Conv. Total (cfs)	1747.9	Conv. (cfs)		1747.9
Length wtd. (ft)	313.00	wetted Per. (ft)		28.65
Min Ch El (ft)	90.75	Shear (lb/sq ft)		0.24
Alpha	1.00	Stream Power (lb/ft s)	1993.56	0.00
0.00				
Frctn Loss (ft)	0.49	Cum volume (acre-ft)		1.19
C & E Loss (ft)	0.01	Cum SA (acres)		0.67

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	93.69	Element	Left OB	Channel
Right OB				

NM110 OUTPUT REPORT.TXT				
Vel Head (ft)	0.09	wt. n-Val.		0.045
W.S. Elev (ft)	93.60	Reach Len. (ft)	307.00	313.00
307.00 Crit w.s. (ft)	92.29	Flow Area (sq ft)		63.53
E.G. Slope (ft/ft)	0.002232	Area (sq ft)		63.53
Q Total (cfs)	156.00	Flow (cfs)		156.00
Top width (ft)	31.18	Top width (ft)		31.18
Vel Total (ft/s)	2.46	Avg. Vel. (ft/s)		2.46
Max Chl Dpth (ft)	2.85	Hydr. Depth (ft)		2.04
Conv. Total (cfs)	3302.1	Conv. (cfs)		3302.1
Length wtd. (ft)	313.00	wetted Per. (ft)		32.17
Min Ch El (ft)	90.75	Shear (lb/sq ft)		0.28
Alpha	1.00	Stream Power (lb/ft s)	1993.56	0.00
0.00 Frctn Loss (ft)	0.47	Cum volume (acre-ft)		1.71
C & E Loss (ft)	0.01	Cum SA (acres)		0.73

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

Profile #ULT 10Y				
E.G. Elev (ft)	93.13	Element	Left OB	Channel
Right OB Vel Head (ft)	0.08	wt. n-Val.		0.045
W.S. Elev (ft)	93.05	Reach Len. (ft)	307.00	313.00
307.00 Crit w.s. (ft)	92.04	Flow Area (sq ft)		47.08
E.G. Slope (ft/ft)	0.002507	Area (sq ft)		47.08
Q Total (cfs)	106.00	Flow (cfs)		106.00
Top width (ft)	28.90	Top width (ft)		28.90
Vel Total (ft/s)	2.25	Avg. Vel. (ft/s)		2.25
Max Chl Dpth (ft)	2.30	Hydr. Depth (ft)		1.63
Conv. Total (cfs)	2117.0	Conv. (cfs)		2117.0
Length wtd. (ft)	313.00	wetted Per. (ft)		29.63
Min Ch El (ft)	90.75	Shear (lb/sq ft)		0.25

NM110 OUTPUT REPORT.TXT

Alpha 0.00	1.00	Stream Power (lb/ft s)	1993.56	0.00
Frctn Loss (ft)	0.48	Cum Volume (acre-ft)		1.32
C & E Loss (ft)	0.01	Cum SA (acres)		0.69

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	93.52	Element	Left OB	Channel
Right OB Vel Head (ft)	0.09	wt. n-val.		0.045
W.S. Elev (ft)	93.43	Reach Len. (ft)	307.00	313.00
307.00 Crit w.s. (ft)	92.22	Flow Area (sq ft)		58.43
E.G. slope (ft/ft)	0.002301	Area (sq ft)		58.43
Q Total (cfs)	140.00	Flow (cfs)		140.00
Top width (ft)	30.49	Top width (ft)		30.49
vel Total (ft/s)	2.40	Avg. vel. (ft/s)		2.40
Max Chl Dpth (ft)	2.68	Hydr. Depth (ft)		1.92
Conv. Total (cfs)	2918.9	Conv. (cfs)		2918.9
Length wtd. (ft)	313.00	wetted Per. (ft)		31.40
Min Ch El (ft)	90.75	Shear (lb/sq ft)		0.27
Alpha 0.00	1.00	Stream Power (lb/ft s)	1993.56	0.00
Frctn Loss (ft)	0.47	Cum volume (acre-ft)		1.59
C & E Loss (ft)	0.01	Cum SA (acres)		0.72

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	94.31	Element	Left OB	Channel
Right OB				

NM110 OUTPUT REPORT.TXT

Vel Head (ft)	0.11	Wt. n-Val.		0.045
W.S. Elev (ft)	94.20	Reach Len. (ft)	307.00	313.00
307.00 Crit w.s. (ft)	92.58	Flow Area (sq ft)		83.04
E.G. Slope (ft/ft)	0.002026	Area (sq ft)		83.04
Q Total (cfs)	220.00	Flow (cfs)		220.00
Top Width (ft)	33.63	Top Width (ft)		33.63
Vel Total (ft/s)	2.65	Avg. Vel. (ft/s)		2.65
Max Chl Dpth (ft)	3.45	Hydr. Depth (ft)		2.47
Conv. Total (cfs)	4888.0	Conv. (cfs)		4888.0
Length wtd. (ft)	313.00	wetted Per. (ft)		34.89
Min Ch El (ft)	90.75	Shear (lb/sq ft)		0.30
Alpha 0.00	1.00	Stream Power (lb/ft s)	1993.56	0.00
Frctn Loss (ft)	0.46	Cum Volume (acre-ft)		2.17
C & E Loss (ft)	0.01	Cum SA (acres)		0.80

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-110
REACH: NM-110 RS: 1218

INPUT

Description:

Station	Elevation	Data	num=	203	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	95.81	9.98999	95.7829	97009	96.3684	93005	96.0989	93005	95.84		
94.92004	95.72	104.91	95.96	124.9	95.89	129.89	95.98	144.88	96.52		
154.87	96.45	159.87	96.12	164.87	96.07	174.86	96.14184	8501	96		
189.8501	96.07199	8401	95.97209	8301	96.42219	8201	96.39224	8201	96.02		
234.8101	96.07239	8101	95.92	244.8	95.46	249.8	95.67	259.79	95.87		
269.78	95.49	274.78	96.73	279.77	97.05	284.77	97.48	289.77	97.67		
309.75	97.24	324.74	97.12344	7201	97.44349	7201	97.11354	7201	96.24		
359.7101	95.8374	7001	95.62384	6901	95.14394	6801	94.93	464.63	94.93		
469.62	95.07	479.62	94.98	484.61	95.12494	6001	95.15499	6001	95.02		
519.5801	95.524	5801	95.06529	5801	94.98	559.55	94.98	569.55	95.35		
574.54	95.83	579.54	95.88	594.53	96.95	604.52	96.99	609.51	97.16		
614.51	97.21	624.5	97.13	629.5	97.25649	4801	97.07664	4701	97.31		
669.4701	97.25679	4601	96.88684	4501	96.78694	4501	96.97699	4401	96.99		
709.4301	96.83	729.42	96.82	739.41	97.04	749.4	95.84	754.4	95.54		
759.39	95.08	774.38	95.38	784.37	95.26	789.37	95.35	799.36	96.49		
804.36	96.55809	3501	96.87819	3501	96.78824	3401	96.95829	3401	96.96		
834.3301	97.23839	3301	97.35849	3201	97.4859	3101	97.12864	3101	97.26		
879.3	97.11	884.3	96.83	889.29	96.78	894.29	96.91	904.28	96.72		
909.28	97.05	914.27	97.14	924.26	96.9	934.26	96.92	939.25	96.68		

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944.25	96.7	949.24	96.26	954.24	95.98	959.24	93.48	964.23	91.06
969.2301	90.23	974.22	90.11	979.22	89.81	984.22	89.87	989.21	91.24
994.21	93.51	999.2001	94.37	1009.2	95.56	1014.19	96	1019.19	96.2
1049.16	96.34	1059.16	96.26	1094.13	96.65	1099.13	96.79	1104.12	96.82
1114.11	96.58	1119.11	96.67	1124.11	96.35	1129.1	96.29	1134.1	96.08
1144.09	95.9	1149.09	95.98	1154.08	96.4	1159.08	96.61	1169.07	96.49
1174.07	96.22	1184.06	96.25	1189.05	96.57	1194.05	96.58	1199.05	96.27
1204.04	96.2	1209.04	96.42	1244.01	96.55	1254	96.45	1259	96.52
1264	96.3	1268.99	96.23	1278.98	96.33	1283.98	96.27	1288.98	96.41
1298.97	96.33	1303.96	96.47	1318.95	96.48	1328.94	96.28	1403.89	96.16
1423.87	96.35	1433.86	96.17	1438.86	96.21	1443.85	96.35	1453.85	96.15
1458.84	95.88	1463.84	95.91	1478.83	95.78	1493.81	95.89	1498.81	96.06
1503.81	96.35	1508.8	96.78	1513.8	96.7	1518.79	96.19	1528.79	96.3
1533.78	96.46	1543.77	96.58	1548.77	96.56	1553.77	96.4	1558.76	96.39
1563.76	96.51	1568.76	96.49	1573.75	96.79	1578.75	96.79	1588.74	96.33
1618.72	96.46	1628.71	96.31	1633.7	96.49	1643.7	96.28	1668.68	96.13
1678.67	97.3	1683.66	97.45	1693.66	96.93	1718.64	96.64	1743.62	97.22
1778.59	96.93	1793.58	97.2	1798.57	97.42	1803.57	97.87	1813.56	98.35
1818.56	98.31	1833.55	98.75	1838.54	98.73	1843.54	98.94	1848.53	98.84
1853.53	99.08	1858.53	99.08	1863.52	98.98	1888.5	98.9	1893.5	99.02
1903.49	99.03	1908.49	98.9	1913.48	99.01	1928.47	99.03	1943.46	99.26
1968.44	99.27	1978.43	99.04	1993.42	99.03				

Manning's n Values	num=	3
Sta n Val Sta	n val Sta n val	
0 .06 954.24	.045 1014.19	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.	Expan.
954.24	1014.19	633	633	634	.1	.3	

Ineffective Flow	num=	2
Sta L Sta R Elev	Permanent	
0847.8401 97.33	F	
1102.84 1993.42 96.75	F	

Blocked obstructions	num=	2
Sta L Sta R Elev	Sta L Sta R Elev	
0286.4701 97.46	1681.34 1993.42	97.24

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	91.97	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.03	wt. n-val.		0.045
W.S. Elev (ft)	91.93	Reach Len. (ft)	633.00	633.00
634.00				
Crit w.s. (ft)	90.76	Flow Area (sq ft)		43.77
E.G. slope (ft/ft)	0.001093	Area (sq ft)		43.77
Q Total (cfs)	63.00	Flow (cfs)		63.00
Top width (ft)	28.31	Top width (ft)		28.31
Vel Total (ft/s)	1.44	Avg. vel. (ft/s)		1.44
Max chl Dpth (ft)	2.12	Hydr. Depth (ft)		1.55
Conv. Total (cfs)	1905.4	Conv. (cfs)		1905.4
Length wtd. (ft)	633.00	wetted Per. (ft)		28.92
Min ch El (ft)	89.81	Shear (lb/sq ft)		0.10

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Alpha 0.00	1.00	Stream Power (lb/ft s)	1993.42	0.00
Frctn Loss (ft)	0.69	Cum Volume (acre-ft)		0.63
C & E Loss (ft)	0.00	Cum SA (acres)		0.40

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	92.43	Element	Left OB	Channel
Right OB Vel Head (ft)	0.04	wt. n-val.		0.045
W.S. Elev (ft)	92.39	Reach Len. (ft)	633.00	633.00
634.00 Crit w.s. (ft)	90.95	Flow Area (sq ft)		57.04
E.G. slope (ft/ft)	0.001015	Area (sq ft)		57.04
Q Total (cfs)	90.00	Flow (cfs)		90.00
Top width (ft)	30.24	Top width (ft)		30.24
vel Total (ft/s)	1.58	Avg. vel. (ft/s)		1.58
Max chl Dpth (ft)	2.58	Hydr. Depth (ft)		1.89
Conv. Total (cfs)	2824.5	Conv. (cfs)		2824.5
Length wtd. (ft)	633.00	wetted Per. (ft)		31.06
Min Ch El (ft)	89.81	Shear (lb/sq ft)		0.12
Alpha 0.00	1.00	Stream Power (lb/ft s)	1993.42	0.00
Frctn Loss (ft)	0.67	Cum volume (acre-ft)		0.83
C & E Loss (ft)	0.00	Cum SA (acres)		0.46

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	93.21	Element	Left OB	Channel
Right OB Vel Head (ft)	0.06	wt. n-val.		0.045
W.S. Elev (ft)	93.15	Reach Len. (ft)	633.00	633.00
634.00 Crit w.s. (ft)	91.30	Flow Area (sq ft)		81.38

NM110 OUTPUT REPORT.TXT				
E.G. Slope (ft/ft)	0.001080	Area (sq ft)		81.38
Q Total (cfs)	156.00	Flow (cfs)		156.00
Top Width (ft)	33.50	Top Width (ft)		33.50
Vel Total (ft/s)	1.92	Avg. Vel. (ft/s)		1.92
Max Chl Dpth (ft)	3.34	Hydr. Depth (ft)		2.43
Conv. Total (cfs)	4747.7	Conv. (cfs)		4747.7
Length wtd. (ft)	633.00	wetted Per. (ft)		34.66
Min Ch El (ft)	89.81	Shear (lb/sq ft)		0.16
Alpha 0.00	1.00	Stream Power (lb/ft s)	1993.42	0.00
Frctn Loss (ft)	0.69	Cum Volume (acre-ft)		1.19
C & E Loss (ft)	0.00	Cum SA (acres)		0.50

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	92.63	Element	Left OB	Channel
Right OB Vel Head (ft)	0.04	wt. n-val.		0.045
W.S. Elev (ft)	92.59	Reach Len. (ft)	633.00	633.00
634.00 Crit w.s. (ft)	91.04	Flow Area (sq ft)		63.32
E.G. Slope (ft/ft)	0.001036	Area (sq ft)		63.32
Q Total (cfs)	106.00	Flow (cfs)		106.00
Top Width (ft)	31.11	Top Width (ft)		31.11
Vel Total (ft/s)	1.67	Avg. Vel. (ft/s)		1.67
Max Chl Dpth (ft)	2.78	Hydr. Depth (ft)		2.03
Conv. Total (cfs)	3293.7	Conv. (cfs)		3293.7
Length wtd. (ft)	633.00	wetted Per. (ft)		32.02
Min Ch El (ft)	89.81	Shear (lb/sq ft)		0.13
Alpha 0.00	1.00	Stream Power (lb/ft s)	1993.42	0.00
Frctn Loss (ft)	0.68	Cum Volume (acre-ft)		0.92
C & E Loss (ft)	0.00	Cum SA (acres)		0.47

NM110 OUTPUT REPORT.TXT

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	93.03	Element	Left OB	Channel
Right OB Vel Head (ft)	0.05	wt. n-val.		0.045
W.S. Elev (ft)	92.98	Reach Len. (ft)	633.00	633.00
634.00 Crit w.s. (ft)	91.23	Flow Area (sq ft)		75.80
E.G. slope (ft/ft)	0.001069	Area (sq ft)		75.80
Q Total (cfs)	140.00	Flow (cfs)		140.00
Top width (ft)	32.78	Top width (ft)		32.78
Vel Total (ft/s)	1.85	Avg. vel. (ft/s)		1.85
Max Chl Dpth (ft)	3.17	Hydr. Depth (ft)		2.31
Conv. Total (cfs)	4282.7	Conv. (cfs)		4282.7
Length wtd. (ft)	633.00	wetted Per. (ft)		33.86
Min Ch El (ft)	89.81	Shear (lb/sq ft)		0.15
Alpha 0.00	1.00	Stream Power (lb/ft s)	1993.42	0.00
Frctn Loss (ft)	0.69	Cum volume (acre-ft)		1.11
C & E Loss (ft)	0.00	Cum SA (acres)		0.49

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	93.83	Element	Left OB	Channel
Right OB Vel Head (ft)	0.07	wt. n-val.		0.045
W.S. Elev (ft)	93.76	Reach Len. (ft)	633.00	633.00
634.00 Crit w.s. (ft)	91.59	Flow Area (sq ft)		102.68
E.G. slope (ft/ft)	0.001133	Area (sq ft)		102.68
Q Total (cfs)	220.00	Flow (cfs)		220.00
Top width (ft)	36.98	Top width (ft)		36.98
Vel Total (ft/s)	2.14	Avg. vel. (ft/s)		2.14
Max Chl Dpth (ft)	3.95	Hydr. Depth (ft)		2.78

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Conv. Total (cfs)	6535.1	Conv. (cfs)	6535.1
Length wtd. (ft)	633.00	wetted Per. (ft)	38.37
Min Ch El (ft)	89.81	Shear (lb/sq ft)	0.19
Alpha 0.00	1.00	Stream Power (lb/ft s)	1993.42
Frctn Loss (ft)	0.71	Cum Volume (acre-ft)	1.50
C & E Loss (ft)	0.00	Cum SA (acres)	0.54

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-110
 REACH: NM-110 RS: 585

INPUT

Description:

Station Elevation Data

num= 204

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	95.88	5	95.72	9.98999	95.72	14.98999	96.01	19.97998	96.43
29.96997	96.45	34.96997	96.29	44.96008	96.28	49.95007	95.89	54.95007	96
59.94006	96.42	64.94006	96.48	74.92004	97.79	84.92004	97.86	94.91003	97.76
104.9	98.01	109.9	98.03	119.88	97.79	134.87	97.86	154.85	97.61
159.85	97.36	164.8401	96.81	174.8301	96.24	179.8301	95.71	184.8201	95.59
199.8101	95.64	204.8	95.58	209.8	95.65	219.79	96	229.78	96.81
234.77	96.99	244.7101	97.25	254.6801	97.14	264.6801	96.74	274.67	95.77
349.66	95.65	364.64	96.39	369.64	96.4	374.63	96.65	379.63	96.73
464.54	97.1	469.54	96.84	474.53	96.75	479.53	96.42	484.52	95.97
489.52	95.72	494.51	95.66	504.5	95.74	519.49	95.52	524.48	95.89
529.48	96.46	534.47	96.65	539.47	97.03	544.4601	97.57	549.4601	97.94
554.4501	98.1	584.42	97.9	594.41	97.61	609.4	97.43	619.39	96.49
624.39	96.27	629.38	95.67	634.38	95.46	644.37	95.96	649.36	96.03
664.35	97.08	669.3401	97.15	674.3401	97.49	679.3301	97.57	689.3201	97.56
694.3201	97.69	699.3101	97.69	704.3101	97.52	709.3	97.48	714.3	97.25
719.29	97.25	729.28	97.45	734.28	97.43	739.27	97.54	744.27	96.84
749.26	96.33	754.26	96.26	759.25	95.83	774.24	95.93	779.23	95.71
784.23	95.64	794.22	95.73	799.2101	96.12	814.2001	97.55	819.1901	97.67
824.1901	98.04	829.1801	98.11	839.17	97.99	859.15	98.29	884.13	97.81
899.11	97.1	909.1	96.85	919.0901	96.36	924.0901	96.23	929.0801	96.33
939.0701	97.04	944.0701	97.31	949.0601	97.25	954.0601	96.56	957.85	94.72
959.05	94.14	964.05	91.63	969.04	91.22	974.04	89.96	979.03	89.16
984.03	88.9	989.02	89.07	994.02	90.19	999.01	93.1	1004.01	95.59
1009	95.9	1033.98	95.96	1038.97	95.8	1048.96	95.81	1053.96	95.96
1088.92	95.97	1093.92	96.09	1098.92	95.83	1103.91	96.01	1113.9	96.04
1123.89	95.87	1148.87	95.96	1153.86	96.06	1158.86	96.03	1163.85	95.87
1173.84	96.03	1183.83	95.82	1193.82	95.93	1198.82	95.87	1278.74	95.92
1288.73	96.12	1298.72	95.95	1343.67	96.1	1348.67	96.32	1353.66	96.09
1358.66	96.19	1363.65	96	1368.65	96.02	1373.64	96.17	1393.62	96.21
1398.62	96.13	1418.6	96.16	1423.59	95.95	1428.59	95.98	1433.58	96.15
1438.58	96.07	1453.56	96.16	1468.55	95.97	1503.51	95.9	1508.51	96.11
1518.5	96.28	1523.49	96.48	1528.49	96.45	1533.48	96.2	1543.48	96.06
1548.47	95.85	1563.46	96.02	1573.45	96.51	1578.44	96.61	1583.44	96.58
1593.43	96.74	1613.41	96.49	1623.4	96.66	1633.39	96.32	1638.38	96.41

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1643.38	96.39	1653.37	96.53	1658.36	96.4	1678.34	96.42	1683.34	96.6
1688.33	96.53	1693.33	96.15	1713.31	96.18	1718.3	95.91	1723.3	95.96
1758.26	95.7	1763.26	96.02	1773.25	96.06	1778.24	95.82	1783.24	95.78
1788.23	95.93	1793.23	95.97	1798.22	95.85	1808.21	95.92	1813.21	95.81
1823.2	95.85	1828.19	95.77	1838.18	96.06	1878.14	95.93	1883.14	95.81
1888.13	95.79	1893.13	95.87	1903.12	95.73	1913.11	96	1968.05	95.98
1978.04	95.87	1983.04	95.94	1988.03	96.13	1993.03	96.11		

Manning's n Values

num=	3				
Sta	n Val	Sta	n Val	Sta	n Val
0	.06954	.0601	.045	1004.01	.06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

954.0601	1004.01	603	585	566	.1	.3
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Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	946.41	97.13	F
1004.01	1993.03	95.59	F

Blocked obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
0	843.65	97.69	1593.41	1993.03	96.68

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	91.27	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	wt. n-val.		0.045
w.s. Elev (ft)	91.24	Reach Len. (ft)		
Crit w.s. (ft)	89.96	Flow Area (sq ft)		42.89
E.G. slope (ft/ft)	0.001102	Area (sq ft)		42.89
Q Total (cfs)	63.00	Flow (cfs)		63.00
Top width (ft)	27.00	Top width (ft)		27.00
Vel Total (ft/s)	1.47	Avg. vel. (ft/s)		1.47
Max Chl Dpth (ft)	2.34	Hydr. Depth (ft)		1.59
Conv. Total (cfs)	1898.1	Conv. (cfs)		1898.1
Length wtd. (ft)		wetted Per. (ft)		27.64
Min Ch El (ft)	88.90	Shear (lb/sq ft)		0.11
Alpha	1.00	Stream Power (lb/ft s)	1993.03	0.00
0.00 Frctn Loss (ft)		Cum volume (acre-ft)		
C & E Loss (ft)		Cum SA (acres)		

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

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		Element	Left OB	Channel
E.G. Elev (ft)	91.76			
Right OB				
Vel Head (ft)	0.04	wt. n-val.		0.045
W.S. Elev (ft)	91.72	Reach Len. (ft)		
Crit W.S. (ft)	90.16	Flow Area (sq ft)		57.44
E.G. Slope (ft/ft)	0.001101	Area (sq ft)		57.44
Q Total (cfs)	90.00	Flow (cfs)		90.00
Top Width (ft)	32.77	Top Width (ft)		32.77
Vel Total (ft/s)	1.57	Avg. Vel. (ft/s)		1.57
Max Chl Dpth (ft)	2.82	Hydr. Depth (ft)		1.75
Conv. Total (cfs)	2712.9	Conv. (cfs)		2712.9
Length Wtd. (ft)		wetted Per. (ft)		33.57
Min Ch El (ft)	88.90	Shear (lb/sq ft)		0.12
Alpha	1.00	Stream Power (lb/ft s)	1993.03	0.00
0.00		Cum volume (acre-ft)		
Frctn Loss (ft)		Cum SA (acres)		
C & E Loss (ft)				

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

		Element	Left OB	Channel
E.G. Elev (ft)	92.52			
Right OB				
Vel Head (ft)	0.06	wt. n-val.		0.045
W.S. Elev (ft)	92.46	Reach Len. (ft)		
Crit W.S. (ft)	90.55	Flow Area (sq ft)		82.81
E.G. Slope (ft/ft)	0.001100	Area (sq ft)		82.81
Q Total (cfs)	156.00	Flow (cfs)		156.00
Top Width (ft)	35.52	Top Width (ft)		35.52
Vel Total (ft/s)	1.88	Avg. Vel. (ft/s)		1.88
Max Chl Dpth (ft)	3.56	Hydr. Depth (ft)		2.33
Conv. Total (cfs)	4703.5	Conv. (cfs)		4703.5
Length Wtd. (ft)		wetted Per. (ft)		36.71
Min Ch El (ft)	88.90	Shear (lb/sq ft)		0.15

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Alpha	1.00	Stream Power (lb/ft s)	1993.03	0.00
0.00				
Frctn Loss (ft)		Cum Volume (acre-ft)		
C & E Loss (ft)		Cum SA (acres)		

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	91.96	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.04	wt. n-val.		0.045
w.s. Elev (ft)	91.92	Reach Len. (ft)		
Crit w.s. (ft)	90.26	Flow Area (sq ft)		63.98
E.G. slope (ft/ft)	0.001101	Area (sq ft)		63.98
Q Total (cfs)	106.00	Flow (cfs)		106.00
Top width (ft)	33.50	Top width (ft)		33.50
vel Total (ft/s)	1.66	Avg. vel. (ft/s)		1.66
Max chl Dpth (ft)	3.02	Hydr. Depth (ft)		1.91
Conv. Total (cfs)	3194.4	Conv. (cfs)		3194.4
Length wtd. (ft)		wetted Per. (ft)		34.41
Min ch El (ft)	88.90	Shear (lb/sq ft)		0.13
Alpha	1.00	Stream Power (lb/ft s)	1993.03	0.00
0.00				
Frctn Loss (ft)		Cum volume (acre-ft)		
C & E Loss (ft)		Cum SA (acres)		

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	92.35	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.05	wt. n-val.		0.045
w.s. Elev (ft)	92.30	Reach Len. (ft)		
Crit w.s. (ft)	90.47	Flow Area (sq ft)		76.97

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E.G. Slope (ft/ft)	0.001102	Area (sq ft)		76.97
Q Total (cfs)	140.00	Flow (cfs)		140.00
Top Width (ft)	34.91	Top Width (ft)		34.91
Vel Total (ft/s)	1.82	Avg. Vel. (ft/s)		1.82
Max Chl Dpth (ft)	3.40	Hydr. Depth (ft)		2.20
Conv. Total (cfs)	4217.6	Conv. (cfs)		4217.6
Length wtd. (ft)		wetted Per. (ft)		36.01
Min Ch El (ft)	88.90	Shear (lb/sq ft)		0.15
Alpha 0.00	1.00	Stream Power (lb/ft s)	1993.03	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)		
C & E Loss (ft)		Cum SA (acres)		

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

Profile #ULT 100Y				
E.G. Elev (ft)	93.12	Element	Left OB	Channel
Right OB Vel Head (ft)	0.07	wt. n-val.		0.045
W.S. Elev (ft)	93.05	Reach Len. (ft)		
Crit w.s. (ft)	90.87	Flow Area (sq ft)		104.44
E.G. slope (ft/ft)	0.001101	Area (sq ft)		104.44
Q Total (cfs)	220.00	Flow (cfs)		220.00
Top Width (ft)	37.71	Top Width (ft)		37.71
Vel Total (ft/s)	2.11	Avg. Vel. (ft/s)		2.11
Max Chl Dpth (ft)	4.15	Hydr. Depth (ft)		2.77
Conv. Total (cfs)	6628.8	Conv. (cfs)		6628.8
Length wtd. (ft)		wetted Per. (ft)		39.20
Min Ch El (ft)	88.90	Shear (lb/sq ft)		0.18
Alpha 0.00	1.00	Stream Power (lb/ft s)	1993.03	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)		
C & E Loss (ft)		Cum SA (acres)		

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Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

SUMMARY OF MANNING'S N VALUES

River:N-NM-110

Reach	River Sta.	n1	n2	n3
NM-110	6481	.06	.045	.06
NM-110	5927	.06	.045	.06
NM-110	5540	.06	.045	.06
NM-110	5361	.06	.045	.06
NM-110	4689	.06	.045	.06
NM-110	4133	.06	.045	.06
NM-110	3890	.06	.045	.06
NM-110	3427	.06	.045	.06
NM-110	2780	.06	.045	.06
NM-110	2549	.06	.045	.06
NM-110	1992	.06	.045	.06
NM-110	1531	.06	.045	.06
NM-110	1218	.06	.045	.06
NM-110	585	.06	.045	.06

SUMMARY OF REACH LENGTHS

River: N-NM-110

Reach	River Sta.	Left	Channel	Right
NM-110	6481	554	554	554
NM-110	5927	385	388	390
NM-110	5540	178	178	178
NM-110	5361	672	672	672
NM-110	4689	557	556	555
NM-110	4133	242	243	240
NM-110	3890	463	464	464
NM-110	3427	646	646	646
NM-110	2780	231	231	231
NM-110	2549	558	558	558
NM-110	1992	463	461	460
NM-110	1531	307	313	307
NM-110	1218	633	633	634
NM-110	585	603	585	566

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS

River: N-NM-110

Reach	River Sta.	Contr.	Expan.
NM-110	6481	.1	.3
NM-110	5927	.1	.3
NM-110	5540	.1	.3

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NM-110	5361	.1	.3
NM-110	4689	.1	.3
NM-110	4133	.1	.3
NM-110	3890	.1	.3
NM-110	3427	.1	.3
NM-110	2780	.1	.3
NM-110	2549	.1	.3
NM-110	1992	.1	.3
NM-110	1531	.1	.3
NM-110	1218	.1	.3
NM-110	585	.1	.3

Profile Output Table - Table 1

Reach Vel Chnl (ft/s)	River Sta Flow Area (sq ft)	Profile Top Width (ft)	Q Total Volume (cfs) (acre-ft)	W.S. Elev (ft)	E.G. Elev (ft)	Min Ch El (ft)
NM-110	585	EX 10Y	63.00	91.24	91.27	88.90
1.47	42.89	27.00				
NM-110	585	EX 25Y	90.00	91.72	91.76	88.90
1.57	57.44	32.77				
NM-110	585	EX 100Y	156.00	92.46	92.52	88.90
1.88	82.81	35.52				
NM-110	585	ULT 10Y	106.00	91.92	91.96	88.90
1.66	63.98	33.50				
NM-110	585	ULT 25Y	140.00	92.30	92.35	88.90
1.82	76.97	34.91				
NM-110	585	ULT 100Y	220.00	93.05	93.12	88.90
2.11	104.44	37.71				
NM-110	1218	EX 10Y	63.00	91.93	91.97	89.81
1.44	43.77	28.31	0.63			
NM-110	1218	EX 25Y	90.00	92.39	92.43	89.81
1.58	57.04	30.24	0.83			
NM-110	1218	EX 100Y	156.00	93.15	93.21	89.81
1.92	81.38	33.50	1.19			
NM-110	1218	ULT 10Y	106.00	92.59	92.63	89.81
1.67	63.32	31.11	0.92			
NM-110	1218	ULT 25Y	140.00	92.98	93.03	89.81
1.85	75.80	32.78	1.11			
NM-110	1218	ULT 100Y	220.00	93.76	93.83	89.81
2.14	102.68	36.98	1.50			
NM-110	1531	EX 10Y	63.00	92.46	92.52	90.75
2.05	30.79	26.04	0.90			
NM-110	1531	EX 25Y	90.00	92.85	92.92	90.75
2.17	41.41	28.00	1.19			
NM-110	1531	EX 100Y	156.00	93.60	93.69	90.75
2.46	63.53	31.18	1.71			
NM-110	1531	ULT 10Y	106.00	93.05	93.13	90.75
2.25	47.08	28.90	1.32			
NM-110	1531	ULT 25Y	140.00	93.43	93.52	90.75
2.40	58.43	30.49	1.59			
NM-110	1531	ULT 100Y	220.00	94.20	94.31	90.75
2.65	83.04	33.63	2.17			

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NM-110	1992	EX 10Y	39.00	93.46	93.49	91.20
1.26	31.07	26.89	1.22			
NM-110	1992	EX 25Y	56.00	93.76	93.80	91.20
1.42	39.36	28.05	1.61			
NM-110	1992	EX 100Y	99.00	94.42	94.47	91.20
1.69	58.66	30.58	2.36			
NM-110	1992	ULT 10Y	67.00	93.94	93.98	91.20
1.51	44.34	28.73	1.81			
NM-110	1992	ULT 25Y	89.00	94.28	94.32	91.20
1.64	54.21	30.02	2.19			
NM-110	1992	ULT 100Y	140.00	94.97	95.02	91.20
1.84	75.99	32.68	3.01			
NM-110	2549	EX 10Y	39.00	93.88	93.90	91.65
0.99	39.37	24.41	1.68			
NM-110	2549	EX 25Y	56.00	94.23	94.25	91.65
1.17	47.97	25.84	2.17			
NM-110	2549	EX 100Y	99.00	94.92	94.95	91.65
1.48	66.71	28.24	3.16			
NM-110	2549	ULT 10Y	67.00	94.42	94.44	91.65
1.26	53.01	26.51	2.43			
NM-110	2549	ULT 25Y	89.00	94.77	94.80	91.65
1.42	62.55	27.73	2.94			
NM-110	2549	ULT 100Y	140.00	95.47	95.51	91.65
1.69	82.74	30.14	4.03			
NM-110	2780	EX 10Y	39.00	93.93	93.93	91.32
0.37	104.93	63.93	2.06			
NM-110	2780	EX 25Y	56.00	94.28	94.29	91.32
0.44	127.86	66.33	2.64			
NM-110	2780	EX 100Y	99.00	94.99	95.00	91.32
0.56	177.61	73.86	3.81			
NM-110	2780	ULT 10Y	67.00	94.48	94.48	91.32
0.47	141.15	67.88	2.94			
NM-110	2780	ULT 25Y	89.00	94.84	94.85	91.32
0.53	166.49	72.09	3.54			
NM-110	2780	ULT 100Y	140.00	95.56	95.56	91.32
0.64	220.33	78.23	4.83			
NM-110	3427	EX 10Y	39.00	93.96	93.97	91.34
0.34	115.65	58.05	3.69			
NM-110	3427	EX 25Y	56.00	94.32	94.32	91.34
0.41	136.75	59.76	4.60			
NM-110	3427	EX 100Y	99.00	95.05	95.05	91.34
0.55	181.23	63.23	6.47			
NM-110	3427	ULT 10Y	67.00	94.52	94.53	91.34
0.45	148.89	60.73	5.09			
NM-110	3427	ULT 25Y	89.00	94.89	94.90	91.34
0.52	171.53	62.49	6.05			
NM-110	3427	ULT 100Y	140.00	95.61	95.62	91.34
0.64	217.79	65.91	8.08			
NM-110	3890	EX 10Y	39.00	93.98	93.99	91.28
0.34	113.40	56.39	4.91			
NM-110	3890	EX 25Y	56.00	94.35	94.35	91.28
0.42	134.33	58.90	6.04			
NM-110	3890	EX 100Y	99.00	95.08	95.08	91.28
0.55	178.90	63.08	8.39			

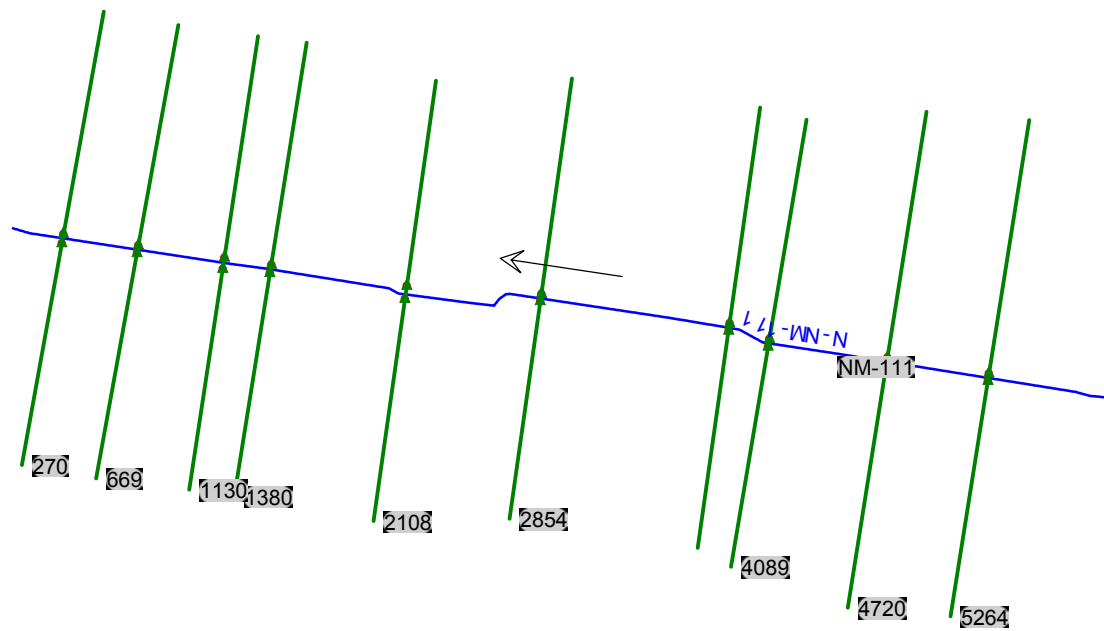
NM110 OUTPUT REPORT.TXT

NM-110	3890	ULT 10Y	67.00	94.55	94.55	91.28
0.46	146.47	60.03	6.67			
NM-110	3890	ULT 25Y	89.00	94.92	94.93	91.28
0.53	169.15	62.13	7.86			
NM-110	3890	ULT 100Y	140.00	95.65	95.66	91.28
0.65	215.93	66.58	10.39			
NM-110	4133	EX 10Y	39.00	94.00	94.01	91.32
0.80	49.03	25.47	5.37			
NM-110	4133	EX 25Y	56.00	94.36	94.38	91.32
0.96	58.61	26.95	6.58			
NM-110	4133	EX 100Y	99.00	95.10	95.12	91.32
1.25	79.49	29.92	9.11			
NM-110	4133	ULT 10Y	67.00	94.57	94.59	91.32
1.04	64.23	27.78	7.26			
NM-110	4133	ULT 25Y	89.00	94.94	94.96	91.32
1.19	74.87	29.29	8.54			
NM-110	4133	ULT 100Y	140.00	95.67	95.70	91.32
1.43	97.79	34.17	11.27			
NM-110	4689	EX 10Y	17.00	94.14	94.15	92.10
0.59	29.02	23.31	5.87			
NM-110	4689	EX 25Y	24.00	94.54	94.54	92.10
0.58	41.10	34.69	7.22			
NM-110	4689	EX 100Y	40.00	95.28	95.29	92.10
0.58	68.67	39.28	10.06			
NM-110	4689	ULT 10Y	25.00	94.74	94.74	92.10
0.52	48.19	35.98	7.97			
NM-110	4689	ULT 25Y	33.00	95.12	95.12	92.10
0.53	62.28	38.32	9.42			
NM-110	4689	ULT 100Y	51.00	95.86	95.86	92.10
0.55	92.28	42.46	12.48			
NM-110	5361	EX 10Y	17.00	94.49	94.52	92.55
1.42	11.93	12.30	6.18			
NM-110	5361	EX 25Y	24.00	94.87	94.90	92.55
1.40	17.20	15.05	7.67			
NM-110	5361	EX 100Y	40.00	95.49	95.52	92.55
1.44	27.80	19.05	10.80			
NM-110	5361	ULT 10Y	25.00	94.97	95.00	92.55
1.33	18.79	15.79	8.49			
NM-110	5361	ULT 25Y	33.00	95.31	95.34	92.55
1.35	24.47	18.16	10.09			
NM-110	5361	ULT 100Y	51.00	95.99	96.02	92.55
1.34	38.09	21.57	13.49			
NM-110	5540	EX 10Y	17.00	95.83	96.01	95.30
3.44	4.94	13.22	6.22			
NM-110	5540	EX 25Y	24.00	95.93	96.15	95.30
3.77	6.37	14.18	7.72			
NM-110	5540	EX 100Y	40.00	96.12	96.41	95.30
4.32	9.26	15.95	10.88			
NM-110	5540	ULT 10Y	25.00	95.94	96.17	95.30
3.84	6.51	14.27	8.54			
NM-110	5540	ULT 25Y	33.00	96.04	96.31	95.30
4.13	7.99	15.20	10.16			
NM-110	5540	ULT 100Y	51.00	96.23	96.56	95.30
4.60	11.09	16.98	13.59			

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NM-110	5927	EX 10Y	17.00	97.04	97.05	95.70
0.86	19.74	23.45	6.33			
NM-110	5927	EX 25Y	24.00	97.23	97.25	95.70
0.98	24.53	25.19	7.85			
NM-110	5927	EX 100Y	40.00	97.58	97.60	95.70
1.19	33.72	28.10	11.07			
NM-110	5927	ULT 10Y	25.00	97.26	97.27	95.70
1.00	25.12	25.40	8.68			
NM-110	5927	ULT 25Y	33.00	97.44	97.46	95.70
1.10	29.92	26.96	10.32			
NM-110	5927	ULT 100Y	51.00	97.78	97.80	95.70
1.29	39.41	29.73	13.81			
NM-110	6481	EX 10Y	17.00	98.21	98.29	97.55
2.24	7.60	16.56	6.50			
NM-110	6481	EX 25Y	24.00	98.38	98.46	97.55
2.27	10.59	18.01	8.08			
NM-110	6481	EX 100Y	40.00	98.71	98.80	97.55
2.36	16.92	20.75	11.39			
NM-110	6481	ULT 10Y	25.00	98.41	98.49	97.55
2.27	11.02	18.21	8.91			
NM-110	6481	ULT 25Y	33.00	98.57	98.66	97.55
2.33	14.17	19.60	10.60			
NM-110	6481	ULT 100Y	51.00	98.90	98.99	97.55
2.43	21.00	22.33	14.20			

APPENDIX D
HEC-RAS HYDRAULIC OUTPUT
NM-111 BASE CONDITION

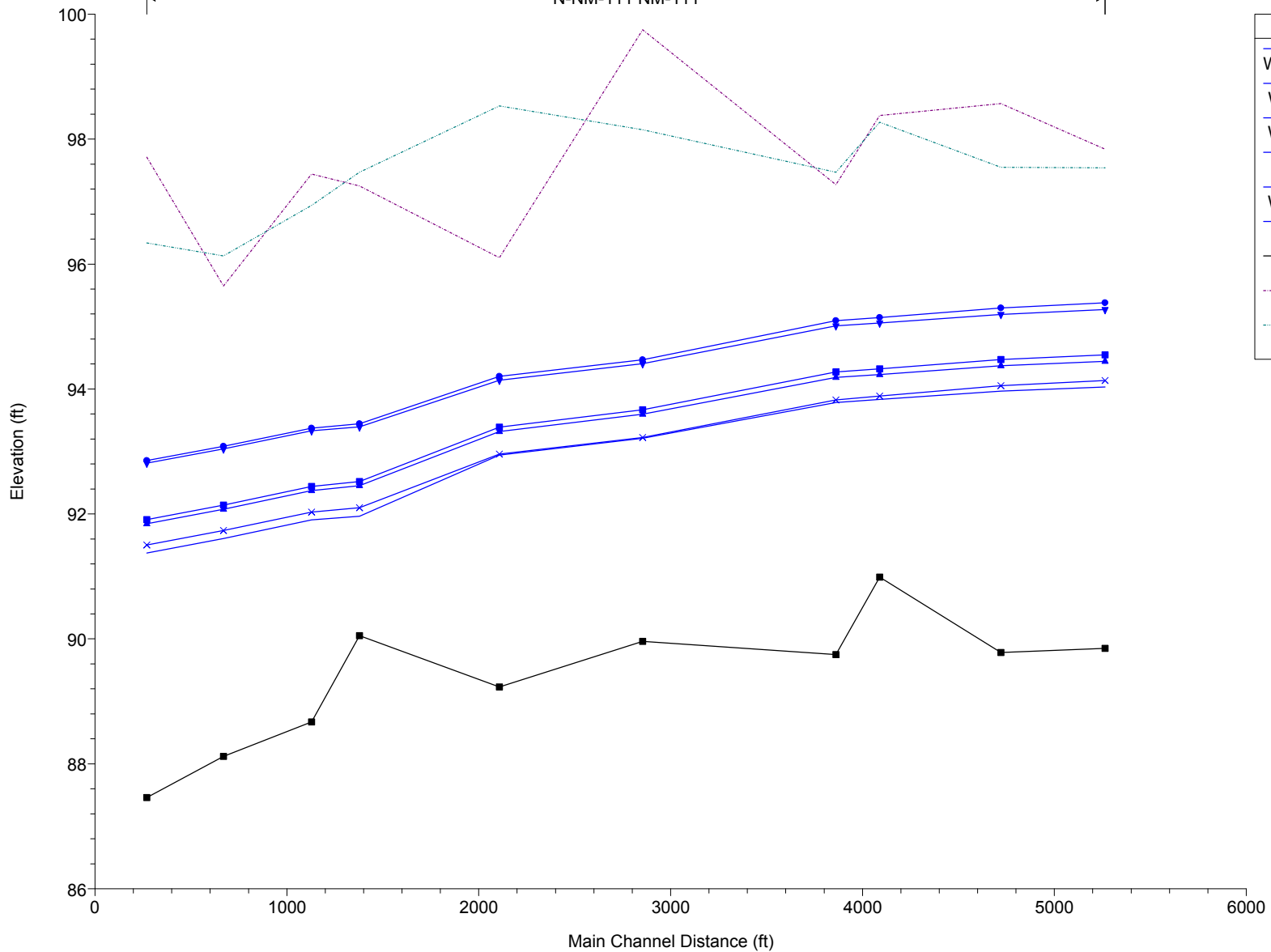


HEC-RAS Plan: BASE River: N-NM-111 Reach: NM-111

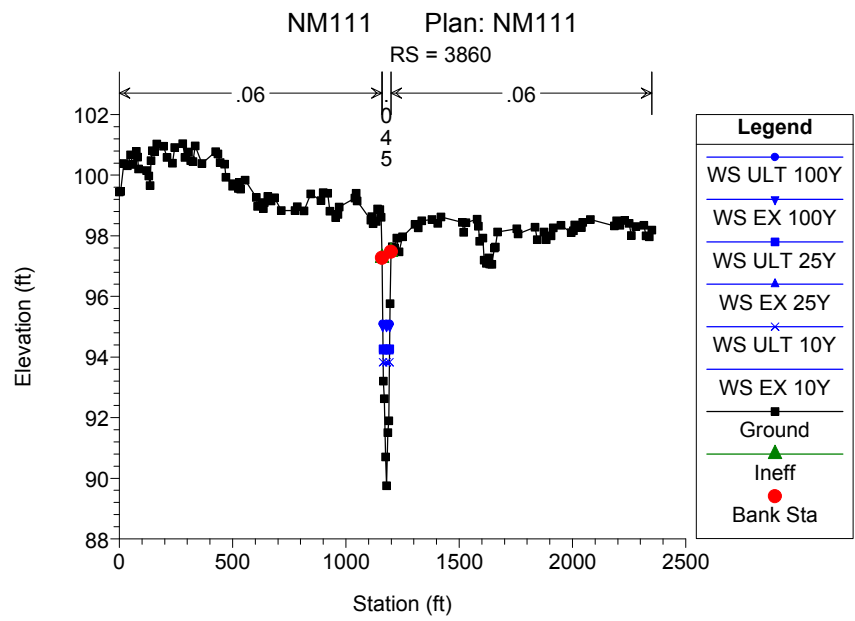
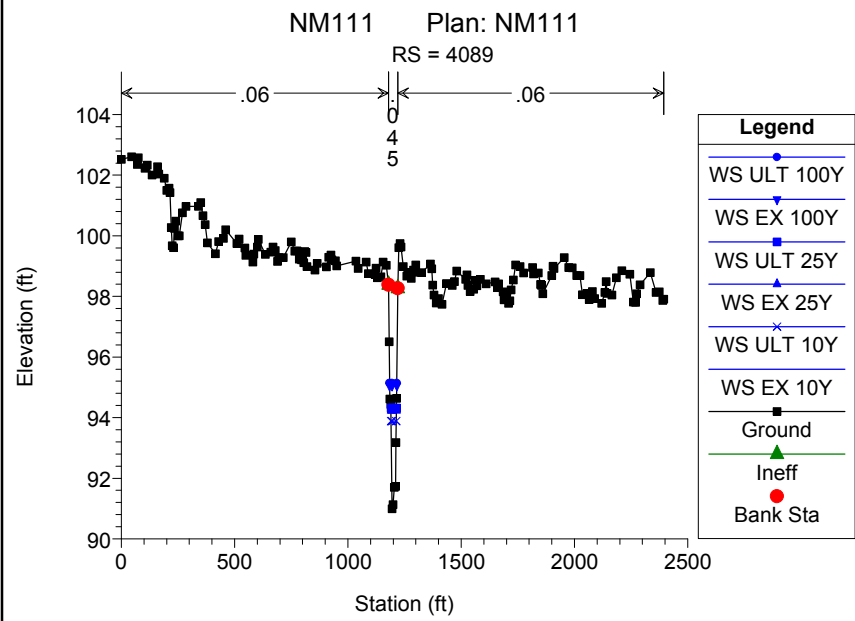
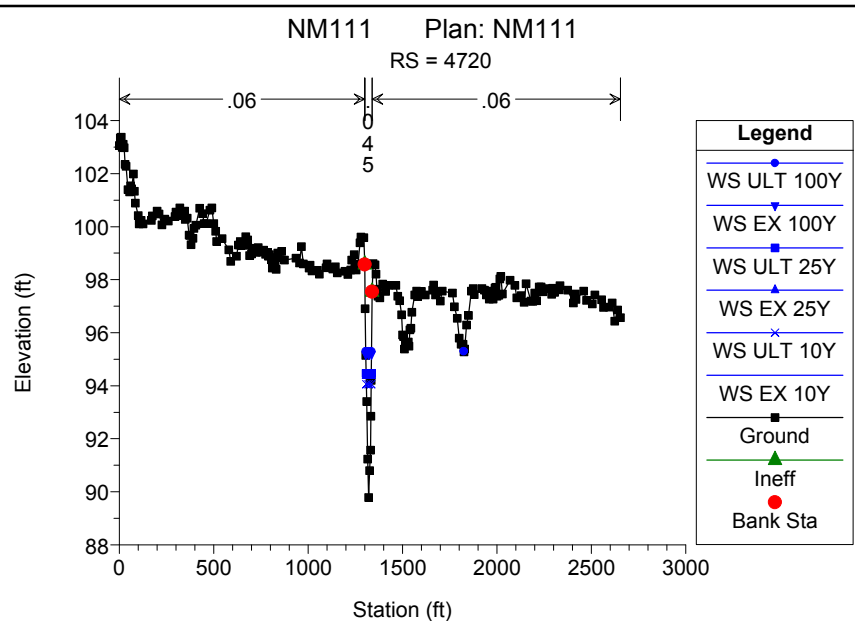
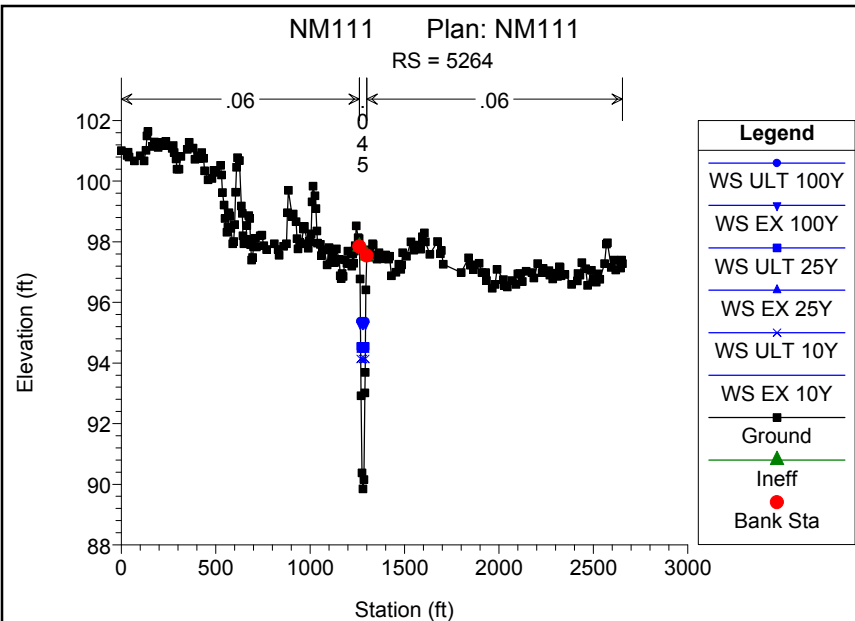
Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
NM-111	270	EX 10Y	121.00	87.46	91.38	88.92	91.40	0.000501	1.37	88.40	33.12	0.15
NM-111	270	EX 25Y	155.00	87.46	91.84	89.13	91.88	0.000501	1.49	104.18	34.17	0.15
NM-111	270	EX 100Y	236.00	87.46	92.81	89.54	92.86	0.000500	1.71	138.32	36.34	0.15
NM-111	270	ULT 10Y	130.00	87.46	91.50	88.98	91.53	0.000501	1.40	92.69	33.41	0.15
NM-111	270	ULT 25Y	160.00	87.46	91.91	89.15	91.94	0.000501	1.50	106.41	34.32	0.15
NM-111	270	ULT 100Y	240.00	87.46	92.85	89.55	92.90	0.000501	1.72	139.82	36.44	0.15
NM-111	669	EX 10Y	121.00	88.12	91.61	89.47	91.65	0.000737	1.66	72.98	27.32	0.18
NM-111	669	EX 25Y	155.00	88.12	92.07	89.65	92.12	0.000749	1.80	86.12	28.64	0.18
NM-111	669	EX 100Y	236.00	88.12	93.04	90.04	93.11	0.000755	2.05	114.99	31.13	0.19
NM-111	669	ULT 10Y	130.00	88.12	91.73	89.51	91.78	0.000742	1.70	76.53	27.71	0.18
NM-111	669	ULT 25Y	160.00	88.12	92.14	89.67	92.19	0.000750	1.82	87.99	28.80	0.18
NM-111	669	ULT 100Y	240.00	88.12	93.08	90.06	93.15	0.000756	2.06	116.28	31.24	0.19
NM-111	1130	EX 10Y	90.00	88.67	91.90	89.73	91.93	0.000468	1.19	75.34	33.45	0.14
NM-111	1130	EX 25Y	115.00	88.67	92.37	89.88	92.40	0.000442	1.25	92.19	36.59	0.14
NM-111	1130	EX 100Y	174.00	88.67	93.33	90.19	93.36	0.000373	1.36	128.38	39.05	0.13
NM-111	1130	ULT 10Y	90.00	88.67	92.03	89.73	92.05	0.000423	1.13	79.69	35.70	0.13
NM-111	1130	ULT 25Y	120.00	88.67	92.44	89.91	92.46	0.000445	1.27	94.61	36.76	0.14
NM-111	1130	ULT 100Y	180.00	88.67	93.37	90.23	93.40	0.000383	1.38	130.10	39.16	0.13
NM-111	1380	EX 10Y	90.00	90.05	91.96	91.79	92.41	0.020794	5.37	16.77	13.22	0.84
NM-111	1380	EX 25Y	115.00	90.05	92.45	92.03	92.82	0.012914	4.83	23.80	15.26	0.68
NM-111	1380	EX 100Y	174.00	90.05	93.40	92.48	93.69	0.007313	4.33	40.20	19.76	0.53
NM-111	1380	ULT 10Y	90.00	90.05	92.10	91.79	92.46	0.015526	4.82	18.66	13.84	0.73
NM-111	1380	ULT 25Y	120.00	90.05	92.52	92.07	92.88	0.012526	4.83	24.82	15.52	0.67
NM-111	1380	ULT 100Y	180.00	90.05	93.44	92.53	93.74	0.007371	4.38	41.12	19.99	0.54
NM-111	2108	EX 10Y	90.00	89.23	92.94	90.27	92.95	0.000205	0.82	110.31	47.46	0.09
NM-111	2108	EX 25Y	115.00	89.23	93.32	90.41	93.33	0.000210	0.89	128.68	49.03	0.10
NM-111	2108	EX 100Y	174.00	89.23	94.14	90.71	94.16	0.000208	1.02	170.32	52.43	0.10
NM-111	2108	ULT 10Y	90.00	89.23	92.96	90.27	92.97	0.000200	0.81	111.22	47.53	0.09
NM-111	2108	ULT 25Y	120.00	89.23	93.39	90.43	93.40	0.000211	0.91	132.02	49.31	0.10
NM-111	2108	ULT 100Y	180.00	89.23	94.20	90.73	94.22	0.000211	1.04	173.42	52.67	0.10
NM-111	2854	EX 10Y	90.00	89.96	93.21	91.39	93.27	0.001199	1.93	46.58	19.36	0.22
NM-111	2854	EX 25Y	115.00	89.96	93.60	91.59	93.67	0.001270	2.12	54.19	20.24	0.23
NM-111	2854	EX 100Y	174.00	89.96	94.41	92.02	94.50	0.001337	2.44	71.35	22.10	0.24
NM-111	2854	ULT 10Y	90.00	89.96	93.23	91.39	93.28	0.001181	1.92	46.83	19.38	0.22
NM-111	2854	ULT 25Y	120.00	89.96	93.67	91.64	93.74	0.001286	2.16	55.60	20.40	0.23
NM-111	2854	ULT 100Y	180.00	89.96	94.47	92.05	94.56	0.001356	2.48	72.72	22.24	0.24
NM-111	3860	EX 10Y	43.00	89.75	93.78	91.23	93.79	0.000171	0.70	61.46	28.15	0.08
NM-111	3860	EX 25Y	55.00	89.75	94.19	91.39	94.20	0.000167	0.75	73.03	29.16	0.08
NM-111	3860	EX 100Y	82.00	89.75	95.01	91.74	95.02	0.000155	0.84	97.92	31.24	0.08
NM-111	3860	ULT 10Y	50.00	89.75	93.82	91.32	93.83	0.000218	0.80	62.63	28.25	0.09
NM-111	3860	ULT 25Y	60.00	89.75	94.27	91.45	94.28	0.000179	0.79	75.51	29.38	0.09
NM-111	3860	ULT 100Y	90.00	89.75	95.09	91.82	95.11	0.000173	0.90	100.54	31.46	0.09
NM-111	4089	EX 10Y	43.00	90.99	93.83	92.00	93.85	0.000336	0.93	46.21	22.76	0.12
NM-111	4089	EX 25Y	55.00	90.99	94.23	92.11	94.25	0.000321	0.99	55.61	24.03	0.11
NM-111	4089	EX 100Y	82.00	90.99	95.06	92.32	95.07	0.000314	1.04	78.92	31.17	0.12
NM-111	4089	ULT 10Y	50.00	90.99	93.89	92.06	93.90	0.000420	1.05	47.46	22.93	0.13
NM-111	4089	ULT 25Y	60.00	90.99	94.32	92.15	94.34	0.000343	1.04	57.73	24.31	0.12
NM-111	4089	ULT 100Y	90.00	90.99	95.14	92.38	95.16	0.000341	1.10	81.69	31.41	0.12
NM-111	4720	EX 10Y	43.00	89.78	93.97	91.24	93.97	0.000137	0.67	63.76	26.16	0.08
NM-111	4720	EX 25Y	55.00	89.78	94.37	91.38	94.38	0.000145	0.74	74.73	28.03	0.08
NM-111	4720	EX 100Y	82.00	89.78	95.19	91.65	95.20	0.000148	0.83	99.24	31.55	0.08
NM-111	4720	ULT 10Y	50.00	89.78	94.05	91.33	94.06	0.000168	0.76	66.06	26.58	0.08
NM-111	4720	ULT 25Y	60.00	89.78	94.47	91.44	94.48	0.000156	0.77	77.51	28.46	0.08
NM-111	4720	ULT 100Y	90.00	89.78	95.30	91.71	95.31	0.000163	0.88	102.46	32.83	0.09
NM-111	5264	EX 10Y	43.00	89.85	94.03	90.88	94.04	0.000110	0.66	65.47	22.94	0.07
NM-111	5264	EX 25Y	55.00	89.85	94.44	91.02	94.45	0.000122	0.73	75.10	24.07	0.07
NM-111	5264	EX 100Y	82.00	89.85	95.27	91.29	95.28	0.000138	0.85	95.94	26.36	0.08
NM-111	5264	ULT 10Y	50.00	89.85	94.14	90.96	94.15	0.000134	0.74	67.83	23.22	0.08
NM-111	5264	ULT 25Y	60.00	89.85	94.55	91.07	94.56	0.000133	0.77	77.63	24.36	0.08
NM-111	5264	ULT 100Y	90.00	89.85	95.38	91.36	95.39	0.000153	0.91	98.85	26.67	0.08

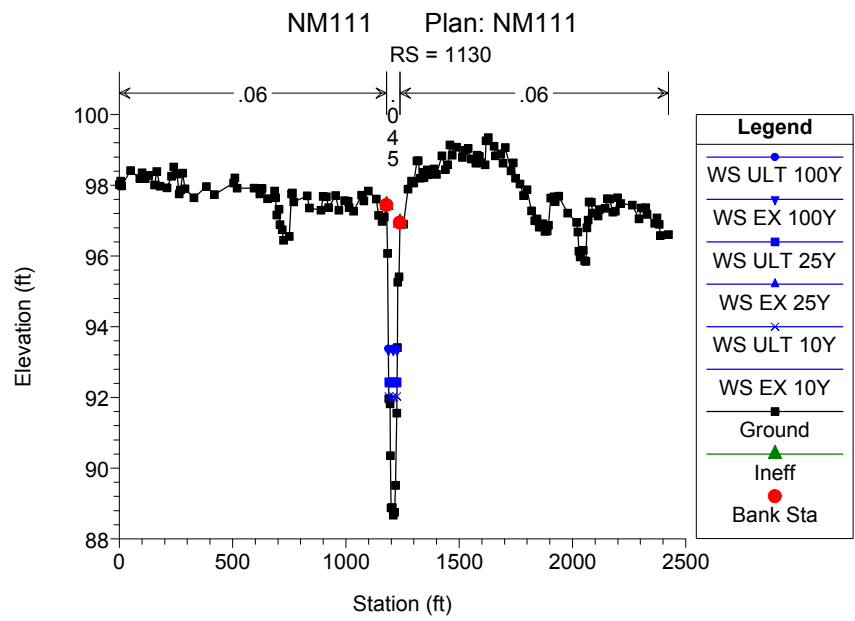
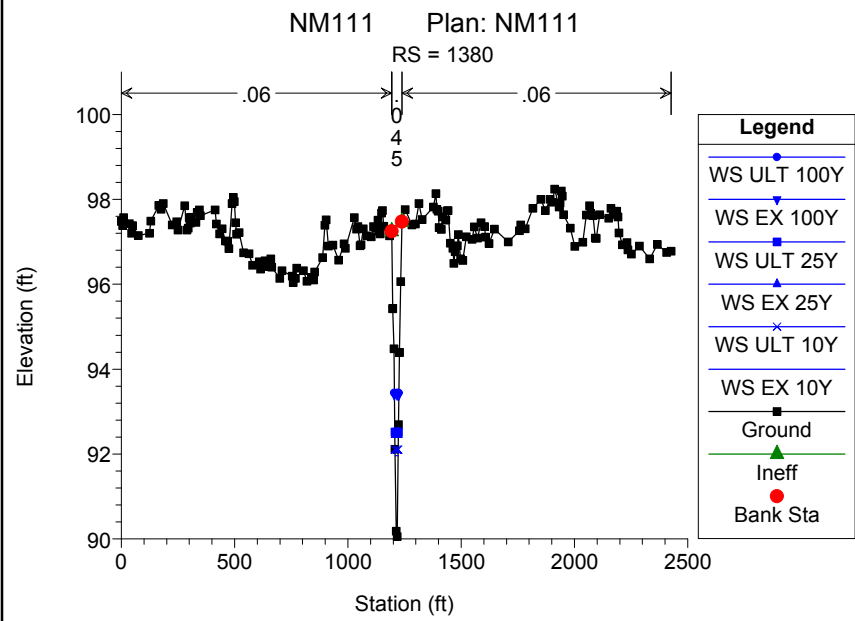
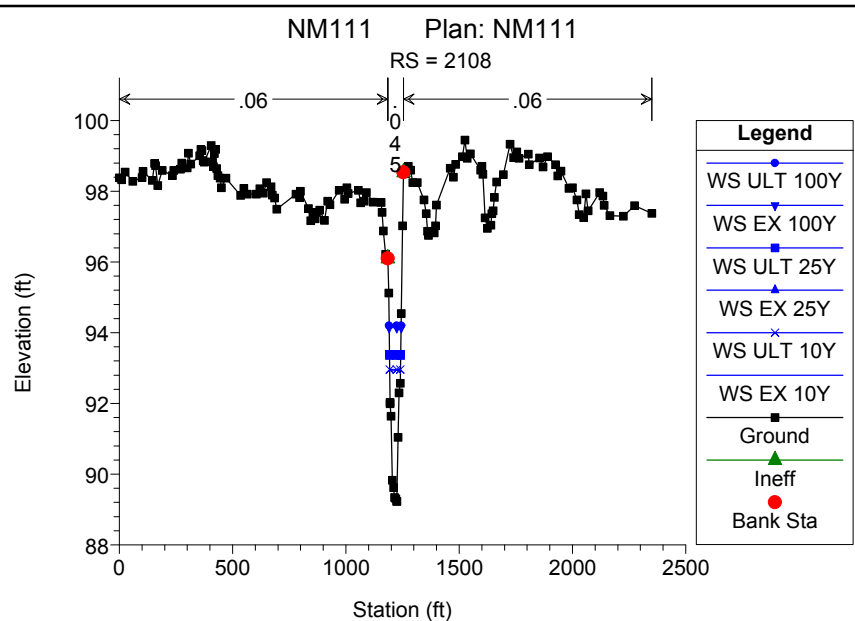
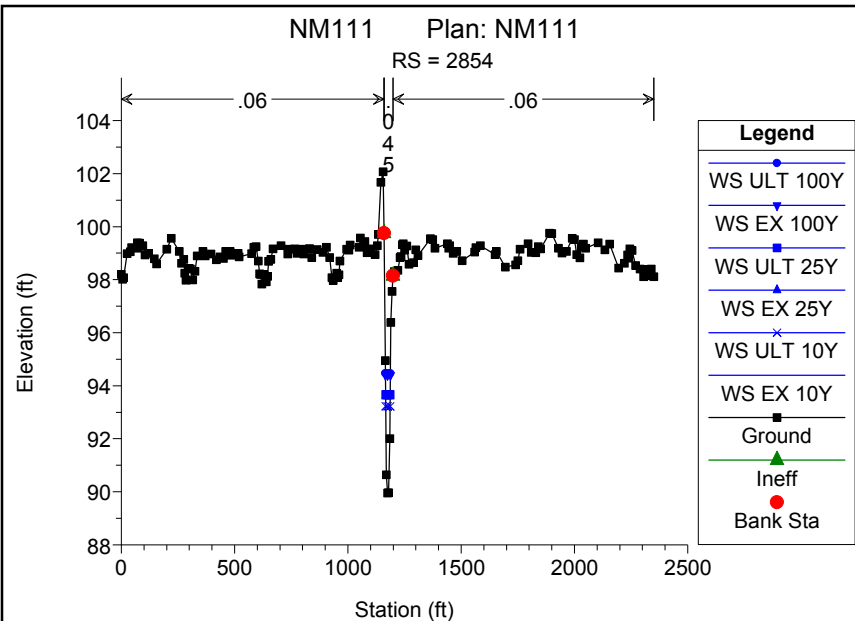
NM111 Plan: NM111

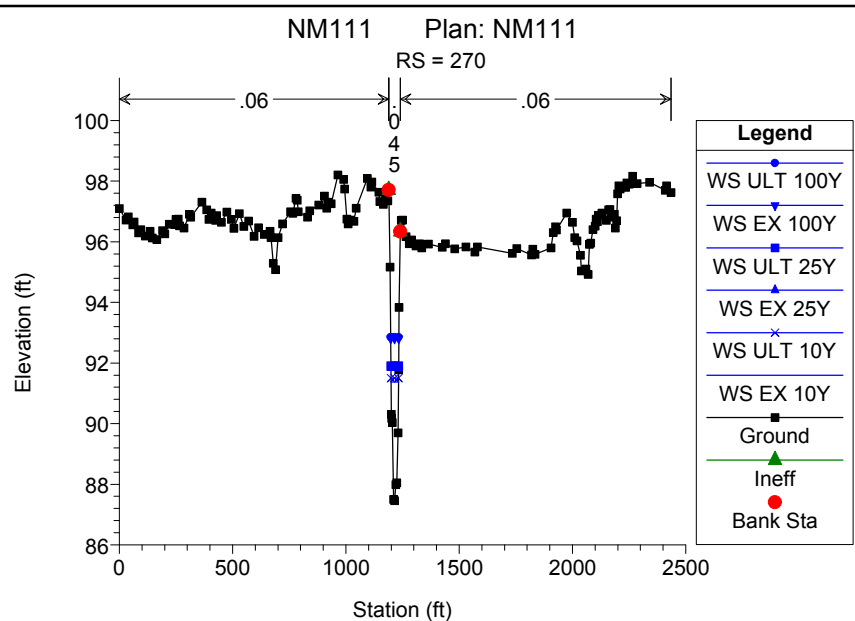
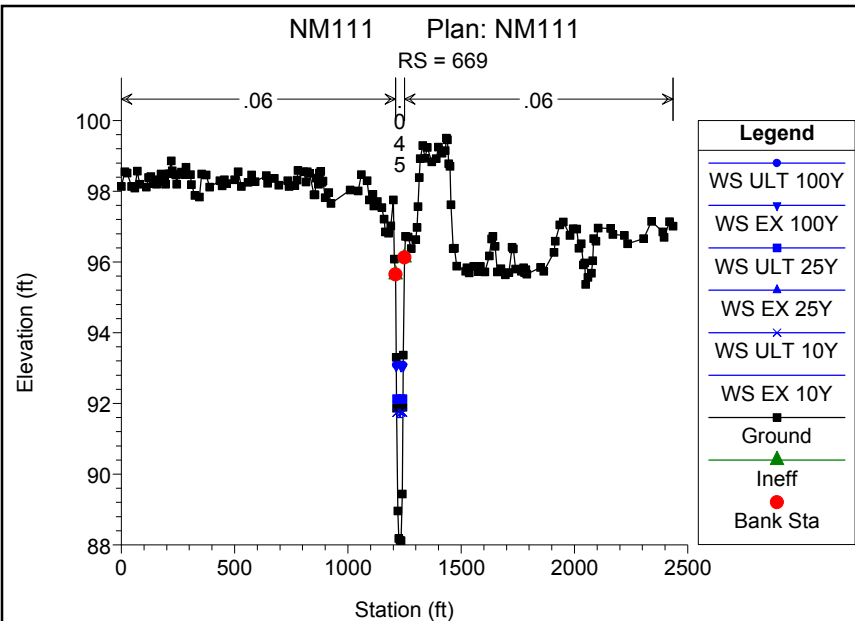
N-NM-111 NM-111



Legend	
WS ULT 100Y	●
WS EX 100Y	▼
WS ULT 25Y	■
WS EX 25Y	▲
WS ULT 10Y	×
WS EX 10Y	×
Ground	■
LOB	- - -
ROB	- · - · -







NM111 OUTPUT REPORT.TXT

HEC-RAS Version 4.1.0 Jan 2010
U.S. Army Corps of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

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X      X  XXXXXXX  XXXX      XXXX      XX      XXXX
X      X  X        X      X      X      X      X
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PROJECT DATA

Project Title: NM111
Project File : NM111.prj

Project in English units

PLAN DATA

Plan Title: NM111
Plan File : K:\2014PROJECTS\COE_MDP_TEDSI\MODEL\APPENDIX C -
HYDRAULICS\NM111\NM111.p01

Geometry Title: NM111
Geometry File : K:\2014PROJECTS\COE_MDP_TEDSI\MODEL\APPENDIX C -
HYDRAULICS\NM111\NM111.g01

Flow Title : NM111 FLOW
Flow File : K:\2014PROJECTS\COE_MDP_TEDSI\MODEL\APPENDIX C -
HYDRAULICS\NM111\NM111.f01

Plan Summary Information:

Number of: Cross Sections	=	10	Multiple Openings	=	0
Culverts	=	0	Inline Structures	=	0
Bridges	=	0	Lateral Structures	=	0

Computational Information

Water surface calculation tolerance	=	0.01
Critical depth calculation tolerance	=	0.01
Maximum number of iterations	=	20
Maximum difference tolerance	=	0.3
Flow tolerance factor	=	0.001

Computation Options

Critical depth computed only where necessary
Conveyance Calculation Method: At breaks in n values only
Friction Slope Method: Average Conveyance
Computational Flow Regime: Subcritical Flow

NM111 OUTPUT REPORT.TXT

FLOW DATA

Flow Title: NM111 FLOW
 Flow File : K:\2014PROJECTS\COE_MDP_TEDSI\MODEL\APPENDIX C -
 HYDRAULICS\NM111\NM111.f01

Flow Data (cfs)

River EX 100Y	Reach ULT 10Y	RS ULT 25Y	EX 10Y ULT 100Y	EX 25Y
N-NM-111 82	NM-111 50	5264 60	43 90	55
N-NM-111 174	NM-111 90	2854 120	90 180	115
N-NM-111 236	NM-111 130	669 160	121 240	155

Boundary Conditions

River Downstream	Reach	Profile	Upstream
N-NM-111 Normal S = 0.0005	NM-111	EX 10Y	
N-NM-111 Normal S = 0.0005	NM-111	EX 25Y	
N-NM-111 Normal S = 0.0005	NM-111	EX 100Y	
N-NM-111 Normal S = 0.0005	NM-111	ULT 10Y	

GEOMETRY DATA

Geometry Title: NM111
 Geometry File : K:\2014PROJECTS\COE_MDP_TEDSI\MODEL\APPENDIX C -
 HYDRAULICS\NM111\NM111.g01

CROSS SECTION

RIVER: N-NM-111
 REACH: NM-111 RS: 5264

INPUT

Description:

Station	Elevation	Data	num=	222	Sta	Elev	Sta	Elev	Sta	Elev
0	101.01	29.99	100.85	34.99	100.96	39.99	100.8	69.99	100.67	
99.98	100.84	119.97	100.67	129.97	101.02	134.97	101.49	139.97	101.64	
164.96	101.14	174.96	101.29	194.96	101.11	209.96	101.28	224.95	101.18	
234.95	101.31	269.94	101.08	274.94	101.18	279.94	100.94	289.94	100.73	
294.94	100.4	304.94	100.4	314.93	100.82	349.93	101.05	359.92	101.28	
379.92	101.09	389.92	100.72	404.91	100.84	409.91	100.74	424.91	100.94	
434.91	100.75	439.91	100.34	459.9	100.05	479.9	100.09	489.9	100.35	

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499.89	100.29	524.89	100.52	529.89	100.21	534.89	99.62	544.88	99.21
549.88	98.77	559.88	98.32	564.88	98.48	569.88	98.96	574.88	98.85
579.88	98.44	589.87	97.94	594.87	98.01	599.87	98.57	604.87	99.63
609.87	100.46	614.87	100.77	624.87	100.68	634.86	99.18	639.86	98.94
644.86	98.2	649.86	97.94	659.86	98.08	664.86	98.54	674.86	98.86
679.85	98.77	684.85	97.9	689.85	97.4	694.85	97.48	699.85	97.84
709.85	98.11	714.85	97.83	734.84	98.2	744.84	98.22	754.84	97.87
769.84	97.74	809.83	97.94	829.82	97.74	834.82	97.56	859.82	97.85
874.81	97.93	879.81	98.96	884.81	99.7	904.81	98.83	909.8	98.92
924.8	98.66	929.8	98.1	934.8	97.77	944.8	97.99	954.79	97.93
964.79	98.42	969.79	98.51	989.79	97.79	994.79	98.02	999.79	98.01
1004.78	98.26	1009.78	99.32	1014.78	99.84	1024.78	99.52	1029.78	99.1
1034.78	98.36	1039.78	97.96	1054.77	97.91	1059.77	97.54	1064.77	97.72
1074.77	97.73	1089.77	97.24	1099.76	97.81	1114.76	97.48	1119.76	97.53
1124.76	97.31	1129.76	97.32	1139.76	97.77	1154.75	97.42	1159.75	96.88
1164.75	96.78	1169.75	96.95	1174.75	96.86	1184.75	97.41	1194.74	97.29
1199.74	97.69	1204.74	97.28	1219.74	97.2	1224.74	97.6	1229.74	97.29
1234.74	97.69	1239.73	97.87	1244.73	98.53	1254.73	98.14	1259.73	98.1
1260.71	97.84	1264.73	96.77	1269.73	92.92	1274.73	90.38	1279.73	89.85
1284.72	90.15	1289.72	93.02	1290.71	93.69	1294.72	96.41	1299.72	97.54
1309.72	97.73	1324.72	97.49	1329.72	97.93	1334.71	97.9	1339.71	97.56
1354.71	97.43	1364.71	97.64	1384.7	97.44	1399.7	97.57	1414.7	97.43
1419.7	97.52	1429.69	96.88	1454.69	97	1469.69	97.26	1479.68	97.09
1484.68	97.24	1489.68	97.64	1509.68	97.52	1534.67	98	1549.67	97.72
1564.67	97.89	1584.66	97.76	1594.66	98.17	1604.66	98.29	1609.66	98
1634.65	97.59	1674.64	98.01	1689.64	97.61	1694.64	97.71	1704.64	97.26
1799.62	96.98	1839.61	97.47	1849.61	97.23	1864.6	97.08	1869.6	97.24
1894.6	97.29	1909.59	96.98	1929.59	96.99	1934.59	96.72	1964.58	96.47
1979.58	96.59	1989.58	97.09	2024.57	96.75	2029.57	96.55	2044.57	96.51
2069.56	96.72	2089.56	96.59	2099.55	96.94	2109.55	96.95	2124.55	96.69
2144.55	97.03	2174.54	96.99	2184.54	96.81	2204.53	97.28	2229.53	96.98
2234.53	97.12	2264.52	97.05	2269.52	96.9	2279.52	96.95	2284.52	96.77
2299.51	96.96	2309.51	96.86	2319.51	97.17	2324.51	97.15	2329.51	96.88
2349.5	96.92	2384.5	96.59	2414.49	96.71	2419.49	96.95	2429.49	96.9
2439.49	97.31	2459.48	97.11	2469.48	96.56	2489.48	97.06	2499.47	96.78
2514.47	96.67	2524.47	96.94	2534.47	96.76	2559.46	97.28	2569.46	97.92
2574.46	97.97	2594.45	97.15	2609.45	97.4	2619.45	97.07	2644.44	97.13
2649.44	97.4	2654.44	97.28						

Manning's n Values num= 3
 Sta n Val Sta n Val
 0 .06 1260.71 .045 1299.72 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 1260.71 1299.72 543 543 543 .1 .3
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 1260.71 97.84 F
 1299.72 2654.44 97.54 F

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	94.04	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.045
w.s. Elev (ft)	94.03	Reach Len. (ft)	543.00	543.00
543.00 Crit w.s. (ft)	90.88	Flow Area (sq ft)		65.47
E.G. slope (ft/ft)	0.000110	Area (sq ft)		65.47

NM111 OUTPUT REPORT.TXT			
Q Total (cfs)	43.00	Flow (cfs)	43.00
Top width (ft)	22.94	Top width (ft)	22.94
Vel Total (ft/s)	0.66	Avg. Vel. (ft/s)	0.66
Max Chl Dpth (ft)	4.18	Hydr. Depth (ft)	2.85
Conv. Total (cfs)	4103.3	Conv. (cfs)	4103.3
Length wtd. (ft)	543.00	wetted Per. (ft)	25.04
Min Ch El (ft)	89.85	Shear (lb/sq ft)	0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	2654.44
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)	7.33
C & E Loss (ft)	0.00	Cum SA (acres)	3.15

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	94.45	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	94.44	Reach Len. (ft)	543.00	543.00
543.00 Crit W.S. (ft)	91.02	Flow Area (sq ft)		75.10
E.G. Slope (ft/ft)	0.000122	Area (sq ft)		75.10
Q Total (cfs)	55.00	Flow (cfs)		55.00
Top width (ft)	24.07	Top width (ft)		24.07
Vel Total (ft/s)	0.73	Avg. Vel. (ft/s)		0.73
Max Chl Dpth (ft)	4.59	Hydr. Depth (ft)		3.12
Conv. Total (cfs)	4974.2	Conv. (cfs)		4974.2
Length wtd. (ft)	543.00	wetted Per. (ft)		26.44
Min Ch El (ft)	89.85	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	2654.44	0.00
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)		8.67
C & E Loss (ft)	0.00	Cum SA (acres)		3.32

Note: Multiple critical depths were found at this location. The critical depth
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NM111 OUTPUT REPORT.TXT

with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	95.28	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	95.27	Reach Len. (ft)	543.00	543.00
543.00 Crit w.s. (ft)	91.29	Flow Area (sq ft)		95.94
E.G. Slope (ft/ft)	0.000138	Area (sq ft)		95.94
Q Total (cfs)	82.00	Flow (cfs)		82.00
Top width (ft)	26.36	Top width (ft)		26.36
Vel Total (ft/s)	0.85	Avg. Vel. (ft/s)		0.85
Max chl Dpth (ft)	5.42	Hydr. Depth (ft)		3.64
Conv. Total (cfs)	6991.5	Conv. (cfs)		6991.5
Length wtd. (ft)	543.00	wetted Per. (ft)		29.27
Min Ch El (ft)	89.85	Shear (lb/sq ft)		0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	2654.44	0.00
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)		11.69
C & E Loss (ft)	0.00	Cum SA (acres)		3.69

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	94.15	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	94.14	Reach Len. (ft)	543.00	543.00
543.00 Crit w.s. (ft)	90.96	Flow Area (sq ft)		67.83
E.G. Slope (ft/ft)	0.000134	Area (sq ft)		67.83
Q Total (cfs)	50.00	Flow (cfs)		50.00
Top width (ft)	23.22	Top width (ft)		23.22
Vel Total (ft/s)	0.74	Avg. Vel. (ft/s)		0.74
Max chl Dpth (ft)	4.29	Hydr. Depth (ft)		2.92
Conv. Total (cfs)	4312.5	Conv. (cfs)		4312.5

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Length Wtd. (ft)	543.00	Wetted Per. (ft)	25.39
Min Ch El (ft)	89.85	Shear (lb/sq ft)	0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	2654.44
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)	7.53
C & E Loss (ft)	0.00	Cum SA (acres)	3.20

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	94.56	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	94.55	Reach Len. (ft)	543.00	543.00
543.00 Crit W.S. (ft)	91.07	Flow Area (sq ft)		77.63
E.G. Slope (ft/ft)	0.000133	Area (sq ft)		77.63
Q Total (cfs)	60.00	Flow (cfs)		60.00
Top width (ft)	24.36	Top width (ft)		24.36
Vel Total (ft/s)	0.77	Avg. Vel. (ft/s)		0.77
Max Chl Dpth (ft)	4.70	Hydr. Depth (ft)		3.19
Conv. Total (cfs)	5209.1	Conv. (cfs)		5209.1
Length Wtd. (ft)	543.00	Wetted Per. (ft)		26.80
Min Ch El (ft)	89.85	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	2654.44	0.00
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)		8.93
C & E Loss (ft)	0.00	Cum SA (acres)		3.35

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	95.39	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.045

NM111 OUTPUT REPORT.TXT			
W.S. Elev (ft)	95.38	Reach Len. (ft)	543.00
543.00			
Crit W.S. (ft)	91.36	Flow Area (sq ft)	98.85
E.G. slope (ft/ft)	0.000153	Area (sq ft)	98.85
Q Total (cfs)	90.00	Flow (cfs)	90.00
Top width (ft)	26.67	Top width (ft)	26.67
Vel Total (ft/s)	0.91	Avg. Vel. (ft/s)	0.91
Max chl Dpth (ft)	5.53	Hydr. Depth (ft)	3.71
Conv. Total (cfs)	7285.5	Conv. (cfs)	7285.5
Length wtd. (ft)	543.00	wetted Per. (ft)	29.64
Min ch El (ft)	89.85	shear (lb/sq ft)	0.03
Alpha	1.00	Stream Power (lb/ft s)	2654.44
0.00			
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)	11.94
0.00			
C & E Loss (ft)	0.00	Cum SA (acres)	3.71
0.01			

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-111
 REACH: NM-111 RS: 4720

INPUT

Description:

Station	Elevation	Data	num=	212	Station	Elevation	Station	Elevation	Station	Elevation
0	103.06	5	103.35	10	103.37	15	102.99	20	103.11	
24.99	102.97	29.99	102.35	34.99	102.27	44.99	101.39	54.99	101.31	
59.99	101.54	64.99	101.43	74.98	101.98	79.98	101.33	84.98	100.89	
99.98	100.42	104.98	100.1	114.98	100.23	124.97	100.1	169.96	100.24	
174.96	100.41	199.96	100.58	209.96	100.48	224.95	100.07	239.95	100.28	
259.94	100.21	294.94	100.38	299.94	100.55	314.93	100.46	319.93	100.7	
334.93	100.42	344.93	100.59	349.93	100.27	359.92	100.32	369.92	99.68	
374.92	99.67	379.92	99.32	389.92	99.56	394.92	99.93	404.91	100.06	
424.91	100.69	439.91	100.49	449.9	100.11	459.9	100.11	479.9	100.62	
489.9	100.7	499.89	100.11	509.89	99.83	514.89	99.44	544.88	99.55	
579.88	99.12	589.87	98.69	619.87	98.88	629.87	99.31	639.86	99.44	
644.86	99.28	664.86	99.3	669.86	99.62	679.85	99.5	689.85	98.91	
699.85	98.97	704.85	99.18	724.84	99.03	734.84	99.21	754.84	99.04	
764.84	99.11	774.83	98.96	784.83	99.03	789.83	98.88	794.83	98.95	
804.83	98.75	809.83	98.44	814.83	98.66	824.82	98.6	829.82	98.39	
834.82	98.83	839.82	99	859.82	99.07	874.81	98.74	934.8	98.81	
954.79	98.63	964.79	99.24	974.79	98.59	1004.78	98.44	1009.78	98.55	
1019.78	98.33	1049.77	98.35	1059.77	98.21	1094.76	98.45	1099.76	98.6	
1129.76	98.4	1144.75	98.49	1154.75	98.26	1194.74	98.32	1209.74	98.2	
1224.74	98.37	1229.74	98.74	1244.73	98.95	1249.73	98.49	1254.73	98.37	
1264.73	98.6	1274.73	99.39	1279.73	99.61	1294.72	99.58	1299.72	98.57	

NM111 OUTPUT REPORT.TXT

1302.15	96.91	1304.72	95.14	1309.72	93.41	1314.72	91.23	1319.72	89.78
1324.72	90.8	1329.72	91.57	1332.15	92.85	1334.71	94.2	1339.71	97.55
1344.71	98.61	1354.71	98.56	1359.71	98.21	1364.71	97.64	1369.71	97.37
1379.71	97.31	1394.7	97.83	1409.7	97.56	1424.7	97.78	1464.69	97.79
1474.69	97.38	1484.68	97.21	1494.68	96.67	1499.68	95.91	1504.68	95.85
1509.68	95.38	1514.68	95.57	1529.67	95.65	1534.67	95.49	1539.67	96.11
1544.67	96.17	1549.67	96.77	1564.67	97.42	1574.66	97.57	1579.66	97.36
1599.66	97.56	1619.65	97.42	1659.65	97.6	1664.65	97.8	1674.64	97.42
1679.64	97.55	1699.64	97.2	1709.64	97.57	1764.62	97.5	1774.62	96.98
1789.62	96.54	1799.62	95.79	1809.62	95.56	1819.61	95.56	1824.61	95.28
1829.61	95.39	1839.61	96.29	1849.61	96.65	1864.6	97.57	1874.6	97.67
1879.6	97.43	1919.59	97.67	1934.59	97.61	1944.59	97.42	1954.59	97.57
1959.58	97.27	1964.58	97.54	1974.58	97.49	1979.58	97.27	1989.58	97.69
1994.58	97.71	1999.58	97.37	2009.57	97.41	2014.57	98.03	2019.57	98.12
2029.57	97.46	2069.56	97.98	2094.56	97.78	2104.55	97.31	2129.55	97.4
2144.55	97.15	2154.54	97.85	2179.54	97.19	2189.54	97.18	2199.53	97.5
2209.53	97.21	2224.53	97.72	2234.53	97.73	2244.53	97.54	2259.52	97.67
2289.52	97.45	2294.52	97.68	2304.51	97.52	2314.51	97.66	2329.51	97.62
2334.51	97.77	2374.5	97.61	2404.49	97.12	2409.49	97.41	2414.49	97.46
2419.49	97.26	2459.48	97.57	2474.48	97.22	2504.47	97.09	2519.47	97.42
2554.46	97.24	2564.46	96.95	2594.45	96.96	2609.45	97.12	2624.45	96.44
2639.45	96.86	2654.44	96.57						

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 1299.72 .045 1339.71 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 1299.72 1339.71 632 632 631 .1 .3
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 1299.72 98.57 F
 1339.71 2654.44 97.55 F

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	93.97	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	wt. n-val.		0.045
w.s. Elev (ft)	93.97	Reach Len. (ft)	632.00	632.00
631.00				
Crit w.s. (ft)	91.24	Flow Area (sq ft)		63.76
E.G. slope (ft/ft)	0.000137	Area (sq ft)		63.76
Q Total (cfs)	43.00	Flow (cfs)		43.00
Top width (ft)	26.16	Top width (ft)		26.16
Vel Total (ft/s)	0.67	Avg. vel. (ft/s)		0.67
Max Chl Dpth (ft)	4.19	Hydr. Depth (ft)		2.44
Conv. Total (cfs)	3673.2	Conv. (cfs)		3673.2
Length wtd. (ft)	632.00	wetted Per. (ft)		27.67
Min ch El (ft)	89.78	shear (lb/sq ft)		0.02
Alpha	1.00	Stream Power (lb/ft s)	2654.44	0.00
0.00				

	NM111 OUTPUT REPORT.TXT		
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)	6.52
C & E Loss (ft)	0.00	Cum SA (acres)	2.85

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	94.38	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-val.		0.045
W.S. Elev (ft)	94.37	Reach Len. (ft)	632.00	632.00
631.00 Crit w.s. (ft)	91.38	Flow Area (sq ft)		74.73
E.G. Slope (ft/ft)	0.000145	Area (sq ft)		74.73
Q Total (cfs)	55.00	Flow (cfs)		55.00
Top width (ft)	28.03	Top width (ft)		28.03
Vel Total (ft/s)	0.74	Avg. vel. (ft/s)		0.74
Max Chl Dpth (ft)	4.59	Hydr. Depth (ft)		2.67
Conv. Total (cfs)	4563.0	Conv. (cfs)		4563.0
Length wtd. (ft)	632.00	wetted Per. (ft)		29.72
Min Ch El (ft)	89.78	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	2654.44	0.00
Frctn Loss (ft)	0.13	Cum volume (acre-ft)		7.74
C & E Loss (ft)	0.00	Cum SA (acres)		3.00

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	95.20	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-val.		0.045
W.S. Elev (ft)	95.19	Reach Len. (ft)	632.00	632.00

NM111 OUTPUT REPORT.TXT

631.00				
Crit w.s. (ft)	91.65	Flow Area (sq ft)		99.24
E.G. slope (ft/ft)	0.000148	Area (sq ft)		99.24
Q Total (cfs)	82.00	Flow (cfs)		82.00
Top width (ft)	31.55	Top width (ft)		31.55
Vel Total (ft/s)	0.83	Avg. vel. (ft/s)		0.83
Max Chl Dpth (ft)	5.41	Hydr. Depth (ft)		3.15
Conv. Total (cfs)	6740.9	Conv. (cfs)		6740.9
Length wtd. (ft)	632.00	wetted Per. (ft)		33.63
Min Ch El (ft)	89.78	Shear (lb/sq ft)		0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	2654.44	0.00
Frctn Loss (ft)	0.13	Cum volume (acre-ft)		10.47
C & E Loss (ft)	0.00	Cum SA (acres)		3.33

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	94.06	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-val.		0.045
w.s. Elev (ft)	94.05	Reach Len. (ft)	632.00	632.00
631.00 Crit w.s. (ft)	91.33	Flow Area (sq ft)		66.06
E.G. slope (ft/ft)	0.000168	Area (sq ft)		66.06
Q Total (cfs)	50.00	Flow (cfs)		50.00
Top width (ft)	26.58	Top width (ft)		26.58
Vel Total (ft/s)	0.76	Avg. vel. (ft/s)		0.76
Max Chl Dpth (ft)	4.27	Hydr. Depth (ft)		2.49
Conv. Total (cfs)	3854.3	Conv. (cfs)		3854.3
Length wtd. (ft)	632.00	wetted Per. (ft)		28.12
Min Ch El (ft)	89.78	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	2654.44	0.00

	NM111 OUTPUT REPORT.TXT		
Frctn Loss (ft)	0.16	Cum Volume (acre-ft)	6.70
C & E Loss (ft)	0.00	Cum SA (acres)	2.89

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	94.48	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-val.		0.045
W.S. Elev (ft)	94.47	Reach Len. (ft)	632.00	632.00
631.00 Crit w.s. (ft)	91.44	Flow Area (sq ft)		77.51
E.G. slope (ft/ft)	0.000156	Area (sq ft)		77.51
Q Total (cfs)	60.00	Flow (cfs)		60.00
Top width (ft)	28.46	Top width (ft)		28.46
vel Total (ft/s)	0.77	Avg. vel. (ft/s)		0.77
Max chl Dpth (ft)	4.69	Hydr. Depth (ft)		2.72
Conv. Total (cfs)	4798.1	Conv. (cfs)		4798.1
Length wtd. (ft)	632.00	wetted Per. (ft)		30.19
Min Ch El (ft)	89.78	Shear (lb/sq ft)		0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	2654.44	0.00
Frctn Loss (ft)	0.14	Cum volume (acre-ft)		7.96
C & E Loss (ft)	0.00	Cum SA (acres)		3.02

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	95.31	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-val.		0.045
W.S. Elev (ft)	95.30	Reach Len. (ft)	632.00	632.00

NM111 OUTPUT REPORT.TXT

631.00					
Crit w.s. (ft)	91.71	Flow Area (sq ft)		102.46	
E.G. Slope (ft/ft)	0.000163	Area (sq ft)		102.46	
0.01					
Q Total (cfs)	90.00	Flow (cfs)		90.00	
Top width (ft)	32.83	Top width (ft)		31.85	
0.98					
Vel Total (ft/s)	0.88	Avg. vel. (ft/s)		0.88	
Max Chl Dpth (ft)	5.52	Hydr. Depth (ft)		3.22	
Conv. Total (cfs)	7058.6	Conv. (cfs)		7058.6	
Length wtd. (ft)	632.00	wetted Per. (ft)		34.00	
Min Ch El (ft)	89.78	Shear (lb/sq ft)		0.03	
Alpha	1.00	Stream Power (lb/ft s)	2654.44	0.00	
0.00					
Frctn Loss (ft)	0.14	Cum volume (acre-ft)		10.68	
0.00					
C & E Loss (ft)	0.00	Cum SA (acres)		3.35	
0.01					

Warning: Divided flow computed for this cross-section.
 Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.
 Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-111
 REACH: NM-111 RS: 4089

INPUT

Description:

Station	Elevation	Data	num=	165							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	102.52	44.99	102.61	69.99	102.35	74.99	102.57	104.98	102.23		
114.98	102.33	134.98	102	159.98	102.28	164.98	102.04	189.97	101.9		
199.97	101.5	209.97	101.57	214.97	101.42	219.97	100.27	224.97	99.67		
229.97	99.61	234.96	100.24	239.96	100.48	249.96	100	254.96	100		
269.96	100.76	284.96	100.97	339.95	100.97	349.95	101.1	359.95	100.66		
369.94	100.37	379.94	99.77	414.94	99.41	429.93	99.81	449.93	99.91		
459.93	100.2	509.92	99.74	519.92	99.89	544.92	99.6	549.92	99.35		
579.91	99.13	584.91	99.4	599.91	99.63	604.91	99.88	634.9	99.39		
659.9	99.46	669.9	99.63	679.9	99.51	689.9	99.15	694.9	99.28		
714.89	99.28	749.89	99.8	764.88	99.49	774.88	99.5	784.88	99.23		
794.88	99.21	799.88	99.41	804.88	99.11	809.88	99.48	814.88	99.45		
819.88	98.98	854.87	98.87	864.87	99.09	904.86	98.97	914.86	99.29		
924.86	99.37	929.86	99.21	944.86	99.18	949.86	99.01	1034.84	99.16		
1044.84	98.92	1079.84	99.13	1089.84	98.75	1119.83	98.72	1124.83	98.93		
1129.83	98.62	1144.83	98.65	1154.83	99.13	1169.82	99.03	1179.82	98.38		
1182.32	96.5	1184.82	94.61	1189.82	94.43	1194.82	90.99	1199.82	91.13		
1204.82	91.7	1209.82	91.73	1212.32	93.18	1214.82	94.63	1219.82	98.27		
1224.82	99.61	1229.81	99.75	1234.81	99.63	1244.81	98.99	1259.81	98.67		

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1264.81	98.8	1279.81	98.59	1289.81	98.87	1294.8	98.79	1299.8	99.04
1324.8	98.78	1364.79	99.07	1369.79	98.91	1374.79	98.37	1379.79	98.05
1389.79	97.78	1399.79	97.93	1414.79	97.74	1434.78	98.43	1459.78	98.36
1469.78	98.49	1479.78	98.84	1519.77	98.56	1524.77	98.71	1529.77	98.36
1539.77	98.16	1554.76	98.24	1559.76	98.53	1569.76	98.35	1584.76	98.56
1609.76	98.42	1649.75	98.48	1659.75	98.29	1664.75	98.42	1684.74	98.15
1689.74	97.89	1699.74	97.96	1709.74	97.77	1714.74	97.85	1719.74	98.21
1729.74	98.54	1739.74	99.04	1759.73	98.99	1774.73	98.77	1814.72	98.95
1819.72	98.74	1839.72	98.77	1849.72	98.39	1854.72	98.36	1859.72	98.09
1899.71	98.69	1904.71	99	1909.71	98.92	1954.7	99.28	1974.7	98.95
1989.7	98.94	2009.69	98.69	2024.69	98.69	2034.69	98.06	2054.69	98.1
2064.69	97.9	2079.68	98.16	2089.68	97.93	2119.68	97.77	2134.68	98.13
2139.67	98.49	2144.67	98.1	2164.67	98.05	2184.67	98.62	2209.66	98.85
2244.66	98.73	2259.66	97.81	2269.65	97.8	2274.65	98.09	2289.65	98.38
2334.64	98.78	2359.64	98.13	2374.64	98.15	2389.64	97.87	2394.63	97.91

Manning's n Values num= 3
 Sta n Val Sta n Val
 0 .06 1179.82 .045 1219.82 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 1179.82 1219.82 227 228 230 .1 .3
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 1179.82 98.38 F
 1219.82 2394.63 98.27 F

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	93.85	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-val.		0.045
W.S. Elev (ft)	93.83	Reach Len. (ft)	227.00	228.00
230.00 Crit w.s. (ft)	92.00	Flow Area (sq ft)		46.21
E.G. Slope (ft/ft)	0.000336	Area (sq ft)		46.21
Q Total (cfs)	43.00	Flow (cfs)		43.00
Top width (ft)	22.76	Top width (ft)		22.76
Vel Total (ft/s)	0.93	Avg. Vel. (ft/s)		0.93
Max Chl Dpth (ft)	2.84	Hydr. Depth (ft)		2.03
Conv. Total (cfs)	2346.1	Conv. (cfs)		2346.1
Length wtd. (ft)	228.00	wetted Per. (ft)		24.24
Min Ch El (ft)	90.99	Shear (lb/sq ft)		0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	2394.63	0.00
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)		5.72
C & E Loss (ft)	0.00	Cum SA (acres)		2.49

NM111 OUTPUT REPORT.TXT

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	94.25	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-Val.		0.045
W.S. Elev (ft)	94.23	Reach Len. (ft)	227.00	228.00
230.00 Crit w.s. (ft)	92.11	Flow Area (sq ft)		55.61
E.G. Slope (ft/ft)	0.000321	Area (sq ft)		55.61
Q Total (cfs)	55.00	Flow (cfs)		55.00
Top width (ft)	24.03	Top width (ft)		24.03
Vel Total (ft/s)	0.99	Avg. Vel. (ft/s)		0.99
Max Ch1 Dpth (ft)	3.24	Hydr. Depth (ft)		2.31
Conv. Total (cfs)	3067.8	Conv. (cfs)		3067.8
Length wtd. (ft)	228.00	wetted Per. (ft)		25.75
Min Ch El (ft)	90.99	Shear (lb/sq ft)		0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	2394.63	0.00
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)		6.80
C & E Loss (ft)	0.00	Cum SA (acres)		2.62

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	95.07	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-Val.		0.045
W.S. Elev (ft)	95.06	Reach Len. (ft)	227.00	228.00
230.00 Crit w.s. (ft)	92.32	Flow Area (sq ft)		78.92
E.G. Slope (ft/ft)	0.000314	Area (sq ft)		78.92
Q Total (cfs)	82.00	Flow (cfs)		82.00
Top width (ft)	31.17	Top width (ft)		31.17
Vel Total (ft/s)	1.04	Avg. Vel. (ft/s)		1.04
Max Ch1 Dpth (ft)	4.07	Hydr. Depth (ft)		2.53

NM111 OUTPUT REPORT.TXT				
Conv. Total (cfs)	4627.8	Conv. (cfs)		4627.8
Length wtd. (ft)	228.00	Wetted Per. (ft)		33.35
Min Ch El (ft)	90.99	Shear (lb/sq ft)		0.05
Alpha 0.00	1.00	Stream Power (lb/ft s)	2394.63	0.00
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)		9.18
C & E Loss (ft)	0.00	Cum SA (acres)		2.87

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	93.90	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-Val.		0.045
W.S. Elev (ft)	93.89	Reach Len. (ft)	227.00	228.00
230.00 Crit w.s. (ft)	92.06	Flow Area (sq ft)		47.46
E.G. Slope (ft/ft)	0.000420	Area (sq ft)		47.46
Q Total (cfs)	50.00	Flow (cfs)		50.00
Top width (ft)	22.93	Top width (ft)		22.93
Vel Total (ft/s)	1.05	Avg. Vel. (ft/s)		1.05
Max Chl Dpth (ft)	2.90	Hydr. Depth (ft)		2.07
Conv. Total (cfs)	2438.7	Conv. (cfs)		2438.7
Length wtd. (ft)	228.00	wetted Per. (ft)		24.44
Min Ch El (ft)	90.99	Shear (lb/sq ft)		0.05
Alpha 0.00	1.00	Stream Power (lb/ft s)	2394.63	0.00
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)		5.88
C & E Loss (ft)	0.00	Cum SA (acres)		2.53

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	94.34	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-Val.		0.045

NM111 OUTPUT REPORT.TXT

W.S. Elev (ft)	94.32	Reach Len. (ft)	227.00	228.00
230.00 Crit w.s. (ft)	92.15	Flow Area (sq ft)		57.73
E.G. Slope (ft/ft)	0.000343	Area (sq ft)		57.73
Q Total (cfs)	60.00	Flow (cfs)		60.00
Top width (ft)	24.31	Top width (ft)		24.31
Vel Total (ft/s)	1.04	Avg. Vel. (ft/s)		1.04
Max Chl Dpth (ft)	3.33	Hydr. Depth (ft)		2.37
Conv. Total (cfs)	3238.4	Conv. (cfs)		3238.4
Length wtd. (ft)	228.00	wetted Per. (ft)		26.08
Min Ch El (ft)	90.99	Shear (lb/sq ft)		0.05
Alpha 0.00	1.00	Stream Power (lb/ft s)	2394.63	0.00
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)		6.98
C & E Loss (ft)	0.00	Cum SA (acres)		2.64

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	95.16	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-val.		0.045
W.S. Elev (ft)	95.14	Reach Len. (ft)	227.00	228.00
230.00 Crit w.s. (ft)	92.38	Flow Area (sq ft)		81.69
E.G. Slope (ft/ft)	0.000341	Area (sq ft)		81.69
Q Total (cfs)	90.00	Flow (cfs)		90.00
Top width (ft)	31.41	Top width (ft)		31.41
Vel Total (ft/s)	1.10	Avg. Vel. (ft/s)		1.10
Max Chl Dpth (ft)	4.15	Hydr. Depth (ft)		2.60
Conv. Total (cfs)	4872.6	Conv. (cfs)		4872.6
Length wtd. (ft)	228.00	wetted Per. (ft)		33.65
Min Ch El (ft)	90.99	Shear (lb/sq ft)		0.05
Alpha 0.00	1.00	Stream Power (lb/ft s)	2394.63	0.00
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)		9.35

NM111 OUTPUT REPORT.TXT

C & E Loss (ft) 0.00 Cum SA (acres) 2.89

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-111
 REACH: NM-111 RS: 3860

INPUT

Description:

Station Elevation Data		num= 129	
Sta	Elev	Sta	Elev
0	99.44	5	99.47
59.99	100.35	74.99	100.79
129.98	99.97	134.98	99.66
164.98	101.03	194.97	100.95
279.96	101.04	289.96	100.58
334.95	100.97	364.95	100.38
464.93	100.36	469.93	99.93
529.92	99.76	534.92	99.54
629.91	99.04	634.91	98.9
684.9	99.26	714.9	98.83
844.88	99.38	889.87	99.16
954.86	98.6	964.86	98.71
1049.85	99.15	1109.84	98.52
1139.83	98.89	1149.83	98.86
1169.83	92.62	1174.83	90.7
1194.82	95.76	1199.82	97.47
1234.82	97.47	1249.82	97.97
1379.8	98.54	1404.79	98.41
1529.78	98.43	1579.77	98.55
1609.76	97.2	1619.76	97.09
1654.76	97.6	1659.76	97.63
1834.73	98.28	1844.73	97.87
1914.72	98.26	1949.71	98.35
2039.7	98.27	2044.7	98.44
2209.67	98.35	2229.67	98.51
2314.66	98.35	2324.66	98

Manning's n Values		num= 3	
Sta	n Val	Sta	n Val
0	.06	1159.83	.045
		1199.82	.06

Bank Sta: Left 1159.83 Right 1199.82 Lengths: Left 1007 Channel 1007 Right 1007 Coeff Contr. .1 Expan. .3

Ineffective Flow		num= 2	
Sta L	Sta R	Elev	Permanent
0	1159.83	97.27	F
1199.82	2349.65	97.47	F

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft) 93.79 Element Left OB Channel
 Right OB
 Vel Head (ft) 0.01 wt. n-val. 0.045
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NM111 OUTPUT REPORT.TXT

W.S. Elev (ft)	93.78	Reach Len. (ft)	1007.00	1007.00
1007.00 Crit w.s. (ft)	91.23	Flow Area (sq ft)		61.46
E.G. Slope (ft/ft)	0.000171	Area (sq ft)		61.46
Q Total (cfs)	43.00	Flow (cfs)		43.00
Top width (ft)	28.15	Top width (ft)		28.15
Vel Total (ft/s)	0.70	Avg. Vel. (ft/s)		0.70
Max Chl Dpth (ft)	4.03	Hydr. Depth (ft)		2.18
Conv. Total (cfs)	3288.9	Conv. (cfs)		3288.9
Length wtd. (ft)	1007.00	wetted Per. (ft)		29.79
Min Ch El (ft)	89.75	Shear (lb/sq ft)		0.02
Alpha	1.00	Stream Power (lb/ft s)	2349.65	0.00
0.00 Frctn Loss (ft)	0.51	Cum Volume (acre-ft)		5.44
C & E Loss (ft)	0.01	Cum SA (acres)		2.36

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	94.20	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-val.		0.045
W.S. Elev (ft)	94.19	Reach Len. (ft)	1007.00	1007.00
1007.00 Crit w.s. (ft)	91.39	Flow Area (sq ft)		73.03
E.G. Slope (ft/ft)	0.000167	Area (sq ft)		73.03
Q Total (cfs)	55.00	Flow (cfs)		55.00
Top width (ft)	29.16	Top width (ft)		29.16
Vel Total (ft/s)	0.75	Avg. Vel. (ft/s)		0.75
Max Chl Dpth (ft)	4.44	Hydr. Depth (ft)		2.50
Conv. Total (cfs)	4261.6	Conv. (cfs)		4261.6
Length wtd. (ft)	1007.00	wetted Per. (ft)		31.09
Min Ch El (ft)	89.75	Shear (lb/sq ft)		0.02
Alpha	1.00	Stream Power (lb/ft s)	2349.65	0.00
0.00 Frctn Loss (ft)	0.52	Cum Volume (acre-ft)		6.46

NM111 OUTPUT REPORT.TXT

C & E Loss (ft) 0.01 Cum SA (acres) 2.48

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	95.02	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	95.01	Reach Len. (ft)	1007.00	1007.00
1007.00 Crit w.s. (ft)	91.74	Flow Area (sq ft)		97.92
E.G. slope (ft/ft)	0.000155	Area (sq ft)		97.92
Q Total (cfs)	82.00	Flow (cfs)		82.00
Top width (ft)	31.24	Top width (ft)		31.24
Vel Total (ft/s)	0.84	Avg. Vel. (ft/s)		0.84
Max Chl Dpth (ft)	5.26	Hydr. Depth (ft)		3.13
Conv. Total (cfs)	6578.1	Conv. (cfs)		6578.1
Length wtd. (ft)	1007.00	wetted Per. (ft)		33.74
Min Ch El (ft)	89.75	Shear (lb/sq ft)		0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	2349.65	0.00
Frctn Loss (ft)	0.51	Cum Volume (acre-ft)		8.72
C & E Loss (ft)	0.01	Cum SA (acres)		2.71

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	93.83	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	93.82	Reach Len. (ft)	1007.00	1007.00
1007.00 Crit w.s. (ft)	91.32	Flow Area (sq ft)		62.63
E.G. slope (ft/ft)	0.000218	Area (sq ft)		62.63
Q Total (cfs)	50.00	Flow (cfs)		50.00

NM111 OUTPUT REPORT.TXT				
Top width (ft)	28.25	Top width (ft)		28.25
Vel Total (ft/s)	0.80	Avg. Vel. (ft/s)		0.80
Max Chl Dpth (ft)	4.07	Hydr. Depth (ft)		2.22
Conv. Total (cfs)	3383.7	Conv. (cfs)		3383.7
Length wtd. (ft)	1007.00	wetted Per. (ft)		29.92
Min Ch El (ft)	89.75	Shear (lb/sq ft)		0.03
Alpha	1.00	Stream Power (lb/ft s)	2349.65	0.00
0.00				
Frctn Loss (ft)	0.55	Cum Volume (acre-ft)		5.59
C & E Loss (ft)	0.00	Cum SA (acres)		2.39

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

CROSS SECTION OUTPUT Profile #ULT 25Y				
E.G. Elev (ft)	94.28	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	94.27	Reach Len. (ft)	1007.00	1007.00
1007.00				
Crit w.s. (ft)	91.45	Flow Area (sq ft)		75.51
E.G. Slope (ft/ft)	0.000179	Area (sq ft)		75.51
Q Total (cfs)	60.00	Flow (cfs)		60.00
Top width (ft)	29.38	Top width (ft)		29.38
Vel Total (ft/s)	0.79	Avg. Vel. (ft/s)		0.79
Max Chl Dpth (ft)	4.52	Hydr. Depth (ft)		2.57
Conv. Total (cfs)	4479.3	Conv. (cfs)		4479.3
Length wtd. (ft)	1007.00	wetted Per. (ft)		31.36
Min Ch El (ft)	89.75	Shear (lb/sq ft)		0.03
Alpha	1.00	Stream Power (lb/ft s)	2349.65	0.00
0.00				
Frctn Loss (ft)	0.53	Cum Volume (acre-ft)		6.63
C & E Loss (ft)	0.01	Cum SA (acres)		2.50

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

NM111 OUTPUT REPORT.TXT

1004.85	99.11	1009.85	99.31	1049.85	99.22	1054.84	99.57	1069.84	99.25
1074.84	99.44	1084.84	99.02	1099.84	99.16	1119.84	98.95	1129.83	99.28
1134.83	99.7	1144.83	101.67	1154.83	102.07	1159.83	99.75	1164.83	94.95
1169.83	90.64	1174.83	89.96	1179.83	89.97	1184.83	92.01	1189.82	96.39
1194.82	97.56	1199.82	98.15	1204.82	98.3	1219.82	98.35	1229.82	98.83
1234.82	98.87	1239.82	99.32	1244.82	99.35	1249.82	99.11	1259.81	99.27
1269.81	98.58	1289.81	98.64	1299.81	99.13	1309.81	98.91	1364.8	99.55
1374.8	99.51	1384.8	99.19	1439.79	99.35	1444.79	99.19	1449.79	99.28
1464.78	98.99	1479.78	99.06	1504.78	98.71	1559.77	99.04	1564.77	99.21
1584.77	99.28	1649.76	98.95	1654.76	99.07	1694.75	98.47	1739.74	98.56
1749.74	98.72	1759.74	99.15	1794.74	99.35	1809.73	99.03	1829.73	99.02
1839.73	99.25	1849.73	99.16	1889.72	99.75	1899.72	99.74	1929.72	99.18
1944.71	99.01	1964.71	99.07	1989.71	99.56	1999.71	99.51	2009.7	98.95
2024.7	98.82	2029.7	99.25	2039.7	99.34	2049.7	99.18	2104.69	99.39
2134.69	99.12	2154.68	99.34	2194.68	98.44	2219.67	98.62	2234.67	98.93
2239.67	98.81	2244.67	99.16	2254.67	99.1	2269.67	98.53	2289.66	98.4
2304.66	98.11	2319.66	98.39	2329.66	98.15	2339.66	98.4	2349.65	98.11

Manning's n values num= 3
 Sta n Val Sta n Val
 0 .06 1159.83 .045 1199.82 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 1159.83 1199.82 738 746 733 .1 .3
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 1159.83 99.75 F
 1199.82 2349.65 98.15 F

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	93.27	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.06	wt. n-Val.		0.045
w.s. Elev (ft)	93.21	Reach Len. (ft)	738.00	746.00
733.00				
Crit w.s. (ft)	91.39	Flow Area (sq ft)		46.58
E.G. Slope (ft/ft)	0.001199	Area (sq ft)		46.58
Q Total (cfs)	90.00	Flow (cfs)		90.00
Top width (ft)	19.36	Top width (ft)		19.36
Vel Total (ft/s)	1.93	Avg. Vel. (ft/s)		1.93
Max Chl Dpth (ft)	3.25	Hydr. Depth (ft)		2.41
Conv. Total (cfs)	2599.0	Conv. (cfs)		2599.0
Length wtd. (ft)	746.00	wetted Per. (ft)		21.21
Min Ch El (ft)	89.96	Shear (lb/sq ft)		0.16
Alpha	1.00	Stream Power (lb/ft s)	2349.65	0.00
0.00				
Frctn Loss (ft)	0.31	Cum Volume (acre-ft)		4.19
C & E Loss (ft)	0.01	Cum SA (acres)		1.81

NM111 OUTPUT REPORT.TXT

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	93.67	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.07	wt. n-Val.		0.045
W.S. Elev (ft)	93.60	Reach Len. (ft)	738.00	746.00
733.00				
Crit w.s. (ft)	91.59	Flow Area (sq ft)		54.19
E.G. Slope (ft/ft)	0.001270	Area (sq ft)		54.19
Q Total (cfs)	115.00	Flow (cfs)		115.00
Top width (ft)	20.24	Top width (ft)		20.24
Vel Total (ft/s)	2.12	Avg. Vel. (ft/s)		2.12
Max Chl Dpth (ft)	3.64	Hydr. Depth (ft)		2.68
Conv. Total (cfs)	3226.8	Conv. (cfs)		3226.8
Length wtd. (ft)	746.00	wetted Per. (ft)		22.38
Min Ch El (ft)	89.96	Shear (lb/sq ft)		0.19
Alpha	1.00	Stream Power (lb/ft s)	2349.65	0.00
0.00				
Frctn Loss (ft)	0.32	Cum Volume (acre-ft)		4.99
C & E Loss (ft)	0.02	Cum SA (acres)		1.91

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	94.50	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.09	wt. n-Val.		0.045
W.S. Elev (ft)	94.41	Reach Len. (ft)	738.00	746.00
733.00				
Crit w.s. (ft)	92.02	Flow Area (sq ft)		71.35
E.G. Slope (ft/ft)	0.001337	Area (sq ft)		71.35

NM111 OUTPUT REPORT.TXT			
Q Total (cfs)	174.00	Flow (cfs)	174.00
Top width (ft)	22.10	Top width (ft)	22.10
Vel Total (ft/s)	2.44	Avg. Vel. (ft/s)	2.44
Max Chl Dpth (ft)	4.45	Hydr. Depth (ft)	3.23
Conv. Total (cfs)	4759.0	Conv. (cfs)	4759.0
Length wtd. (ft)	746.00	wetted Per. (ft)	24.85
Min Ch El (ft)	89.96	Shear (lb/sq ft)	0.24
Alpha 0.00	1.00	Stream Power (lb/ft s)	2349.65
Frctn Loss (ft)	0.32	Cum Volume (acre-ft)	6.76
C & E Loss (ft)	0.02	Cum SA (acres)	2.09

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	93.28	Element	Left OB	Channel
Right OB Vel Head (ft)	0.06	wt. n-Val.		0.045
w.s. Elev (ft)	93.23	Reach Len. (ft)	738.00	746.00
733.00 Crit w.s. (ft)	91.39	Flow Area (sq ft)		46.83
E.G. Slope (ft/ft)	0.001181	Area (sq ft)		46.83
Q Total (cfs)	90.00	Flow (cfs)		90.00
Top width (ft)	19.38	Top width (ft)		19.38
Vel Total (ft/s)	1.92	Avg. Vel. (ft/s)		1.92
Max Chl Dpth (ft)	3.27	Hydr. Depth (ft)		2.42
Conv. Total (cfs)	2618.8	Conv. (cfs)		2618.8
Length wtd. (ft)	746.00	wetted Per. (ft)		21.25
Min Ch El (ft)	89.96	Shear (lb/sq ft)		0.16
Alpha 0.00	1.00	Stream Power (lb/ft s)	2349.65	0.00
Frctn Loss (ft)	0.30	Cum Volume (acre-ft)		4.32
C & E Loss (ft)	0.01	Cum SA (acres)		1.84

NM111 OUTPUT REPORT.TXT

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	93.74	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.07	wt. n-Val.		0.045
W.S. Elev (ft)	93.67	Reach Len. (ft)	738.00	746.00
733.00				
Crit w.s. (ft)	91.64	Flow Area (sq ft)		55.60
E.G. Slope (ft/ft)	0.001286	Area (sq ft)		55.60
Q Total (cfs)	120.00	Flow (cfs)		120.00
Top width (ft)	20.40	Top width (ft)		20.40
Vel Total (ft/s)	2.16	Avg. Vel. (ft/s)		2.16
Max Chl Dpth (ft)	3.71	Hydr. Depth (ft)		2.73
Conv. Total (cfs)	3346.9	Conv. (cfs)		3346.9
Length wtd. (ft)	746.00	wetted Per. (ft)		22.59
Min Ch El (ft)	89.96	Shear (lb/sq ft)		0.20
Alpha	1.00	Stream Power (lb/ft s)	2349.65	0.00
0.00				
Frctn Loss (ft)	0.32	Cum Volume (acre-ft)		5.12
C & E Loss (ft)	0.02	Cum SA (acres)		1.92

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	94.56	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.10	wt. n-Val.		0.045
W.S. Elev (ft)	94.47	Reach Len. (ft)	738.00	746.00
733.00				
Crit w.s. (ft)	92.05	Flow Area (sq ft)		72.72
E.G. Slope (ft/ft)	0.001356	Area (sq ft)		72.72

NM111 OUTPUT REPORT.TXT

Q Total (cfs)	180.00	Flow (cfs)	180.00
Top width (ft)	22.24	Top width (ft)	22.24
Vel Total (ft/s)	2.48	Avg. Vel. (ft/s)	2.48
Max Chl Dpth (ft)	4.51	Hydr. Depth (ft)	3.27
Conv. Total (cfs)	4888.1	Conv. (cfs)	4888.1
Length wtd. (ft)	746.00	wetted Per. (ft)	25.04
Min ch El (ft)	89.96	shear (lb/sq ft)	0.25
Alpha 0.00	1.00	Stream Power (lb/ft s)	2349.65
Frctn Loss (ft)	0.32	Cum Volume (acre-ft)	6.87
C & E Loss (ft)	0.02	Cum SA (acres)	2.10

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-111

REACH: NM-111

RS: 2108

INPUT

Description:

Station Elevation Data		num=		142							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	98.38	10	98.33	25	98.54	59.99	98.28	99.99	98.39		
104.98	98.56	144.98	98.31	154.98	98.79	159.98	98.72	169.98	98.16		
189.97	98.59	234.97	98.44	239.97	98.59	269.96	98.62	274.96	98.8		
299.96	98.66	304.96	99.08	314.95	98.77	354.95	99	359.95	99.19		
364.95	99.15	369.95	98.87	374.95	98.82	404.94	99.29	409.94	98.83		
414.94	98.7	419.94	99.07	424.94	99.19	429.94	98.64	434.94	98.44		
444.94	98.37	449.93	98.1	469.93	98.37	534.92	97.88	549.92	98.08		
564.92	97.92	604.91	97.92	619.91	98.07	634.91	97.95	649.9	98.24		
669.9	98.13	674.9	97.89	684.9	97.81	694.9	97.49	779.89	97.92		
794.88	97.82	799.88	98	834.88	97.51	844.88	97.17	854.87	97.38		
864.87	97.22	869.87	97.4	884.87	97.47	904.87	97.18	919.86	97.72		
929.86	97.62	969.86	98.03	994.85	97.77	1004.85	98.1	1009.85	97.94		
1054.84	98.03	1064.84	97.67	1079.84	97.72	1089.84	97.96	1119.84	97.69		
1154.83	97.68	1159.83	97.4	1164.83	96.88	1174.83	96.22	1184.83	96.1		
1189.82	95.12	1194.76	92.03	1194.82	91.99	1199.82	91.64	1204.82	89.83		
1209.82	89.62	1214.82	89.34	1219.82	89.3	1224.77	89.23	1224.82	89.23		
1229.82	91.04	1234.82	92.3	1239.82	92.57	1244.82	94.54	1249.82	97.02		
1254.82	98.53	1264.81	98.5	1274.81	98.71	1284.81	98.6	1294.81	98.24		
1314.81	98.24	1344.8	97.76	1354.8	97.37	1359.8	96.87	1364.8	96.75		
1389.8	96.82	1394.79	97.02	1399.79	97.61	1459.79	98.65	1474.78	98.4		
1484.78	98.76	1514.78	98.98	1524.78	99.45	1534.77	98.93	1549.77	99.06		
1594.77	98.6	1599.76	98.71	1604.76	98.48	1614.76	97.25	1624.76	96.95		
1639.76	97.04	1644.76	97.37	1649.76	97.45	1654.76	97.83	1664.76	98.26		
1694.75	98.47	1724.75	99.33	1739.74	98.95	1754.74	99.11	1764.74	98.93		

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1804.73	99.05	1809.73	98.75	1854.73	98.94	1869.73	98.69	1889.72	98.98
1924.72	98.75	1934.72	98.43	1949.71	98.57	1984.71	98.08	1999.71	98.1
2019.7	97.76	2029.7	97.34	2049.7	97.26	2059.7	97.93	2069.7	97.45
2119.69	97.96	2134.69	97.86	2139.69	97.6	2164.68	97.31	2224.67	97.29
2274.66	97.59	2349.65	97.38						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	1184.83	.045	1254.82	.06

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	1184.83	1254.82		729	729	727		.1	.3
Ineffective Flow			num=	2					
Sta L	Sta R	Elev	Permanent						
0	1184.83	96.1	F						
1254.82	2349.65	98.53	F						

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	92.95	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	wt. n-Val.		0.045
w.s. Elev (ft)	92.94	Reach Len. (ft)	729.00	729.00
727.00				
Crit w.s. (ft)	90.27	Flow Area (sq ft)		110.31
E.G. Slope (ft/ft)	0.000205	Area (sq ft)		110.31
Q Total (cfs)	90.00	Flow (cfs)		90.00
Top width (ft)	47.46	Top width (ft)		47.46
Vel Total (ft/s)	0.82	Avg. Vel. (ft/s)		0.82
Max Chl Dpth (ft)	3.71	Hydr. Depth (ft)		2.32
Conv. Total (cfs)	6289.0	Conv. (cfs)		6289.0
Length wtd. (ft)	729.00	wetted Per. (ft)		48.62
Min Ch El (ft)	89.23	shear (lb/sq ft)		0.03
Alpha	1.00	Stream Power (lb/ft s)	2349.65	0.00
0.00				
Frctn Loss (ft)	0.49	Cum Volume (acre-ft)		2.85
C & E Loss (ft)	0.04	Cum SA (acres)		1.24

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	93.33	Element	Left OB	Channel
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NM111 OUTPUT REPORT.TXT

Right OB				
Vel Head (ft)	0.01	Wt. n-Val.		0.045
W.S. Elev (ft)	93.32	Reach Len. (ft)	729.00	729.00
727.00				
Crit W.S. (ft)	90.41	Flow Area (sq ft)		128.68
E.G. Slope (ft/ft)	0.000210	Area (sq ft)		128.68
Q Total (cfs)	115.00	Flow (cfs)		115.00
Top width (ft)	49.03	Top width (ft)		49.03
Vel Total (ft/s)	0.89	Avg. Vel. (ft/s)		0.89
Max Chl Dpth (ft)	4.09	Hydr. Depth (ft)		2.62
Conv. Total (cfs)	7939.9	Conv. (cfs)		7939.9
Length wtd. (ft)	729.00	wetted Per. (ft)		50.38
Min ch El (ft)	89.23	Shear (lb/sq ft)		0.03
Alpha	1.00	Stream Power (lb/ft s)	2349.65	0.00
0.00				
Frctn Loss (ft)	0.48	Cum Volume (acre-ft)		3.42
C & E Loss (ft)	0.04	Cum SA (acres)		1.32

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	94.16	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	Wt. n-Val.		0.045
W.S. Elev (ft)	94.14	Reach Len. (ft)	729.00	729.00
727.00				
Crit W.S. (ft)	90.71	Flow Area (sq ft)		170.32
E.G. Slope (ft/ft)	0.000208	Area (sq ft)		170.32
Q Total (cfs)	174.00	Flow (cfs)		174.00
Top width (ft)	52.43	Top width (ft)		52.43
Vel Total (ft/s)	1.02	Avg. Vel. (ft/s)		1.02
Max Chl Dpth (ft)	4.91	Hydr. Depth (ft)		3.25
Conv. Total (cfs)	12070.8	Conv. (cfs)		12070.8
Length wtd. (ft)	729.00	wetted Per. (ft)		54.17

NM111 OUTPUT REPORT.TXT				
Min Ch El (ft)	89.23	Shear (lb/sq ft)		0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	2349.65	0.00
Frctn Loss (ft)	0.44	Cum Volume (acre-ft)		4.69
C & E Loss (ft)	0.03	Cum SA (acres)		1.45

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	92.97	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-val.		0.045
w.s. Elev (ft)	92.96	Reach Len. (ft)	729.00	729.00
727.00 Crit w.s. (ft)	90.27	Flow Area (sq ft)		111.22
E.G. Slope (ft/ft)	0.000200	Area (sq ft)		111.22
Q Total (cfs)	90.00	Flow (cfs)		90.00
Top width (ft)	47.53	Top width (ft)		47.53
Vel Total (ft/s)	0.81	Avg. Vel. (ft/s)		0.81
Max Chl Dpth (ft)	3.73	Hydr. Depth (ft)		2.34
Conv. Total (cfs)	6367.8	Conv. (cfs)		6367.8
Length wtd. (ft)	729.00	wetted Per. (ft)		48.71
Min Ch El (ft)	89.23	Shear (lb/sq ft)		0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	2349.65	0.00
Frctn Loss (ft)	0.47	Cum Volume (acre-ft)		2.97
C & E Loss (ft)	0.04	Cum SA (acres)		1.27

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	93.40	Element	Left OB	Channel
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NM111 OUTPUT REPORT.TXT

Right OB				
Vel Head (ft)	0.01	Wt. n-Val.		0.045
W.S. Elev (ft)	93.39	Reach Len. (ft)	729.00	729.00
727.00				
Crit w.s. (ft)	90.43	Flow Area (sq ft)		132.02
E.G. Slope (ft/ft)	0.000211	Area (sq ft)		132.02
Q Total (cfs)	120.00	Flow (cfs)		120.00
Top width (ft)	49.31	Top width (ft)		49.31
Vel Total (ft/s)	0.91	Avg. Vel. (ft/s)		0.91
Max Chl Dpth (ft)	4.16	Hydr. Depth (ft)		2.68
Conv. Total (cfs)	8251.5	Conv. (cfs)		8251.5
Length wtd. (ft)	729.00	wetted Per. (ft)		50.69
Min ch El (ft)	89.23	Shear (lb/sq ft)		0.03
Alpha	1.00	Stream Power (lb/ft s)	2349.65	0.00
0.00				
Frctn Loss (ft)	0.48	Cum Volume (acre-ft)		3.51
C & E Loss (ft)	0.04	Cum SA (acres)		1.33

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	94.22	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	Wt. n-Val.		0.045
W.S. Elev (ft)	94.20	Reach Len. (ft)	729.00	729.00
727.00				
Crit w.s. (ft)	90.73	Flow Area (sq ft)		173.42
E.G. Slope (ft/ft)	0.000211	Area (sq ft)		173.42
Q Total (cfs)	180.00	Flow (cfs)		180.00
Top width (ft)	52.67	Top width (ft)		52.67
Vel Total (ft/s)	1.04	Avg. Vel. (ft/s)		1.04
Max Chl Dpth (ft)	4.97	Hydr. Depth (ft)		3.29
Conv. Total (cfs)	12397.7	Conv. (cfs)		12397.7
Length wtd. (ft)	729.00	wetted Per. (ft)		54.44

NM111 OUTPUT REPORT.TXT

Min Ch El (ft)	89.23	Shear (lb/sq ft)		0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	2349.65	0.00
Frctn Loss (ft)	0.45	Cum Volume (acre-ft)		4.76
C & E Loss (ft)	0.03	Cum SA (acres)		1.46

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-111
REACH: NM-111

RS: 1380

INPUT

Description:

Station	Elevation	Data	num=	167							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	97.48	4.99	97.38	9.98	97.57	34.94	97.43	44.93	97.2		
49.92	97.38	74.88	97.15	124.8	97.2	129.79	97.49	164.73	97.86		
174.72	97.77	184.7	97.9	224.64	97.4	244.61	97.47	249.6	97.28		
279.55	97.85	289.53	97.28	294.52	97.32	299.52	97.57	304.51	97.44		
309.5	97.58	329.47	97.46	334.46	97.69	344.44	97.75	349.44	97.62		
414.33	97.75	419.32	97.42	434.3	97.19	444.28	97.31	459.26	97.02		
469.24	97.01	474.24	96.84	489.21	97.9	494.2	98.05	499.19	97.95		
504.19	97.45	509.18	97.18	519.16	97.22	539.13	96.74	564.09	96.72		
579.07	96.45	609.02	96.53	614.01	96.36	633.98	96.55	648.95	96.42		
658.94	96.6	663.93	96.4	698.87	96.14	708.86	96.32	753.78	96.19		
758.78	96.04	768.76	96.14	773.75	96.38	803.7	96.32	818.68	96.07		
838.65	96.16	848.63	96.1	853.62	96.29	888.57	96.63	898.55	97.39		
903.54	97.52	913.53	96.9	933.49	96.92	958.45	96.57	983.41	96.95		
988.41	96.85	1028.34	97.57	1038.33	97.3	1043.32	97.36	1053.3	96.91		
1058.29	96.93	1068.28	97.31	1083.25	97.14	1103.22	97.12	1113.21	97.36		
1123.19	97.32	1133.17	97.51	1138.17	97.25	1143.16	97.19	1148.15	97.68		
1153.14	97.74	1158.13	97.37	1183.09	97.14	1193.08	97.25	1198.04	95.43		
1198.07	95.42	1203.06	94.48	1208.05	92.11	1213.05	90.18	1218.04	90.05		
1223.03	92.69	1228.02	94.39	1228.04	94.4	1233.01	96.06	1238	97.47		
1252.98	97.76	1282.93	97.4	1297.91	97.42	1312.88	97.9	1327.86	97.53		
1377.78	97.82	1387.76	98.14	1392.76	97.77	1397.75	97.72	1402.74	97.34		
1412.72	97.29	1417.72	97.59	1432.69	97.51	1437.68	97.73	1442.68	97.74		
1452.66	96.97	1462.64	96.85	1467.64	96.49	1472.63	96.77	1482.61	96.91		
1487.6	97.17	1497.59	96.6	1507.57	96.56	1522.55	97.12	1547.51	97.06		
1557.49	97.35	1572.47	97.09	1587.44	97.45	1602.42	97.36	1607.41	97.11		
1622.39	96.96	1647.35	97.3	1707.25	97	1757.17	97.26	1762.16	97.4		
1782.13	97.31	1817.07	97.79	1852.02	98	1871.99	97.74	1891.95	98		
1901.94	97.93	1911.92	98.24	1931.89	97.82	1936.88	97.91	1941.87	98.2		
1946.87	98.08	1951.86	97.64	1981.81	97.32	2001.78	96.89	2036.72	96.99		
2051.7	97.63	2066.67	97.85	2071.66	97.67	2081.65	97.62	2091.63	97.09		
2096.62	97.08	2111.6	97.64	2151.53	97.56	2161.52	97.79	2171.5	97.65		
2186.48	97.72	2191.47	97.59	2196.46	97.21	2211.44	96.93	2231.4	96.98		
2236.4	96.81	2251.37	96.71	2286.32	96.9	2331.24	96.6	2366.19	96.94		
2406.12	96.75	2426.09	96.78								

Manning's n values

num= 3

NM111 OUTPUT REPORT.TXT

Sta	n Val	Sta	n Val	Sta	n Val			
0	.06	1193.08	.045	1238	.06			
Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	1193.08	1238		250	250		.1	.3
Ineffective Flow		num=	2					
Sta L	Sta R	Elev	Permanent					
0	1193.08	97.25	F					
1238	2426.09	97.47	F					

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	92.41	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.45	wt. n-Val.		0.045
W.S. Elev (ft)	91.96	Reach Len. (ft)	250.00	250.00
251.00				
Crit w.s. (ft)	91.79	Flow Area (sq ft)		16.77
E.G. slope (ft/ft)	0.020794	Area (sq ft)		16.77
Q Total (cfs)	90.00	Flow (cfs)		90.00
Top width (ft)	13.22	Top width (ft)		13.22
vel Total (ft/s)	5.37	Avg. vel. (ft/s)		5.37
Max Chl Dpth (ft)	1.91	Hydr. Depth (ft)		1.27
Conv. Total (cfs)	624.1	Conv. (cfs)		624.1
Length wtd. (ft)	250.00	wetted Per. (ft)		14.03
Min Ch El (ft)	90.05	Shear (lb/sq ft)		1.55
Alpha	1.00	Stream Power (lb/ft s)	2426.09	0.00
0.00				
Frctn Loss (ft)	0.35	Cum volume (acre-ft)		1.79
C & E Loss (ft)	0.13	Cum SA (acres)		0.73

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	92.82	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.36	wt. n-Val.		0.045
W.S. Elev (ft)	92.45	Reach Len. (ft)	250.00	250.00
251.00				
Crit w.s. (ft)	92.03	Flow Area (sq ft)		23.80

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E.G. Slope (ft/ft)	0.012914	Area (sq ft)		23.80
Q Total (cfs)	115.00	Flow (cfs)		115.00
Top Width (ft)	15.26	Top Width (ft)		15.26
Vel Total (ft/s)	4.83	Avg. Vel. (ft/s)		4.83
Max Chl Dpth (ft)	2.40	Hydr. Depth (ft)		1.56
Conv. Total (cfs)	1012.0	Conv. (cfs)		1012.0
Length wtd. (ft)	250.00	wetted Per. (ft)		16.29
Min Ch El (ft)	90.05	Shear (lb/sq ft)		1.18
Alpha 0.00	1.00	Stream Power (lb/ft s)	2426.09	0.00
Frctn Loss (ft)	0.31	Cum Volume (acre-ft)		2.15
C & E Loss (ft)	0.10	Cum SA (acres)		0.78

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	93.69	Element	Left OB	Channel
Right OB Vel Head (ft)	0.29	wt. n-val.		0.045
W.S. Elev (ft)	93.40	Reach Len. (ft)	250.00	250.00
251.00 Crit w.s. (ft)	92.48	Flow Area (sq ft)		40.20
E.G. Slope (ft/ft)	0.007313	Area (sq ft)		40.20
Q Total (cfs)	174.00	Flow (cfs)		174.00
Top Width (ft)	19.76	Top Width (ft)		19.76
Vel Total (ft/s)	4.33	Avg. Vel. (ft/s)		4.33
Max Chl Dpth (ft)	3.35	Hydr. Depth (ft)		2.03
Conv. Total (cfs)	2034.7	Conv. (cfs)		2034.7
Length wtd. (ft)	250.00	wetted Per. (ft)		21.18
Min Ch El (ft)	90.05	Shear (lb/sq ft)		0.87
Alpha 0.00	1.00	Stream Power (lb/ft s)	2426.09	0.00
Frctn Loss (ft)	0.25	Cum Volume (acre-ft)		2.93
C & E Loss (ft)	0.08	Cum SA (acres)		0.85

NM111 OUTPUT REPORT.TXT

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	92.46	Element	Left OB	Channel
Right OB Vel Head (ft)	0.36	wt. n-val.		0.045
W.S. Elev (ft)	92.10	Reach Len. (ft)	250.00	250.00
251.00 Crit w.s. (ft)	91.79	Flow Area (sq ft)		18.66
E.G. slope (ft/ft)	0.015526	Area (sq ft)		18.66
Q Total (cfs)	90.00	Flow (cfs)		90.00
Top width (ft)	13.84	Top width (ft)		13.84
vel Total (ft/s)	4.82	Avg. vel. (ft/s)		4.82
Max Chl Dpth (ft)	2.05	Hydr. Depth (ft)		1.35
Conv. Total (cfs)	722.3	Conv. (cfs)		722.3
Length wtd. (ft)	250.00	wetted Per. (ft)		14.71
Min Ch El (ft)	90.05	Shear (lb/sq ft)		1.23
Alpha 0.00	1.00	Stream Power (lb/ft s)	2426.09	0.00
Frctn Loss (ft)	0.31	Cum volume (acre-ft)		1.88
C & E Loss (ft)	0.10	Cum SA (acres)		0.76

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	92.88	Element	Left OB	Channel
Right OB Vel Head (ft)	0.36	wt. n-val.		0.045
W.S. Elev (ft)	92.52	Reach Len. (ft)	250.00	250.00
251.00 Crit w.s. (ft)	92.07	Flow Area (sq ft)		24.82

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E.G. Slope (ft/ft)	0.012526	Area (sq ft)		24.82
Q Total (cfs)	120.00	Flow (cfs)		120.00
Top Width (ft)	15.52	Top Width (ft)		15.52
Vel Total (ft/s)	4.83	Avg. Vel. (ft/s)		4.83
Max Chl Dpth (ft)	2.47	Hydr. Depth (ft)		1.60
Conv. Total (cfs)	1072.2	Conv. (cfs)		1072.2
Length wtd. (ft)	250.00	wetted Per. (ft)		16.59
Min Ch El (ft)	90.05	Shear (lb/sq ft)		1.17
Alpha 0.00	1.00	Stream Power (lb/ft s)	2426.09	0.00
Frctn Loss (ft)	0.31	Cum Volume (acre-ft)		2.20
C & E Loss (ft)	0.10	Cum SA (acres)		0.79

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	93.74	Element	Left OB	Channel
Right OB Vel Head (ft)	0.30	wt. n-val.		0.045
W.S. Elev (ft)	93.44	Reach Len. (ft)	250.00	250.00
251.00 Crit w.s. (ft)	92.53	Flow Area (sq ft)		41.12
E.G. Slope (ft/ft)	0.007371	Area (sq ft)		41.12
Q Total (cfs)	180.00	Flow (cfs)		180.00
Top Width (ft)	19.99	Top Width (ft)		19.99
Vel Total (ft/s)	4.38	Avg. Vel. (ft/s)		4.38
Max Chl Dpth (ft)	3.39	Hydr. Depth (ft)		2.06
Conv. Total (cfs)	2096.5	Conv. (cfs)		2096.5
Length wtd. (ft)	250.00	wetted Per. (ft)		21.43
Min Ch El (ft)	90.05	Shear (lb/sq ft)		0.88
Alpha 0.00	1.00	Stream Power (lb/ft s)	2426.09	0.00
Frctn Loss (ft)	0.25	Cum Volume (acre-ft)		2.97
C & E Loss (ft)	0.08	Cum SA (acres)		0.85

NM111 OUTPUT REPORT.TXT

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-111
 REACH: NM-111

RS: 1130

INPUT

Description:

Station Elevation Data		num= 159		Sta Elev		Sta Elev		Sta Elev	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	98.02	5	98.12	9.99	97.98	49.97	98.42	89.94	98.19
99.93	98.35	114.92	98.19	129.91	98.28	154.9	98.01	164.89	98.39
179.88	97.97	209.86	97.93	229.85	98.25	239.84	98.52	254.83	98.32
264.83	97.76	269.82	97.86	279.82	98.34	289.81	97.9	329.78	97.65
384.75	97.96	419.73	97.74	504.67	98.06	509.67	98.21	519.66	97.92
594.61	97.92	619.59	97.76	629.59	97.91	654.57	97.62	684.55	97.84
689.55	97.65	694.55	97.16	704.54	97.32	709.54	96.89	719.53	96.74
724.53	96.44	749.51	96.55	759.5	97.76	764.5	97.78	769.5	97.53
829.46	97.7	839.45	97.36	889.42	97.29	899.41	97.68	914.4	97.67
924.39	97.37	954.38	97.71	969.37	97.29	994.35	97.57	1009.34	97.55
1014.34	97.37	1034.32	97.27	1069.3	97.72	1079.29	97.56	1099.28	97.84
1134.26	97.61	1144.25	97.15	1159.24	96.98	1169.23	97.1	1179.23	97.44
1184.22	96.07	1189.22	91.96	1194.22	91.82	1196.71	90.35	1199.22	88.88
1204.21	88.89	1209.21	88.67	1214.21	88.75	1219.2	89.51	1224.2	91.56
1226.71	93.41	1229.2	95.26	1234.19	95.41	1239.19	96.94	1254.18	96.9
1274.17	97.89	1289.16	98.12	1299.15	98.06	1314.14	98.69	1319.14	98.7
1329.13	98.2	1339.12	98.36	1344.12	98.22	1359.11	98.43	1364.11	98.3
1389.09	98.46	1399.08	98.31	1424.07	98.83	1439.06	98.44	1449.05	98.58
1459.05	99.14	1469.04	98.85	1489.03	99.08	1514.01	98.79	1524	98.99
1538.99	99.04	1553.98	98.74	1573.97	98.62	1578.97	98.85	1588.96	98.81
1593.96	98.63	1613.94	98.58	1618.94	99.26	1628.93	99.35	1653.92	99.1
1658.91	98.83	1683.9	98.89	1693.89	98.62	1703.89	99.07	1728.87	98.41
1738.86	98.63	1748.86	98.2	1768.84	98.04	1783.83	97.71	1798.82	97.87
1818.81	97.28	1833.8	97	1843.79	97.05	1853.79	96.81	1868.78	96.91
1878.77	96.7	1888.76	96.71	1893.76	96.87	1903.75	97.64	1918.75	97.67
1923.74	97.54	1938.73	97.69	1978.71	97.21	2018.68	96.95	2023.68	96.68
2028.67	96.14	2033.67	95.97	2048.66	96.16	2053.66	95.86	2058.65	95.85
2063.65	96.8	2068.65	97.01	2073.64	97.53	2083.64	97.52	2088.63	97.21
2113.62	97.13	2118.61	97.31	2143.6	97.35	2153.59	97.62	2163.59	97.61
2178.58	97.24	2188.57	97.27	2198.56	97.65	2213.55	97.48	2263.52	97.44
2293.5	97.05	2303.49	97.36	2323.48	97.37	2328.48	97.18	2363.46	96.92
2373.45	97.08	2383.44	96.9	2388.44	96.58	2423.42	96.61		

Manning's n Values			num= 3		
Sta	n Val	Sta	n Val	Sta	n Val
0	.06	1179.23	.045	1239.19	.06

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.	Expan.
	1179.23	1239.19		462	460	.1	.3
Ineffective Flow			num=	2			
	Sta L	Sta R	Elev	Permanent			
	0	1179.23	97.44	F			
	1239.19	2423.42	96.94	F			

NM111 OUTPUT REPORT.TXT

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	91.93	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	wt. n-val.		0.045
W.S. Elev (ft)	91.90	Reach Len. (ft)	462.00	460.00
459.00				
Crit w.s. (ft)	89.73	Flow Area (sq ft)		75.34
E.G. slope (ft/ft)	0.000468	Area (sq ft)		75.34
Q Total (cfs)	90.00	Flow (cfs)		90.00
Top width (ft)	33.45	Top width (ft)		33.45
vel Total (ft/s)	1.19	Avg. vel. (ft/s)		1.19
Max Chl Dpth (ft)	3.23	Hydr. Depth (ft)		2.25
Conv. Total (cfs)	4160.4	Conv. (cfs)		4160.4
Length wtd. (ft)	460.00	wetted Per. (ft)		34.83
Min Ch El (ft)	88.67	Shear (lb/sq ft)		0.06
Alpha	1.00	Stream Power (lb/ft s)	2423.42	0.00
0.00				
Frctn Loss (ft)	0.28	Cum volume (acre-ft)		1.52
C & E Loss (ft)	0.00	Cum SA (acres)		0.60

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	92.40	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	wt. n-val.		0.045
W.S. Elev (ft)	92.37	Reach Len. (ft)	462.00	460.00
459.00				
Crit w.s. (ft)	89.88	Flow Area (sq ft)		92.19
E.G. slope (ft/ft)	0.000442	Area (sq ft)		92.19
Q Total (cfs)	115.00	Flow (cfs)		115.00
Top width (ft)	36.59	Top width (ft)		36.59
vel Total (ft/s)	1.25	Avg. vel. (ft/s)		1.25
Max Chl Dpth (ft)	3.70	Hydr. Depth (ft)		2.52
Conv. Total (cfs)	5470.0	Conv. (cfs)		5470.0

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Length wtd. (ft)	460.00	Wetted Per. (ft)		38.27
Min Ch El (ft)	88.67	Shear (lb/sq ft)		0.07
Alpha 0.00	1.00	Stream Power (lb/ft s)	2423.42	0.00
Frctn Loss (ft)	0.27	Cum Volume (acre-ft)		1.81
C & E Loss (ft)	0.00	Cum SA (acres)		0.63

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

CROSS SECTION OUTPUT Profile #EX 100Y				
E.G. Elev (ft)	93.36	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	wt. n-val.		0.045
W.S. Elev (ft)	93.33	Reach Len. (ft)	462.00	460.00
459.00 Crit w.s. (ft)	90.19	Flow Area (sq ft)		128.38
E.G. slope (ft/ft)	0.000373	Area (sq ft)		128.38
Q Total (cfs)	174.00	Flow (cfs)		174.00
Top width (ft)	39.05	Top width (ft)		39.05
Vel Total (ft/s)	1.36	Avg. vel. (ft/s)		1.36
Max Chl Dpth (ft)	4.66	Hydr. Depth (ft)		3.29
Conv. Total (cfs)	9015.2	Conv. (cfs)		9015.2
Length wtd. (ft)	460.00	Wetted Per. (ft)		41.39
Min Ch El (ft)	88.67	Shear (lb/sq ft)		0.07
Alpha 0.00	1.00	Stream Power (lb/ft s)	2423.42	0.00
Frctn Loss (ft)	0.25	Cum Volume (acre-ft)		2.45
C & E Loss (ft)	0.00	Cum SA (acres)		0.68

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	92.05	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-val.		0.045
W.S. Elev (ft)	92.03	Reach Len. (ft)	462.00	460.00

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459.00			
Crit w.s. (ft)	89.73	Flow Area (sq ft)	79.69
E.G. slope (ft/ft)	0.000423	Area (sq ft)	79.69
Q Total (cfs)	90.00	Flow (cfs)	90.00
Top width (ft)	35.70	Top width (ft)	35.70
Vel Total (ft/s)	1.13	Avg. vel. (ft/s)	1.13
Max Chl Dpth (ft)	3.36	Hydr. Depth (ft)	2.23
Conv. Total (cfs)	4377.2	Conv. (cfs)	4377.2
Length wtd. (ft)	460.00	wetted Per. (ft)	37.15
Min Ch El (ft)	88.67	Shear (lb/sq ft)	0.06
Alpha	1.00	Stream Power (lb/ft s)	2423.42
0.00			0.00
Frctn Loss (ft)	0.27	Cum volume (acre-ft)	1.60
C & E Loss (ft)	0.00	Cum SA (acres)	0.61

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	92.46	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	wt. n-val.		0.045
w.s. Elev (ft)	92.44	Reach Len. (ft)	462.00	460.00
459.00				
Crit w.s. (ft)	89.91	Flow Area (sq ft)		94.61
E.G. slope (ft/ft)	0.000445	Area (sq ft)		94.61
Q Total (cfs)	120.00	Flow (cfs)		120.00
Top width (ft)	36.76	Top width (ft)		36.76
Vel Total (ft/s)	1.27	Avg. vel. (ft/s)		1.27
Max Chl Dpth (ft)	3.77	Hydr. Depth (ft)		2.57
Conv. Total (cfs)	5690.0	Conv. (cfs)		5690.0
Length wtd. (ft)	460.00	wetted Per. (ft)		38.49
Min Ch El (ft)	88.67	Shear (lb/sq ft)		0.07
Alpha	1.00	Stream Power (lb/ft s)	2423.42	0.00
0.00				
Frctn Loss (ft)	0.27	Cum volume (acre-ft)		1.85
C & E Loss (ft)	0.00	Cum SA (acres)		0.64

NM111 OUTPUT REPORT.TXT

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	93.40	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.03	wt. n-val.		0.045
W.S. Elev (ft)	93.37	Reach Len. (ft)	462.00	460.00
459.00				
Crit w.s. (ft)	90.23	Flow Area (sq ft)		130.10
E.G. slope (ft/ft)	0.000383	Area (sq ft)		130.10
Q Total (cfs)	180.00	Flow (cfs)		180.00
Top width (ft)	39.16	Top width (ft)		39.16
vel Total (ft/s)	1.38	Avg. vel. (ft/s)		1.38
Max Chl Dpth (ft)	4.70	Hydr. Depth (ft)		3.32
Conv. Total (cfs)	9196.9	Conv. (cfs)		9196.9
Length wtd. (ft)	460.00	wetted Per. (ft)		41.54
Min Ch El (ft)	88.67	Shear (lb/sq ft)		0.07
Alpha	1.00	Stream Power (lb/ft s)	2423.42	0.00
0.00				
Frctn Loss (ft)	0.25	Cum volume (acre-ft)		2.47
C & E Loss (ft)	0.00	Cum SA (acres)		0.68

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-111
 REACH: NM-111 RS: 669

INPUT

Description:

Station	Elevation	Data	num=	170	Sta	Elev	Sta	Elev	Sta	Elev
0	98.14	15	98.55	25	98.52	45	98.14	60	98.09	
70	98.57	79.99	98.2	109.99	98.12	119.99	98.39	129.99	98.42	
139.99	98.22	149.99	98.33	154.99	98.2	169.99	98.29	174.99	98.49	
189.99	98.43	194.99	98.2	209.99	98.5	219.98	98.86	224.98	98.58	
239.98	98.46	244.98	98.2	249.98	98.49	264.98	98.54	279.98	98.47	
284.98	98.68	304.98	98.47	309.98	98.19	324.98	97.88	344.98	97.84	
354.98	98.49	374.97	98.46	389.97	98.12	434.97	98.3	444.97	98.15	

NM111 OUTPUT REPORT.TXT

454.97	98.33	464.97	98.22	499.97	98.33	514.96	98.55	529.96	98.14
559.96	98.25	574.96	98.46	589.96	98.27	639.96	98.44	644.95	98.23
674.95	98.36	694.95	98.17	734.95	98.3	739.95	98.14	764.95	98.16
774.95	98.32	779.94	98.59	804.94	98.55	814.94	98.26	819.94	98.55
829.94	98.51	849.94	97.9	854.94	97.9	859.94	98.37	869.94	98.2
874.94	98.52	879.94	98.56	884.94	98.25	889.94	98.29	899.94	97.82
914.93	97.96	924.93	97.66	1009.93	98.04	1044.93	98.01	1059.92	98.47
1084.92	98.3	1094.92	97.76	1109.92	97.91	1114.92	97.58	1129.92	97.71
1149.92	97.54	1159.92	97.21	1164.92	96.85	1179.92	96.81	1189.92	97.02
1199.91	97.76	1204.91	96.08	1209.91	95.65	1213.02	93.3	1214.91	91.86
1219.91	88.96	1224.91	88.18	1229.91	88.13	1234.91	88.12	1239.91	89.44
1243.03	91.89	1244.91	93.37	1249.91	96.13	1254.91	96.72	1264.91	96.71
1279.91	96.38	1299.91	96.63	1304.91	96.98	1309.91	97.57	1314.91	98.39
1319.91	98.92	1329.91	99.29	1339.91	98.93	1349.9	99.24	1369.9	98.83
1389.9	98.92	1399.9	99.25	1414.9	99.08	1429.9	99.15	1434.9	99.5
1439.9	99.46	1444.9	98.78	1449.9	98.71	1454.9	97.62	1464.9	96.38
1469.9	96.39	1479.9	95.88	1519.89	95.74	1524.89	95.84	1534.89	95.69
1554.89	95.87	1574.89	95.73	1584.89	95.87	1604.89	95.72	1624.89	96.17
1634.88	96.65	1639.88	96.72	1649.88	96.44	1659.88	95.72	1674.88	95.81
1694.88	95.64	1709.88	95.7	1724.88	96.42	1729.88	96.37	1739.88	95.8
1764.88	95.74	1774.88	95.84	1779.88	95.7	1784.87	95.78	1789.87	95.66
1849.87	95.85	1864.87	95.74	1909.87	96.27	1914.87	96.59	1934.86	97.05
1949.86	97.13	1979.86	96.75	1994.86	96.94	2009.86	96.93	2019.86	96.39
2029.86	96.52	2039.86	95.92	2044.86	95.97	2049.86	95.37	2059.86	95.57
2074.86	95.68	2079.85	96.04	2084.85	96.66	2094.85	96.59	2104.85	96.96
2159.85	96.95	2169.85	96.78	2219.85	96.75	2234.85	96.52	2304.84	96.66
2339.84	97.15	2389.84	96.85	2394.84	96.7	2419.84	97.14	2434.83	97.01

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 1209.91 .045 1249.91 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 1209.91 1249.91 399 399 399 .1 .3
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 1209.91 95.65 F
 1249.91 2434.83 96.13 F

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	91.65	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.04	wt. n-val.		0.045
W.S. Elev (ft)	91.61	Reach Len. (ft)	399.00	399.00
399.00				
Crit w.s. (ft)	89.47	Flow Area (sq ft)		72.98
E.G. Slope (ft/ft)	0.000737	Area (sq ft)		72.98
Q Total (cfs)	121.00	Flow (cfs)		121.00
Top width (ft)	27.32	Top width (ft)		27.32
Vel Total (ft/s)	1.66	Avg. vel. (ft/s)		1.66
Max Chl Dpth (ft)	3.49	Hydr. Depth (ft)		2.67
Conv. Total (cfs)	4457.7	Conv. (cfs)		4457.7
Length wtd. (ft)	399.00	wetted Per. (ft)		29.01

NM111 OUTPUT REPORT.TXT

Min Ch El (ft)	88.12	Shear (lb/sq ft)		0.12
Alpha 0.00	1.00	Stream Power (lb/ft s)	2434.83	0.00
Frctn Loss (ft)	0.24	Cum Volume (acre-ft)		0.74
C & E Loss (ft)	0.00	Cum SA (acres)		0.28

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	92.12	Element	Left OB	Channel
Right OB Vel Head (ft)	0.05	wt. n-Val.		0.045
W.S. Elev (ft)	92.07	Reach Len. (ft)	399.00	399.00
399.00 Crit w.s. (ft)	89.65	Flow Area (sq ft)		86.12
E.G. Slope (ft/ft)	0.000749	Area (sq ft)		86.12
Q Total (cfs)	155.00	Flow (cfs)		155.00
Top width (ft)	28.64	Top width (ft)		28.64
Vel Total (ft/s)	1.80	Avg. Vel. (ft/s)		1.80
Max Chl Dpth (ft)	3.95	Hydr. Depth (ft)		3.01
Conv. Total (cfs)	5664.2	Conv. (cfs)		5664.2
Length wtd. (ft)	399.00	wetted Per. (ft)		30.63
Min Ch El (ft)	88.12	Shear (lb/sq ft)		0.13
Alpha 0.00	1.00	Stream Power (lb/ft s)	2434.83	0.00
Frctn Loss (ft)	0.24	Cum Volume (acre-ft)		0.87
C & E Loss (ft)	0.00	Cum SA (acres)		0.29

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	93.11	Element	Left OB	Channel
Right OB Vel Head (ft)	0.07	wt. n-Val.		0.045
W.S. Elev (ft)	93.04	Reach Len. (ft)	399.00	399.00
399.00				

NM111 OUTPUT REPORT.TXT				
Crit w.s. (ft)	90.04	Flow Area (sq ft)		114.99
E.G. Slope (ft/ft)	0.000755	Area (sq ft)		114.99
Q Total (cfs)	236.00	Flow (cfs)		236.00
Top width (ft)	31.13	Top width (ft)		31.13
Vel Total (ft/s)	2.05	Avg. Vel. (ft/s)		2.05
Max Chl Dpth (ft)	4.92	Hydr. Depth (ft)		3.69
Conv. Total (cfs)	8590.5	Conv. (cfs)		8590.5
Length wtd. (ft)	399.00	wetted Per. (ft)		33.79
Min Ch El (ft)	88.12	Shear (lb/sq ft)		0.16
Alpha 0.00	1.00	Stream Power (lb/ft s)	2434.83	0.00
Frctn Loss (ft)	0.24	Cum Volume (acre-ft)		1.16
C & E Loss (ft)	0.01	Cum SA (acres)		0.31

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	91.78	Element	Left OB	Channel
Right OB Vel Head (ft)	0.04	wt. n-Val.		0.045
W.S. Elev (ft)	91.73	Reach Len. (ft)	399.00	399.00
399.00 Crit w.s. (ft)	89.51	Flow Area (sq ft)		76.53
E.G. Slope (ft/ft)	0.000742	Area (sq ft)		76.53
Q Total (cfs)	130.00	Flow (cfs)		130.00
Top width (ft)	27.71	Top width (ft)		27.71
Vel Total (ft/s)	1.70	Avg. Vel. (ft/s)		1.70
Max Chl Dpth (ft)	3.61	Hydr. Depth (ft)		2.76
Conv. Total (cfs)	4773.9	Conv. (cfs)		4773.9
Length wtd. (ft)	399.00	wetted Per. (ft)		29.48
Min Ch El (ft)	88.12	Shear (lb/sq ft)		0.12
Alpha 0.00	1.00	Stream Power (lb/ft s)	2434.83	0.00
Frctn Loss (ft)	0.24	Cum Volume (acre-ft)		0.78
C & E Loss (ft)	0.00	Cum SA (acres)		0.28

NM111 OUTPUT REPORT.TXT

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	92.19	Element	Left OB	Channel
Right OB Vel Head (ft)	0.05	wt. n-val.		0.045
W.S. Elev (ft)	92.14	Reach Len. (ft)	399.00	399.00
399.00 Crit w.s. (ft)	89.67	Flow Area (sq ft)		87.99
E.G. Slope (ft/ft)	0.000750	Area (sq ft)		87.99
Q Total (cfs)	160.00	Flow (cfs)		160.00
Top width (ft)	28.80	Top width (ft)		28.80
Vel Total (ft/s)	1.82	Avg. Vel. (ft/s)		1.82
Max Chl Dpth (ft)	4.02	Hydr. Depth (ft)		3.05
Conv. Total (cfs)	5843.6	Conv. (cfs)		5843.6
Length wtd. (ft)	399.00	wetted Per. (ft)		30.84
Min Ch El (ft)	88.12	Shear (lb/sq ft)		0.13
Alpha	1.00	Stream Power (lb/ft s)	2434.83	0.00
0.00 Frctn Loss (ft)	0.24	Cum Volume (acre-ft)		0.89
C & E Loss (ft)	0.00	Cum SA (acres)		0.29

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	93.15	Element	Left OB	Channel
Right OB Vel Head (ft)	0.07	wt. n-val.		0.045
W.S. Elev (ft)	93.08	Reach Len. (ft)	399.00	399.00
399.00 Crit w.s. (ft)	90.06	Flow Area (sq ft)		116.28
E.G. Slope (ft/ft)	0.000756	Area (sq ft)		116.28
Q Total (cfs)	240.00	Flow (cfs)		240.00
Top width (ft)	31.24	Top width (ft)		31.24
Vel Total (ft/s)	2.06	Avg. Vel. (ft/s)		2.06

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Max Chl Dpth (ft)	4.96	Hydr. Depth (ft)	3.72
Conv. Total (cfs)	8729.3	Conv. (cfs)	8729.3
Length Wtd. (ft)	399.00	Wetted Per. (ft)	33.92
Min Ch El (ft)	88.12	Shear (lb/sq ft)	0.16
Alpha 0.00	1.00	Stream Power (lb/ft s)	2434.83
Frctn Loss (ft)	0.24	Cum Volume (acre-ft)	1.17
C & E Loss (ft)	0.01	Cum SA (acres)	0.31

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-111
 REACH: NM-111 RS: 270

INPUT

Description:

Station	Elevation	Data	num=	143
Sta	Elev	Sta	Elev	Sta
0	97.1	30	96.72	40
84.99	96.29	94.99	96.4	114.99
164.99	96.07	189.99	96.37	199.99
249.98	96.74	259.98	96.75	264.98
314.98	96.81	364.97	97.31	384.97
424.97	96.71	429.97	96.86	449.97
504.97	96.44	529.96	96.93	549.96
614.96	96.46	639.96	96.24	664.95
689.95	95.08	699.95	96.14	719.95
779.94	97.43	784.94	97.37	789.94
879.94	97.21	904.94	97.51	914.93
964.93	98.2	989.93	98.06	994.93
1019.93	96.72	1034.93	96.67	1044.93
1114.92	97.97	1144.92	97.63	1149.92
1184.92	97.35	1189.92	97.71	1194.91
1204.91	90.03	1209.91	87.5	1214.91
1229.91	89.7	1232.42	91.78	1234.91
1249.91	96.72	1264.91	96.17	1279.91
1324.91	95.93	1334.91	95.8	1364.9
1479.9	95.77	1529.89	95.83	1569.89
1754.88	95.78	1819.87	95.57	1824.87
1914.87	96.3	1924.87	96.49	1929.86
2009.86	96.14	2019.86	96.03	2034.86
2069.86	94.92	2074.86	95.91	2079.85
2104.85	96.75	2109.85	96.66	2114.85
2159.85	97.05	2164.85	97.06	2169.85
2194.85	96.7	2199.85	97.58	2204.85
2239.85	97.94	2249.85	97.9	2264.84
2409.84	97.7	2414.84	97.85	2434.83
				97.62
				96.82
				96.19
				96.26
				96.53
				97.05
				96.64
				96.51
				96.35
				96.59
				96.99
				96.81
				97.11
				97.74
				97.11
				97.33
				95.16
				87.46
				93.83
				95.94
				95.92
				95.66
				95.76
				96.39
				95.55
				95.96
				96.88
				96.81
				97.85
				98.16
				97.92
				96.56
				96.35
				96.58
				96.45
				96.74
				96.98
				96.69
				96.14
				96.99
				96.81
				97.31
				96.75
				98.09
				97.23
				90.31
				87.98
				96.34
				96.06
				95.82
				95.83
				95.59
				96.95
				95.04
				96.4
				96.95
				96.91
				97.74
				97.92

Manning's n	Values		num=	3
Sta	n Val	Sta	n Val	Sta

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0 .06 1189.92 .045 1239.91 .06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.	Expan.
1189.92	1239.91	275	270	265	.1	.3	
Ineffective Flow	num=	2					
Sta L	Sta R	Elev	Permanent				
0	1189.92	97.71	F				
1239.91	2434.83	96.34	F				

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	91.40	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.03	wt. n-Val.		0.045
w.s. Elev (ft)	91.38	Reach Len. (ft)		
Crit w.s. (ft)	88.92	Flow Area (sq ft)		88.40
E.G. slope (ft/ft)	0.000501	Area (sq ft)		88.40
Q Total (cfs)	121.00	Flow (cfs)		121.00
Top width (ft)	33.12	Top width (ft)		33.12
Vel Total (ft/s)	1.37	Avg. Vel. (ft/s)		1.37
Max Chl Dpth (ft)	3.92	Hydr. Depth (ft)		2.67
Conv. Total (cfs)	5407.9	Conv. (cfs)		5407.9
Length wtd. (ft)		wetted Per. (ft)		35.06
Min Ch El (ft)	87.46	Shear (lb/sq ft)		0.08
Alpha	1.00	Stream Power (lb/ft s)	2434.83	0.00
0.00		Cum Volume (acre-ft)		
Frctn Loss (ft)		Cum SA (acres)		
C & E Loss (ft)				

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	91.88	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.03	wt. n-Val.		0.045
w.s. Elev (ft)	91.84	Reach Len. (ft)		
Crit w.s. (ft)	89.13	Flow Area (sq ft)		104.18
E.G. slope (ft/ft)	0.000501	Area (sq ft)		104.18
Q Total (cfs)	155.00	Flow (cfs)		155.00

		NM111 OUTPUT REPORT.TXT	
Top width (ft)	34.17	Top width (ft)	34.17
Vel Total (ft/s)	1.49	Avg. Vel. (ft/s)	1.49
Max Chl Dpth (ft)	4.38	Hydr. Depth (ft)	3.05
Conv. Total (cfs)	6925.5	Conv. (cfs)	6925.5
Length wtd. (ft)		Wetted Per. (ft)	36.47
Min Ch El (ft)	87.46	Shear (lb/sq ft)	0.09
Alpha	1.00	Stream Power (lb/ft s)	2434.83
0.00		Cum Volume (acre-ft)	0.00
Frctn Loss (ft)		Cum SA (acres)	
C & E Loss (ft)			

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	92.86	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.05	wt. n-Val.		0.045
w.S. Elev (ft)	92.81	Reach Len. (ft)		
Crit w.S. (ft)	89.54	Flow Area (sq ft)		138.32
E.G. Slope (ft/ft)	0.000500	Area (sq ft)		138.32
Q Total (cfs)	236.00	Flow (cfs)		236.00
Top width (ft)	36.34	Top width (ft)		36.34
Vel Total (ft/s)	1.71	Avg. Vel. (ft/s)		1.71
Max Chl Dpth (ft)	5.35	Hydr. Depth (ft)		3.81
Conv. Total (cfs)	10553.3	Conv. (cfs)		10553.3
Length wtd. (ft)		wetted Per. (ft)		39.38
Min Ch El (ft)	87.46	Shear (lb/sq ft)		0.11
Alpha	1.00	Stream Power (lb/ft s)	2434.83	0.00
0.00		Cum Volume (acre-ft)		
Frctn Loss (ft)		Cum SA (acres)		
C & E Loss (ft)				

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	91.53	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	Wt. n-Val.		0.045
W.S. Elev (ft)	91.50	Reach Len. (ft)		
Crit w.s. (ft)	88.98	Flow Area (sq ft)		92.69
E.G. Slope (ft/ft)	0.000501	Area (sq ft)		92.69
Q Total (cfs)	130.00	Flow (cfs)		130.00
Top width (ft)	33.41	Top width (ft)		33.41
Vel Total (ft/s)	1.40	Avg. Vel. (ft/s)		1.40
Max Chl Dpth (ft)	4.04	Hydr. Depth (ft)		2.77
Conv. Total (cfs)	5809.0	Conv. (cfs)		5809.0
Length wtd. (ft)		wetted Per. (ft)		35.45
Min Ch El (ft)	87.46	Shear (lb/sq ft)		0.08
Alpha 0.00	1.00	Stream Power (lb/ft s)	2434.83	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)		
C & E Loss (ft)		Cum SA (acres)		

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	91.94	Element	Left OB	Channel
Right OB Vel Head (ft)	0.04	Wt. n-Val.		0.045
W.S. Elev (ft)	91.91	Reach Len. (ft)		
Crit w.s. (ft)	89.15	Flow Area (sq ft)		106.41
E.G. Slope (ft/ft)	0.000501	Area (sq ft)		106.41
Q Total (cfs)	160.00	Flow (cfs)		160.00
Top width (ft)	34.32	Top width (ft)		34.32
Vel Total (ft/s)	1.50	Avg. Vel. (ft/s)		1.50
Max Chl Dpth (ft)	4.45	Hydr. Depth (ft)		3.10
Conv. Total (cfs)	7149.1	Conv. (cfs)		7149.1
Length wtd. (ft)		wetted Per. (ft)		36.66

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Min Ch El (ft)	87.46	Shear (lb/sq ft)		0.09
Alpha	1.00	Stream Power (lb/ft s)	2434.83	0.00
0.00				
Frctn Loss (ft)		Cum Volume (acre-ft)		
C & E Loss (ft)		Cum SA (acres)		

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	92.90	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.05	wt. n-Val.		0.045
w.s. Elev (ft)	92.85	Reach Len. (ft)		
Crit w.s. (ft)	89.55	Flow Area (sq ft)		139.82
E.G. Slope (ft/ft)	0.000501	Area (sq ft)		139.82
Q Total (cfs)	240.00	Flow (cfs)		240.00
Top width (ft)	36.44	Top width (ft)		36.44
Vel Total (ft/s)	1.72	Avg. Vel. (ft/s)		1.72
Max Chl Dpth (ft)	5.39	Hydr. Depth (ft)		3.84
Conv. Total (cfs)	10722.8	Conv. (cfs)		10722.8
Length wtd. (ft)		wetted Per. (ft)		39.51
Min Ch El (ft)	87.46	Shear (lb/sq ft)		0.11
Alpha	1.00	Stream Power (lb/ft s)	2434.83	0.00
0.00				
Frctn Loss (ft)		Cum Volume (acre-ft)		
C & E Loss (ft)		Cum SA (acres)		

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

SUMMARY OF MANNING'S N VALUES

River:N-NM-111

Reach	River Sta.	n1	n2	n3
NM-111	5264	.06	.045	.06

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NM-111	4720	.06	.045	.06
NM-111	4089	.06	.045	.06
NM-111	3860	.06	.045	.06
NM-111	2854	.06	.045	.06
NM-111	2108	.06	.045	.06
NM-111	1380	.06	.045	.06
NM-111	1130	.06	.045	.06
NM-111	669	.06	.045	.06
NM-111	270	.06	.045	.06

SUMMARY OF REACH LENGTHS

River: N-NM-111

Reach	River Sta.	Left	Channel	Right
NM-111	5264	543	543	543
NM-111	4720	632	632	631
NM-111	4089	227	228	230
NM-111	3860	1007	1007	1007
NM-111	2854	738	746	733
NM-111	2108	729	729	727
NM-111	1380	250	250	251
NM-111	1130	462	460	459
NM-111	669	399	399	399
NM-111	270	275	270	265

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS

River: N-NM-111

Reach	River Sta.	Contr.	Expan.
NM-111	5264	.1	.3
NM-111	4720	.1	.3
NM-111	4089	.1	.3
NM-111	3860	.1	.3
NM-111	2854	.1	.3
NM-111	2108	.1	.3
NM-111	1380	.1	.3
NM-111	1130	.1	.3
NM-111	669	.1	.3
NM-111	270	.1	.3

Profile Output Table - Table 1

Reach	River Sta	Profile	Q Total	W.S. Elev	E.G. Elev	Min Ch El
Vel Chnl	Flow Area	Top Width	Volume	(ft)	(ft)	(ft)
(ft/s)	(sq ft)	(ft)	(cfs)			
			(acre-ft)			
NM-111	270	EX 10Y	121.00	91.38	91.40	87.46
1.37	88.40	33.12				
NM-111	270	EX 25Y	155.00	91.84	91.88	87.46

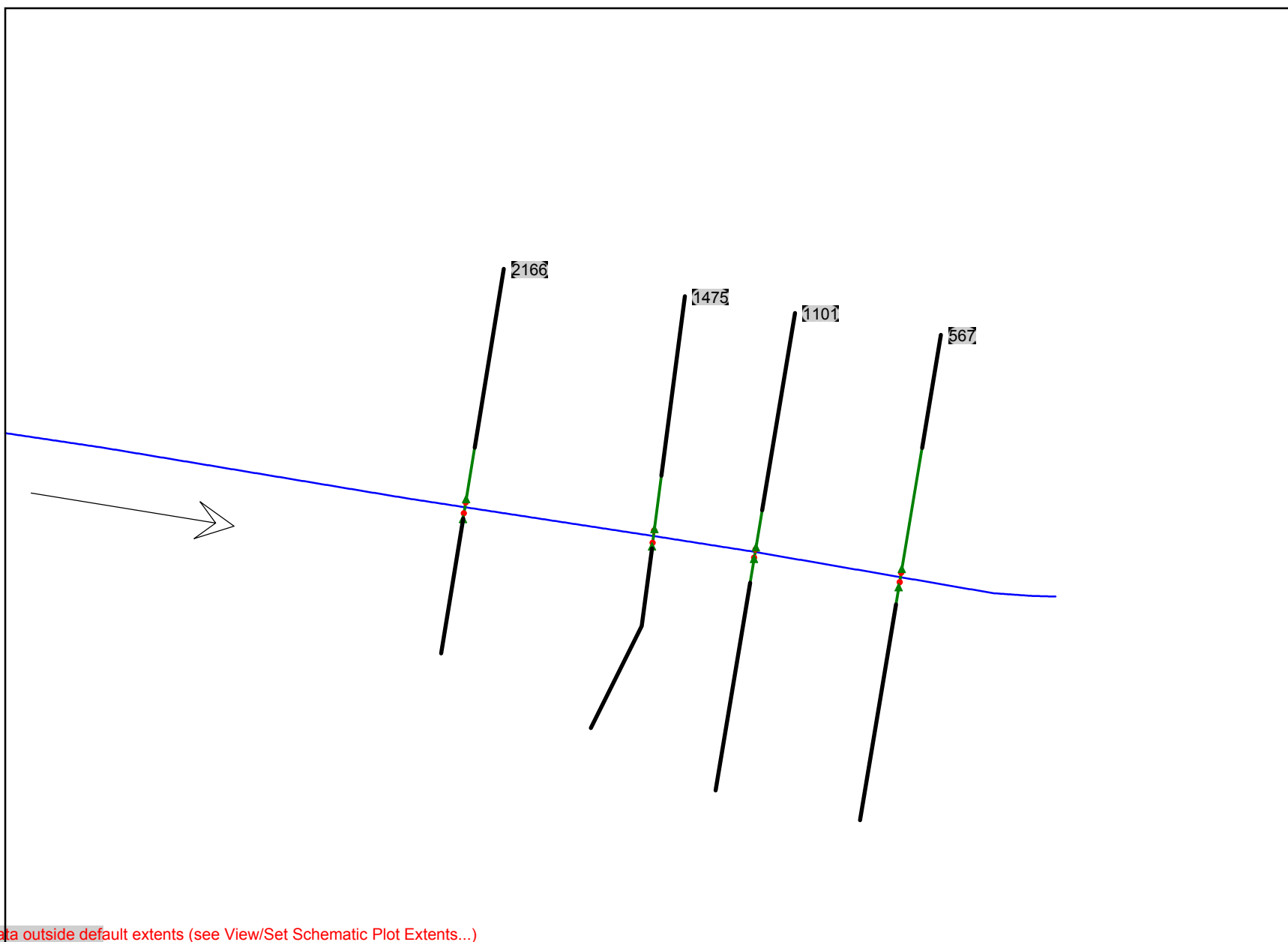
NM111 OUTPUT REPORT.TXT

1.49	104.18	34.17				
NM-111	270	EX 100Y	236.00	92.81	92.86	87.46
1.71	138.32	36.34				
NM-111	270	ULT 10Y	130.00	91.50	91.53	87.46
1.40	92.69	33.41				
NM-111	270	ULT 25Y	160.00	91.91	91.94	87.46
1.50	106.41	34.32				
NM-111	270	ULT 100Y	240.00	92.85	92.90	87.46
1.72	139.82	36.44				
NM-111	669	EX 10Y	121.00	91.61	91.65	88.12
1.66	72.98	27.32	0.74			
NM-111	669	EX 25Y	155.00	92.07	92.12	88.12
1.80	86.12	28.64	0.87			
NM-111	669	EX 100Y	236.00	93.04	93.11	88.12
2.05	114.99	31.13	1.16			
NM-111	669	ULT 10Y	130.00	91.73	91.78	88.12
1.70	76.53	27.71	0.78			
NM-111	669	ULT 25Y	160.00	92.14	92.19	88.12
1.82	87.99	28.80	0.89			
NM-111	669	ULT 100Y	240.00	93.08	93.15	88.12
2.06	116.28	31.24	1.17			
NM-111	1130	EX 10Y	90.00	91.90	91.93	88.67
1.19	75.34	33.45	1.52			
NM-111	1130	EX 25Y	115.00	92.37	92.40	88.67
1.25	92.19	36.59	1.81			
NM-111	1130	EX 100Y	174.00	93.33	93.36	88.67
1.36	128.38	39.05	2.45			
NM-111	1130	ULT 10Y	90.00	92.03	92.05	88.67
1.13	79.69	35.70	1.60			
NM-111	1130	ULT 25Y	120.00	92.44	92.46	88.67
1.27	94.61	36.76	1.85			
NM-111	1130	ULT 100Y	180.00	93.37	93.40	88.67
1.38	130.10	39.16	2.47			
NM-111	1380	EX 10Y	90.00	91.96	92.41	90.05
5.37	16.77	13.22	1.79			
NM-111	1380	EX 25Y	115.00	92.45	92.82	90.05
4.83	23.80	15.26	2.15			
NM-111	1380	EX 100Y	174.00	93.40	93.69	90.05
4.33	40.20	19.76	2.93			
NM-111	1380	ULT 10Y	90.00	92.10	92.46	90.05
4.82	18.66	13.84	1.88			
NM-111	1380	ULT 25Y	120.00	92.52	92.88	90.05
4.83	24.82	15.52	2.20			
NM-111	1380	ULT 100Y	180.00	93.44	93.74	90.05
4.38	41.12	19.99	2.97			
NM-111	2108	EX 10Y	90.00	92.94	92.95	89.23
0.82	110.31	47.46	2.85			
NM-111	2108	EX 25Y	115.00	93.32	93.33	89.23
0.89	128.68	49.03	3.42			
NM-111	2108	EX 100Y	174.00	94.14	94.16	89.23
1.02	170.32	52.43	4.69			
NM-111	2108	ULT 10Y	90.00	92.96	92.97	89.23
0.81	111.22	47.53	2.97			
NM-111	2108	ULT 25Y	120.00	93.39	93.40	89.23
0.91	132.02	49.31	3.51			

NM111 OUTPUT REPORT.TXT						
NM-111	2108	ULT 100Y	180.00	94.20	94.22	89.23
1.04	173.42	52.67	4.76			
NM-111	2854	EX 10Y	90.00	93.21	93.27	89.96
1.93	46.58	19.36	4.19			
NM-111	2854	EX 25Y	115.00	93.60	93.67	89.96
2.12	54.19	20.24	4.99			
NM-111	2854	EX 100Y	174.00	94.41	94.50	89.96
2.44	71.35	22.10	6.76			
NM-111	2854	ULT 10Y	90.00	93.23	93.28	89.96
1.92	46.83	19.38	4.32			
NM-111	2854	ULT 25Y	120.00	93.67	93.74	89.96
2.16	55.60	20.40	5.12			
NM-111	2854	ULT 100Y	180.00	94.47	94.56	89.96
2.48	72.72	22.24	6.87			
NM-111	3860	EX 10Y	43.00	93.78	93.79	89.75
0.70	61.46	28.15	5.44			
NM-111	3860	EX 25Y	55.00	94.19	94.20	89.75
0.75	73.03	29.16	6.46			
NM-111	3860	EX 100Y	82.00	95.01	95.02	89.75
0.84	97.92	31.24	8.72			
NM-111	3860	ULT 10Y	50.00	93.82	93.83	89.75
0.80	62.63	28.25	5.59			
NM-111	3860	ULT 25Y	60.00	94.27	94.28	89.75
0.79	75.51	29.38	6.63			
NM-111	3860	ULT 100Y	90.00	95.09	95.11	89.75
0.90	100.54	31.46	8.87			
NM-111	4089	EX 10Y	43.00	93.83	93.85	90.99
0.93	46.21	22.76	5.72			
NM-111	4089	EX 25Y	55.00	94.23	94.25	90.99
0.99	55.61	24.03	6.80			
NM-111	4089	EX 100Y	82.00	95.06	95.07	90.99
1.04	78.92	31.17	9.18			
NM-111	4089	ULT 10Y	50.00	93.89	93.90	90.99
1.05	47.46	22.93	5.88			
NM-111	4089	ULT 25Y	60.00	94.32	94.34	90.99
1.04	57.73	24.31	6.98			
NM-111	4089	ULT 100Y	90.00	95.14	95.16	90.99
1.10	81.69	31.41	9.35			
NM-111	4720	EX 10Y	43.00	93.97	93.97	89.78
0.67	63.76	26.16	6.52			
NM-111	4720	EX 25Y	55.00	94.37	94.38	89.78
0.74	74.73	28.03	7.74			
NM-111	4720	EX 100Y	82.00	95.19	95.20	89.78
0.83	99.24	31.55	10.47			
NM-111	4720	ULT 10Y	50.00	94.05	94.06	89.78
0.76	66.06	26.58	6.70			
NM-111	4720	ULT 25Y	60.00	94.47	94.48	89.78
0.77	77.51	28.46	7.96			
NM-111	4720	ULT 100Y	90.00	95.30	95.31	89.78
0.88	102.46	32.83	10.68			
NM-111	5264	EX 10Y	43.00	94.03	94.04	89.85
0.66	65.47	22.94	7.33			
NM-111	5264	EX 25Y	55.00	94.44	94.45	89.85

NM111 OUTPUT REPORT.TXT						
0.73	75.10	24.07	8.67			
NM-111	5264	EX 100Y	82.00	95.27	95.28	89.85
0.85	95.94	26.36	11.69			
NM-111	5264	ULT 10Y	50.00	94.14	94.15	89.85
0.74	67.83	23.22	7.53			
NM-111	5264	ULT 25Y	60.00	94.55	94.56	89.85
0.77	77.63	24.36	8.93			
NM-111	5264	ULT 100Y	90.00	95.38	95.39	89.85
0.91	98.85	26.67	11.94			

APPENDIX D
HEC-RAS HYDRAULIC OUTPUT
NM-112 BASE CONDITION



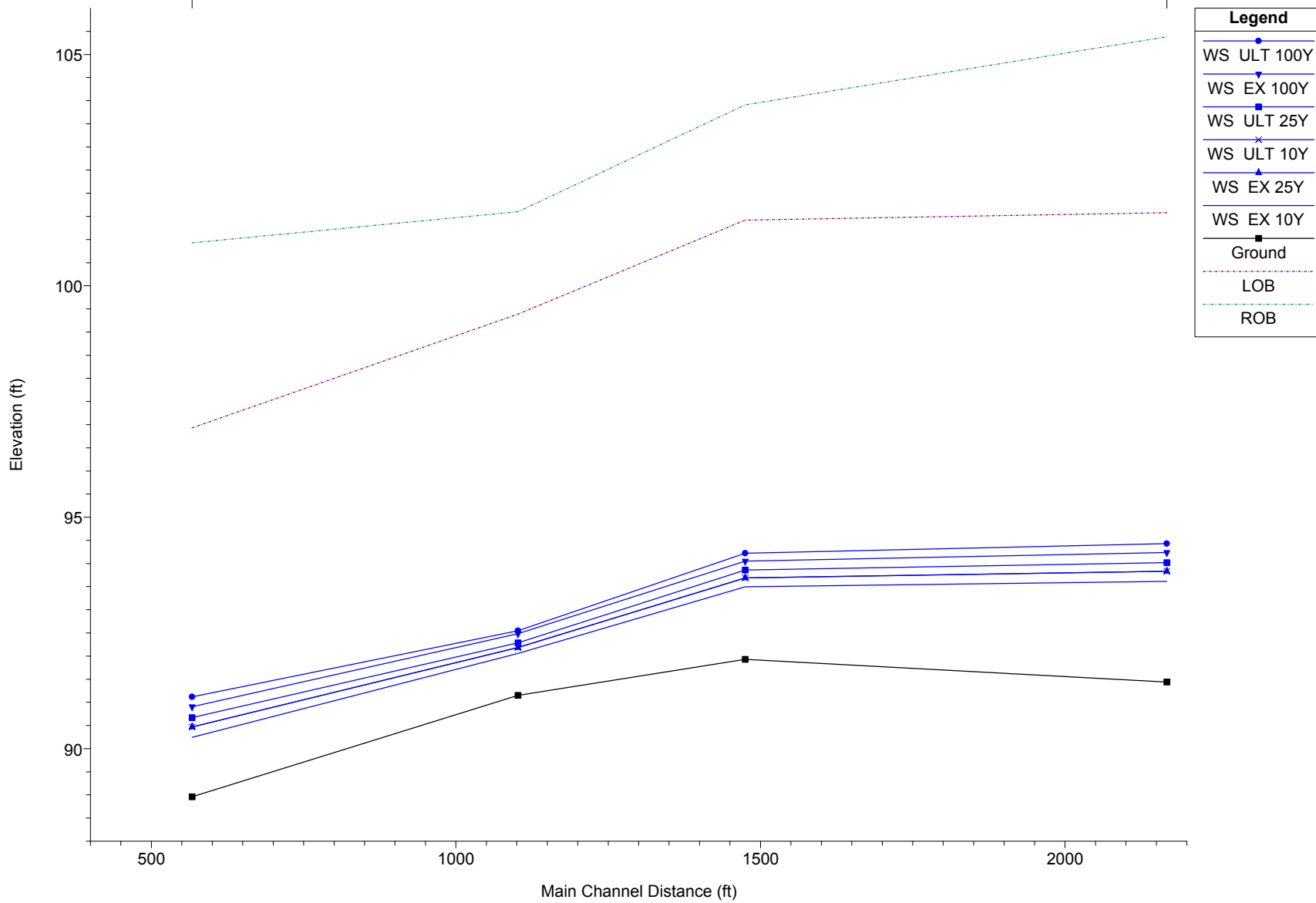
Some schematic data outside default extents (see View/Set Schematic Plot Extents...)

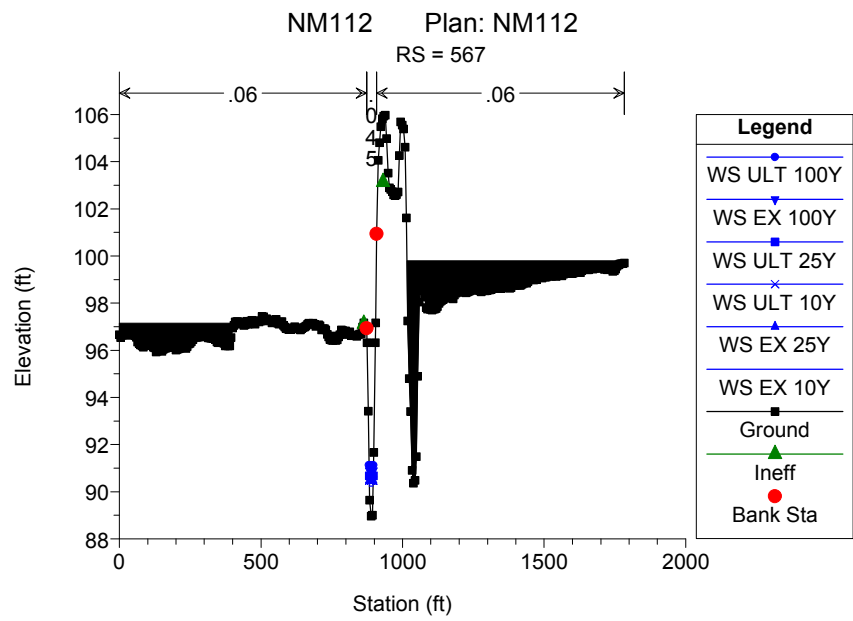
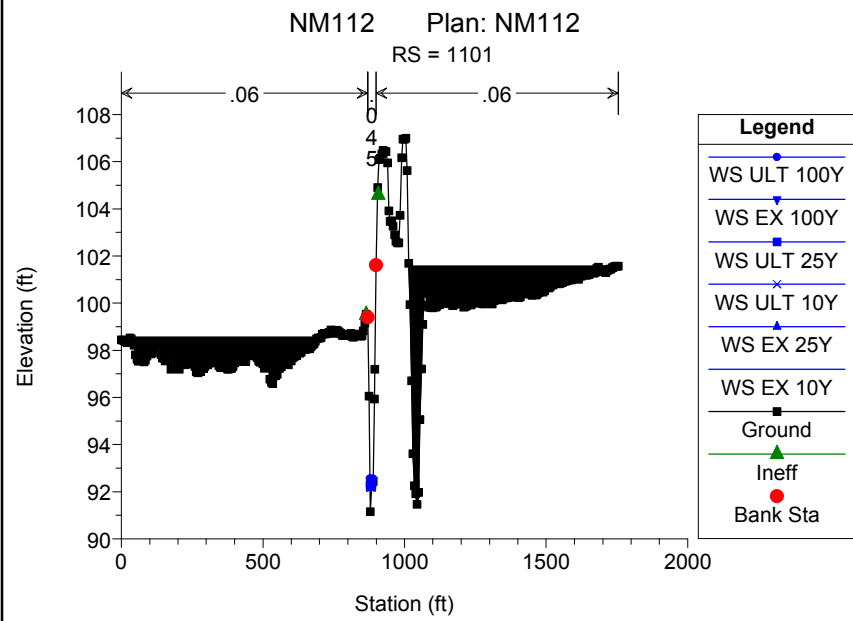
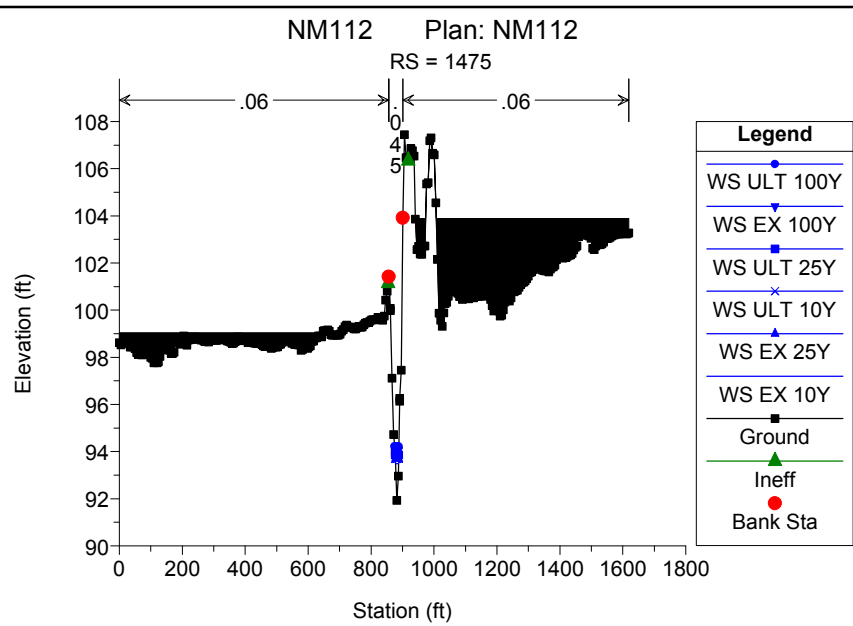
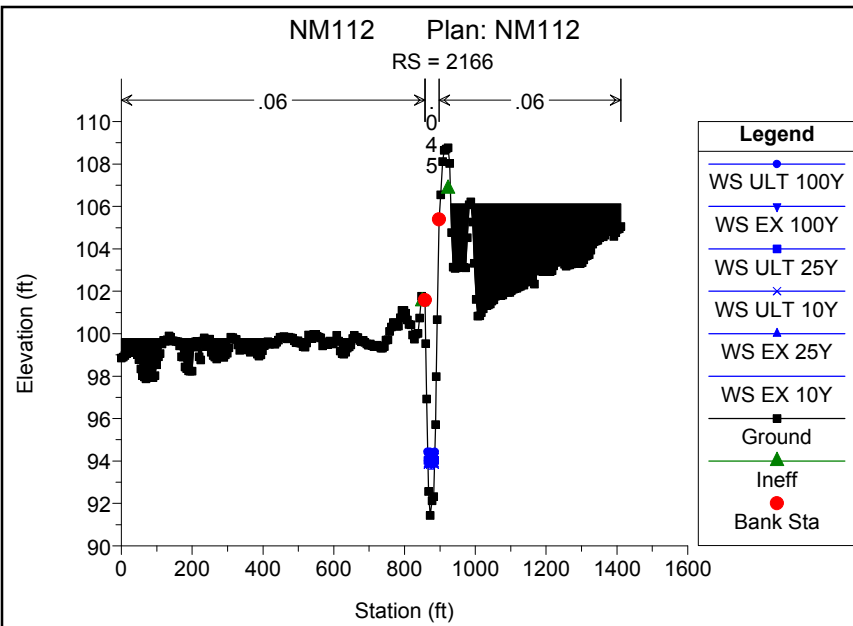
HEC-RAS Plan: BASE River: N-NM-112 Reach: NM-112

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
NM-112	567	EX 10Y	8.00	88.96	90.24	89.36	90.25	0.000400	0.63	12.71	13.11	0.11
NM-112	567	EX 25Y	11.00	88.96	90.47	89.44	90.48	0.000400	0.70	15.77	13.83	0.12
NM-112	567	EX 100Y	18.00	88.96	90.91	89.58	90.92	0.000400	0.81	22.12	15.23	0.12
NM-112	567	ULT 10Y	11.00	88.96	90.47	89.44	90.48	0.000400	0.70	15.77	13.83	0.12
NM-112	567	ULT 25Y	14.00	88.96	90.67	89.50	90.68	0.000400	0.75	18.60	14.47	0.12
NM-112	567	ULT 100Y	22.00	88.96	91.12	89.65	91.13	0.000401	0.86	25.44	15.91	0.12
NM-112	1101	EX 10Y	8.00	91.15	92.06	92.06	92.29	0.044287	3.84	2.08	4.58	1.00
NM-112	1101	EX 25Y	11.00	91.15	92.18	92.18	92.44	0.041878	4.07	2.70	5.22	1.00
NM-112	1101	EX 100Y	18.00	91.15	92.48	92.48	92.70	0.043318	3.72	4.83	11.41	1.01
NM-112	1101	ULT 10Y	11.00	91.15	92.18	92.18	92.44	0.041878	4.07	2.70	5.22	1.00
NM-112	1101	ULT 25Y	14.00	91.15	92.29	92.29	92.57	0.040649	4.28	3.27	5.75	1.00
NM-112	1101	ULT 100Y	22.00	91.15	92.55	92.55	92.79	0.040969	3.94	5.58	11.54	1.00
NM-112	1475	EX 10Y	8.00	91.93	93.49	92.71	93.51	0.001068	0.95	8.41	9.57	0.18
NM-112	1475	EX 25Y	11.00	91.93	93.69	92.82	93.71	0.001124	1.06	10.35	10.34	0.19
NM-112	1475	EX 100Y	18.00	91.93	94.05	93.02	94.08	0.001245	1.25	14.37	12.05	0.20
NM-112	1475	ULT 10Y	11.00	91.93	93.69	92.82	93.71	0.001124	1.06	10.35	10.34	0.19
NM-112	1475	ULT 25Y	14.00	91.93	93.86	92.92	93.88	0.001165	1.15	12.15	11.00	0.19
NM-112	1475	ULT 100Y	22.00	91.93	94.22	93.10	94.25	0.001345	1.33	16.55	13.47	0.21
NM-112	2166	EX 10Y	8.00	91.44	93.61	92.09	93.61	0.000058	0.31	25.91	18.05	0.05
NM-112	2166	EX 25Y	11.00	91.44	93.83	92.19	93.84	0.000071	0.37	29.94	18.62	0.05
NM-112	2166	EX 100Y	18.00	91.44	94.24	92.35	94.24	0.000096	0.48	37.72	19.68	0.06
NM-112	2166	ULT 10Y	11.00	91.44	93.83	92.19	93.84	0.000071	0.37	29.94	18.62	0.05
NM-112	2166	ULT 25Y	14.00	91.44	94.02	92.27	94.02	0.000083	0.42	33.49	19.11	0.06
NM-112	2166	ULT 100Y	22.00	91.44	94.43	92.40	94.44	0.000108	0.53	41.54	20.18	0.07

NM112 Plan: NM112

N-NM-112 NM-112





NM112 OUTPUT REPORT.TXT

HEC-RAS Version 4.1.0 Jan 2010
U.S. Army Corps of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

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X      X  XXXXXXX  XXXX      XXXX      XX      XXXX
X      X  X        X      X      X  X  X  X  X
X      X  X        X      X      X  X  X  X  X
XXXXXXXX XXXX      X      XXX XXXX  XXXXXXX  XXXX
X      X  X        X      X      X  X  X  X  X
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PROJECT DATA

Project Title: NM112
Project File : NM112.prj

Project in English units

PLAN DATA

Plan Title: NM112
Plan File : K:\2014PROJECTS\COE_MDP_TEDSI\MODEL\APPENDIX C -
HYDRAULICS\NM112\NM112.p01

Geometry Title: NM112
Geometry File : K:\2014PROJECTS\COE_MDP_TEDSI\MODEL\APPENDIX C -
HYDRAULICS\NM112\NM112.g01

Flow Title : NM112 FLOW
Flow File : K:\2014PROJECTS\COE_MDP_TEDSI\MODEL\APPENDIX C -
HYDRAULICS\NM112\NM112.f01

Plan Summary Information:

Number of: Cross Sections	=	4	Multiple Openings	=	0
Culverts	=	0	Inline Structures	=	0
Bridges	=	0	Lateral Structures	=	0

Computational Information

Water surface calculation tolerance	=	0.01
Critical depth calculation tolerance	=	0.01
Maximum number of iterations	=	20
Maximum difference tolerance	=	0.3
Flow tolerance factor	=	0.001

Computation Options

Critical depth computed only where necessary	
Conveyance Calculation Method:	At breaks in n values only
Friction Slope Method:	Average Conveyance
Computational Flow Regime:	Subcritical Flow

NM112 OUTPUT REPORT.TXT

FLOW DATA

Flow Title: NM112 FLOW
 Flow File : K:\2014PROJECTS\COE_MDP_TEDSI\MODEL\APPENDIX C -
 HYDRAULICS\NM112\NM112.f01

Flow Data (cfs)

River	Reach	RS	EX 10Y	EX 25Y
EX 100Y	ULT 10Y	ULT 25Y	ULT 100Y	
N-NM-112	NM-112	2166	8	11
18	11	14	22	

Boundary Conditions

River	Reach	Profile	Upstream
Downstream			
N-NM-112	NM-112	EX 10Y	
Normal S = 0.0004			
N-NM-112	NM-112	EX 25Y	
Normal S = 0.0004			
N-NM-112	NM-112	EX 100Y	
Normal S = 0.0004			
N-NM-112	NM-112	ULT 10Y	
Normal S = 0.0004			

GEOMETRY DATA

Geometry Title: NM112
 Geometry File : K:\2014PROJECTS\COE_MDP_TEDSI\MODEL\APPENDIX C -
 HYDRAULICS\NM112\NM112.g01

CROSS SECTION

RIVER: N-NM-112
 REACH: NM-112 RS: 2166

INPUT

Description:

Station Elevation Data		num= 286							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	98.86	4.99	98.9	9.97	98.98	14.96	99.07	19.95	99.11
24.93	99.15	29.92	99.13	34.91	99.12	39.89	99.11	44.88	99.02
49.86	98.78	54.85	98.34	59.84	98.03	64.82	97.96	69.81	97.87
74.8	97.98	79.78	98.03	84.77	97.96	89.76	97.93	94.74	98.02
99.73	98.54	104.72	98.91	109.7	99.06	114.69	99.52	119.68	99.69
124.66	99.64	129.65	99.71	134.63	99.89	139.62	99.84	144.61	99.67
149.59	99.66	154.58	99.64	159.57	99.62	164.55	99.43	169.54	98.92
174.53	98.9	179.51	98.43	184.5	98.36	189.49	98.25	194.47	98.24
199.46	98.23	204.45	99.37	209.43	99.63	214.42	99.64	219.4	98.91
224.39	98.76	229.38	99.66	234.36	99.8	239.35	99.39	244.34	99.53
249.32	99.75	254.31	99.13	259.3	98.97	264.28	98.9	269.27	98.81

NM112 OUTPUT REPORT.TXT

274.26	98.93	279.24	98.92	284.23	98.93	289.22	98.89	294.2	99
299.19	99.08	304.17	99.33	309.16	99.84	314.15	99.82	319.13	99.74
324.12	99.73	329.11	99.47	334.09	99.21	339.08	99.27	344.07	99.27
349.05	99.27	354.04	99.3	359.03	99.23	364.01	99.13	369	99.33
373.99	99.47	378.97	99.21	383.96	99.04	388.94	98.94	393.93	99
398.92	99.2	403.9	99.44	408.89	99.51	413.88	99.62	418.86	99.5
423.85	99.57	428.84	99.54	433.82	99.5	438.81	99.59	443.8	99.7
448.78	99.84	453.77	99.84	458.76	99.87	463.74	99.84	468.73	99.76
473.71	99.83	478.7	99.8	483.69	99.79	488.67	99.67	493.66	99.58
498.65	99.67	503.63	99.56	508.62	99.55	513.61	99.39	518.59	99.37
523.58	99.56	528.57	99.94	533.55	99.79	538.54	99.77	543.53	99.97
548.51	99.97	553.5	99.88	558.48	99.83	563.47	99.81	568.46	99.43
573.44	99.51	578.43	99.53	583.42	99.48	588.4	99.66	593.39	99.57
598.38	99.51	603.36	99.64	608.35	99.92	613.34	99.65	618.32	99.18
623.31	99.07	628.3	99.04	633.28	99.13	638.27	99.32	643.25	99.38
648.24	99.47	653.23	99.78	658.21	99.92	663.2	99.84	668.19	99.82
673.17	99.68	678.16	99.63	683.15	99.69	688.13	99.59	693.12	99.51
698.11	99.46	703.09	99.51	708.08	99.44	713.07	99.39	718.05	99.39
723.04	99.45	728.02	99.41	733.01	99.32	738	99.32	742.98	99.39
747.97	99.7	752.96	99.71	757.94	100.1	762.93	100.31	767.92	100.53
772.9	100.52	777.89	100.35	782.88	100.36	787.86	100.76	792.85	101.1
797.84	101.1	802.82	100.96	807.81	100.65	812.8	100.43	817.78	100.42
822.77	99.94	827.75	99.74	832.74	99.98	837.73	100.02	842.71	100.74
847.7	101.76	852.69	101.61	857.67	101.58	859.88	99.53	862.66	96.93
867.65	92.57	872.63	91.44	877.62	92.13	882.61	92.32	887.59	95.72
889.88	97.98	892.58	100.66	897.57	105.38	902.55	106.55	907.54	108.11
912.53	108.65	917.51	108.71	922.5	108.76	927.48	108.02	932.47	104.76
937.46	103.13	942.44	103.08	947.43	103.1	952.42	103.12	957.4	103.13
962.39	103.13	967.38	103.12	972.36	103.11	977.35	104.53	982.34	106.08
987.32	106.21	992.31	105.27	997.3	103.32	1002.28	101.62	1007.27	100.83
1012.25	100.85	1017.24	101	1022.23	101.17	1027.21	101.32	1032.2	101.32
1037.19	101.35	1042.17	101.41	1047.16	101.54	1052.15	101.6	1057.13	101.76
1062.12	101.83	1067.11	101.8	1072.09	101.8	1077.08	101.83	1082.07	101.95
1087.05	102	1092.04	101.94	1097.02	101.94	1102.01	102.03	1107	102.1
1111.98	102.13	1116.97	102.14	1121.96	102.2	1126.94	102.23	1131.93	102.3
1136.92	102.3	1141.9	102.43	1146.89	102.57	1151.88	102.56	1156.86	102.58
1161.85	102.62	1166.83	102.34	1171.82	103.18	1176.81	103.21	1181.79	102.95
1186.78	102.95	1191.77	102.92	1196.75	103.12	1201.74	103.13	1206.73	102.98
1211.71	102.93	1216.7	102.97	1221.69	103.2	1226.67	103.36	1231.66	103.38
1236.65	103.41	1241.63	103.59	1246.62	103.52	1251.6	103.27	1256.59	103.19
1261.58	103.24	1266.56	103.25	1271.55	103.29	1276.54	103.31	1281.52	103.37
1286.51	103.47	1291.5	103.41	1296.48	103.31	1301.47	103.35	1306.46	103.48
1311.44	103.65	1316.43	103.68	1321.41	103.72	1326.4	103.93	1331.39	104.22
1336.37	104.35	1341.36	104.37	1346.35	104.4	1351.33	104.53	1356.32	104.61
1361.31	104.57	1366.29	104.64	1371.28	104.87	1376.27	105.01	1381.25	104.86
1386.24	104.81	1391.23	104.59	1396.21	104.76	1401.2	104.92	1406.18	104.94
1411.17	105.06								

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 857.67 .045 897.57 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 857.67 897.57 690 692 693 .1 .3

Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 849.48 101.52 F
 922.55 1411.17 106.84 F

Blocked obstructions num= 2
 Sta L Sta R Elev Sta L Sta R Elev
 0 656.14 99.77 916.46 1411.17 106.12

NM112 OUTPUT REPORT.TXT

E.G. Elev (ft)	93.61	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-Val.		0.045
W.S. Elev (ft)	93.61	Reach Len. (ft)	690.00	692.00
693.00 Crit w.s. (ft)	92.09	Flow Area (sq ft)		25.91
E.G. Slope (ft/ft)	0.000058	Area (sq ft)		25.91
Q Total (cfs)	8.00	Flow (cfs)		8.00
Top width (ft)	18.05	Top width (ft)		18.05
Vel Total (ft/s)	0.31	Avg. Vel. (ft/s)		0.31
Max chl Dpth (ft)	2.17	Hydr. Depth (ft)		1.44
Conv. Total (cfs)	1051.4	Conv. (cfs)		1051.4
Length wtd. (ft)	692.00	wetted Per. (ft)		19.02
Min ch El (ft)	91.44	Shear (lb/sq ft)		0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	1411.17	0.00
Frctn Loss (ft)	0.11	Cum Volume (acre-ft)		0.41
C & E Loss (ft)	0.00	Cum SA (acres)		0.39

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	93.84	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-Val.		0.045
W.S. Elev (ft)	93.83	Reach Len. (ft)	690.00	692.00
693.00 Crit w.s. (ft)	92.19	Flow Area (sq ft)		29.94
E.G. Slope (ft/ft)	0.000071	Area (sq ft)		29.94
Q Total (cfs)	11.00	Flow (cfs)		11.00
Top width (ft)	18.62	Top width (ft)		18.62
Vel Total (ft/s)	0.37	Avg. Vel. (ft/s)		0.37
Max chl Dpth (ft)	2.39	Hydr. Depth (ft)		1.61
Conv. Total (cfs)	1305.1	Conv. (cfs)		1305.1

NM112 OUTPUT REPORT.TXT

Length Wtd. (ft)	692.00	Wetted Per. (ft)	19.74
Min Ch El (ft)	91.44	Shear (lb/sq ft)	0.01
Alpha 0.00	1.00	Stream Power (lb/ft s)	1411.17
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)	0.49
C & E Loss (ft)	0.00	Cum SA (acres)	0.41

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	94.24	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-Val.		0.045
W.S. Elev (ft)	94.24	Reach Len. (ft)	690.00	692.00
693.00 Crit W.S. (ft)	92.35	Flow Area (sq ft)		37.72
E.G. Slope (ft/ft)	0.000096	Area (sq ft)		37.72
Q Total (cfs)	18.00	Flow (cfs)		18.00
Top width (ft)	19.68	Top width (ft)		19.68
Vel Total (ft/s)	0.48	Avg. Vel. (ft/s)		0.48
Max Chl Dpth (ft)	2.80	Hydr. Depth (ft)		1.92
Conv. Total (cfs)	1835.5	Conv. (cfs)		1835.5
Length Wtd. (ft)	692.00	Wetted Per. (ft)		21.08
Min Ch El (ft)	91.44	Shear (lb/sq ft)		0.01
Alpha 0.00	1.00	Stream Power (lb/ft s)	1411.17	0.00
Frctn Loss (ft)	0.16	Cum Volume (acre-ft)		0.66
C & E Loss (ft)	0.00	Cum SA (acres)		0.52

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

NM112 OUTPUT REPORT.TXT

E.G. Elev (ft)	93.84	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-Val.		0.045
W.S. Elev (ft)	93.83	Reach Len. (ft)	690.00	692.00
693.00 Crit w.s. (ft)	92.19	Flow Area (sq ft)		29.94
E.G. Slope (ft/ft)	0.000071	Area (sq ft)		29.94
Q Total (cfs)	11.00	Flow (cfs)		11.00
Top width (ft)	18.62	Top width (ft)		18.62
Vel Total (ft/s)	0.37	Avg. Vel. (ft/s)		0.37
Max chl Dpth (ft)	2.39	Hydr. Depth (ft)		1.61
Conv. Total (cfs)	1305.1	Conv. (cfs)		1305.1
Length wtd. (ft)	692.00	wetted Per. (ft)		19.74
Min ch El (ft)	91.44	Shear (lb/sq ft)		0.01
Alpha 0.00	1.00	Stream Power (lb/ft s)	1411.17	0.00
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)		0.49
C & E Loss (ft)	0.00	Cum SA (acres)		0.41

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	94.02	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-Val.		0.045
W.S. Elev (ft)	94.02	Reach Len. (ft)	690.00	692.00
693.00 Crit w.s. (ft)	92.27	Flow Area (sq ft)		33.49
E.G. Slope (ft/ft)	0.000083	Area (sq ft)		33.49
Q Total (cfs)	14.00	Flow (cfs)		14.00
Top width (ft)	19.11	Top width (ft)		19.11
Vel Total (ft/s)	0.42	Avg. Vel. (ft/s)		0.42
Max chl Dpth (ft)	2.58	Hydr. Depth (ft)		1.75
Conv. Total (cfs)	1541.0	Conv. (cfs)		1541.0

NM112 OUTPUT REPORT.TXT

Length Wtd. (ft)	692.00	Wetted Per. (ft)	20.36
Min Ch El (ft)	91.44	Shear (lb/sq ft)	0.01
Alpha 0.00	1.00	Stream Power (lb/ft s)	1411.17
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)	0.56
C & E Loss (ft)	0.00	Cum SA (acres)	0.44

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	94.44	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-Val.		0.045
W.S. Elev (ft)	94.43	Reach Len. (ft)	690.00	692.00
693.00 Crit W.S. (ft)	92.40	Flow Area (sq ft)		41.54
E.G. Slope (ft/ft)	0.000108	Area (sq ft)		41.54
Q Total (cfs)	22.00	Flow (cfs)		22.00
Top width (ft)	20.18	Top width (ft)		20.18
Vel Total (ft/s)	0.53	Avg. Vel. (ft/s)		0.53
Max Chl Dpth (ft)	2.99	Hydr. Depth (ft)		2.06
Conv. Total (cfs)	2113.9	Conv. (cfs)		2113.9
Length Wtd. (ft)	692.00	Wetted Per. (ft)		21.71
Min Ch El (ft)	91.44	Shear (lb/sq ft)		0.01
Alpha 0.00	1.00	Stream Power (lb/ft s)	1411.17	0.00
Frctn Loss (ft)	0.18	Cum Volume (acre-ft)		0.75
C & E Loss (ft)	0.00	Cum SA (acres)		0.54

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

NM112 OUTPUT REPORT.TXT

RIVER: N-NM-112
 REACH: NM-112

RS: 1475

INPUT

Description:

Station	Elevation	Data	num=	328							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	98.62	4.98	98.53	9.96	98.59	14.94	98.62	19.92	98.66		
24.9	98.72	29.88	98.58	34.86	98.43	39.84	98.44	44.82	98.45		
49.8	98.36	54.78	98.2	59.75	98.12	64.73	98.13	69.71	98.11		
74.69	98.11	79.67	98.29	84.65	98.34	89.63	98.5	94.61	98.34		
99.59	98	104.57	97.96	109.55	97.77	114.53	97.8	119.51	97.77		
124.49	97.8	129.47	98.03	134.45	98.31	139.43	98.46	144.41	98.47		
149.39	98.37	154.37	98.45	159.35	98.29	164.33	98.16	169.3	98.16		
174.28	98.21	179.26	98.76	184.24	98.63	189.22	98.6	194.2	98.55		
199.18	98.67	204.16	98.91	209.14	98.88	214.12	98.51	219.1	98.73		
224.08	98.74	229.06	98.75	234.04	98.78	239.02	98.87	244	98.83		
248.98	98.77	253.96	98.75	258.94	98.73	263.92	98.77	268.9	98.69		
273.88	98.66	278.86	98.67	283.84	98.65	288.81	98.72	293.79	98.76		
298.77	98.8	303.75	98.72	308.73	98.72	313.71	98.74	318.69	98.75		
323.67	98.77	328.65	98.75	333.63	98.74	338.61	98.73	343.59	98.69		
348.57	98.68	353.55	98.63	358.53	98.58	363.51	98.6	368.49	98.66		
373.47	98.76	378.45	98.86	383.43	98.79	388.41	98.7	393.39	98.76		
398.36	98.82	403.34	98.72	408.32	98.62	413.3	98.64	418.28	98.62		
423.26	98.62	428.24	98.61	433.22	98.59	438.2	98.58	443.18	98.65		
448.16	98.62	453.14	98.54	458.12	98.48	463.1	98.46	468.08	98.48		
473.06	98.49	478.04	98.45	483.02	98.38	488	98.42	492.98	98.53		
497.96	98.43	502.94	98.44	507.92	98.54	512.89	98.55	517.87	98.63		
522.85	98.69	527.83	98.68	532.81	98.69	537.79	98.75	542.77	98.74		
547.75	98.59	552.73	98.59	557.71	98.54	562.69	98.54	567.67	98.53		
572.65	98.53	577.63	98.3	582.61	98.33	587.59	98.45	592.57	98.46		
597.55	98.37	602.53	98.45	607.51	98.49	612.49	98.67	617.47	98.69		
622.44	98.81	627.42	98.84	632.4	98.9	637.38	98.9	642.36	98.86		
647.34	99.11	652.32	99.13	657.3	99.11	662.28	99.16	667.26	99.11		
672.24	98.96	677.22	98.93	682.2	98.95	687.18	98.95	692.16	98.93		
697.14	98.95	702.12	98.99	707.1	99.11	712.08	99.17	717.06	99.3		
722.04	99.37	727.02	99.29	731.99	99.27	736.97	99.28	741.95	99.25		
746.93	99.21	751.91	99.2	756.89	99.27	761.87	99.31	766.85	99.27		
771.83	99.28	776.81	99.38	781.79	99.45	786.77	99.48	791.75	99.48		
796.73	99.53	801.71	99.58	806.69	99.6	811.67	99.58	816.65	99.6		
821.63	99.69	826.61	99.67	831.59	99.66	836.57	99.57	841.55	99.75		
846.52	100.43	851.5	100.8	856.48	101.42	861.17	100.07	861.46	99.98		
866.44	97.11	871.42	94.72	876.4	93.99	881.38	91.93	886.36	92.96		
891.17	96.14	891.34	96.26	896.32	97.45	901.3	103.91	906.28	107.45		
911.26	106.47	916.24	106.5	921.22	106.5	926.2	106.86	931.18	106.76		
936.16	106.54	941.14	103.86	946.12	102.57	951.1	102.7	956.07	102.38		
961.05	102.37	966.03	102.72	971.01	102.72	975.99	105.35	980.97	105.41		
985.95	107.19	990.93	107.31	995.91	106.65	1000.89	106.59	1005.87	104.55		
1010.85	102.15	1015.83	99.87	1020.81	99.57	1025.79	99.31	1030.77	99.88		
1035.75	100.28	1040.73	100.33	1045.71	100.59	1050.69	100.81	1055.67	100.81		
1060.65	100.77	1065.63	100.8	1070.61	100.88	1075.58	100.71	1080.56	100.58		
1085.54	100.58	1090.52	100.45	1095.5	100.51	1100.48	100.56	1105.46	100.55		
1110.44	100.48	1115.42	100.55	1120.4	100.56	1125.38	100.52	1130.36	100.58		
1135.34	100.6	1140.32	100.59	1145.3	100.59	1150.28	100.59	1155.26	100.62		
1160.24	100.66	1165.22	100.65	1170.2	100.65	1175.18	100.59	1180.16	100.45		
1185.14	100.2	1190.11	99.96	1195.09	100.09	1200.07	100.22	1205.05	99.96		
1210.03	99.74	1215.02	99.79	1220	100.02	1224.98	100.34	1229.96	100.46		
1234.94	100.43	1239.92	100.39	1244.9	100.52	1249.89	100.82	1254.87	100.78		
1259.85	100.83	1264.83	100.85	1269.81	100.97	1274.79	101.08	1279.77	101.16		
1284.76	101.18	1289.74	101.24	1294.72	101.34	1299.7	101.45	1304.68	101.59		
1309.66	101.62	1314.64	101.71	1319.63	101.78	1324.61	101.83	1329.59	101.77		

NM112 OUTPUT REPORT.TXT

1334.57	101.74	1339.55	101.75	1344.53	101.7	1349.51	101.67	1354.49	101.66
1359.48	101.67	1364.46	101.62	1369.44	101.74	1374.42	101.82	1379.4	101.84
1384.38	101.9	1389.36	102.14	1394.35	102.23	1399.33	102.26	1404.31	102.31
1409.29	102.2	1414.27	102.31	1419.25	102.23	1424.23	102.28	1429.22	102.33
1434.2	102.34	1439.18	102.41	1444.16	102.56	1449.14	102.67	1454.12	102.72
1459.1	103.11	1464.08	103.18	1469.07	103.36	1474.05	103.42	1479.03	103.3
1484.01	103.25	1488.99	103.17	1493.97	103.14	1498.95	103.05	1503.94	102.63
1508.92	102.57	1513.9	102.72	1518.88	102.79	1523.86	102.84	1528.84	102.78
1533.82	102.81	1538.81	102.88	1543.79	103.12	1548.77	103.03	1553.75	103.05
1558.73	103.08	1563.71	103.14	1568.69	103.18	1573.68	103.2	1578.66	103.22
1583.64	103.24	1588.62	103.22	1593.6	103.25	1598.58	103.27	1603.56	103.28
1608.54	103.24	1613.53	103.24	1618.51	103.28				

Manning's n Values

num=	3				
Sta	n Val	Sta	n Val		
0	.06	856.48	.045	901.3	.06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

856.48	901.3	375	373	371	.1	.3
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Ineffective Flow num= 2 Permanent

Sta L	Sta R	Elev	Sta L	Sta R	Elev
0	854.61	101.15	F		
917.98	1618.51	106.34	F		

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
0	655.95	99.04	921.41	1618.51	103.89

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	93.51	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	wt. n-val.		0.045
W.S. Elev (ft)	93.49	Reach Len. (ft)	375.00	373.00
371.00				
Crit w.s. (ft)	92.71	Flow Area (sq ft)		8.41
E.G. Slope (ft/ft)	0.001068	Area (sq ft)		8.41
Q Total (cfs)	8.00	Flow (cfs)		8.00
Top width (ft)	9.57	Top width (ft)		9.57
Vel Total (ft/s)	0.95	Avg. Vel. (ft/s)		0.95
Max Chl Dpth (ft)	1.56	Hydr. Depth (ft)		0.88
Conv. Total (cfs)	244.8	Conv. (cfs)		244.8
Length wtd. (ft)	373.00	wetted Per. (ft)		10.15
Min Ch El (ft)	91.93	Shear (lb/sq ft)		0.06
Alpha	1.00	Stream Power (lb/ft s)	1618.51	0.00
0.00				
Frctn Loss (ft)	1.19	Cum Volume (acre-ft)		0.14
C & E Loss (ft)	0.02	Cum SA (acres)		0.17

NM112 OUTPUT REPORT.TXT

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	93.71	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-Val.		0.045
W.S. Elev (ft)	93.69	Reach Len. (ft)	375.00	373.00
371.00 Crit w.s. (ft)	92.82	Flow Area (sq ft)		10.35
E.G. Slope (ft/ft)	0.001124	Area (sq ft)		10.35
Q Total (cfs)	11.00	Flow (cfs)		11.00
Top width (ft)	10.34	Top width (ft)		10.34
Vel Total (ft/s)	1.06	Avg. Vel. (ft/s)		1.06
Max Chl Dpth (ft)	1.76	Hydr. Depth (ft)		1.00
Conv. Total (cfs)	328.1	Conv. (cfs)		328.1
Length wtd. (ft)	373.00	wetted Per. (ft)		11.02
Min Ch El (ft)	91.93	Shear (lb/sq ft)		0.07
Alpha 0.00	1.00	Stream Power (lb/ft s)	1618.51	0.00
Frctn Loss (ft)	1.24	Cum Volume (acre-ft)		0.17
C & E Loss (ft)	0.02	Cum SA (acres)		0.18

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	94.08	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-Val.		0.045
W.S. Elev (ft)	94.05	Reach Len. (ft)	375.00	373.00
371.00				

NM112 OUTPUT REPORT.TXT				
Crit w.s. (ft)	93.02	Flow Area (sq ft)		14.37
E.G. Slope (ft/ft)	0.001245	Area (sq ft)		14.37
Q Total (cfs)	18.00	Flow (cfs)		18.00
Top width (ft)	12.05	Top width (ft)		12.05
Vel Total (ft/s)	1.25	Avg. Vel. (ft/s)		1.25
Max Chl Dpth (ft)	2.12	Hydr. Depth (ft)		1.19
Conv. Total (cfs)	510.2	Conv. (cfs)		510.2
Length wtd. (ft)	373.00	wetted Per. (ft)		12.89
Min Ch El (ft)	91.93	Shear (lb/sq ft)		0.09
Alpha	1.00	Stream Power (lb/ft s)	1618.51	0.00
0.00				
Frctn Loss (ft)	1.36	Cum Volume (acre-ft)		0.25
C & E Loss (ft)	0.02	Cum SA (acres)		0.26

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the

need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	93.71	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	wt. n-Val.		0.045
W.S. Elev (ft)	93.69	Reach Len. (ft)	375.00	373.00
371.00				
Crit w.s. (ft)	92.82	Flow Area (sq ft)		10.35
E.G. Slope (ft/ft)	0.001124	Area (sq ft)		10.35
Q Total (cfs)	11.00	Flow (cfs)		11.00
Top width (ft)	10.34	Top width (ft)		10.34
Vel Total (ft/s)	1.06	Avg. Vel. (ft/s)		1.06
Max Chl Dpth (ft)	1.76	Hydr. Depth (ft)		1.00
Conv. Total (cfs)	328.1	Conv. (cfs)		328.1
Length wtd. (ft)	373.00	wetted Per. (ft)		11.02
Min Ch El (ft)	91.93	Shear (lb/sq ft)		0.07

NM112 OUTPUT REPORT.TXT				
Alpha	1.00	Stream Power (lb/ft s)	1618.51	0.00
0.00				
Frctn Loss (ft)	1.24	Cum Volume (acre-ft)		0.17
C & E Loss (ft)	0.02	Cum SA (acres)		0.18

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the

need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	93.88	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	wt. n-Val.		0.045
W.S. Elev (ft)	93.86	Reach Len. (ft)	375.00	373.00
371.00				
Crit w.s. (ft)	92.92	Flow Area (sq ft)		12.15
E.G. Slope (ft/ft)	0.001165	Area (sq ft)		12.15
Q Total (cfs)	14.00	Flow (cfs)		14.00
Top width (ft)	11.00	Top width (ft)		11.00
Vel Total (ft/s)	1.15	Avg. Vel. (ft/s)		1.15
Max Chl Dpth (ft)	1.93	Hydr. Depth (ft)		1.10
Conv. Total (cfs)	410.1	Conv. (cfs)		410.1
Length wtd. (ft)	373.00	wetted Per. (ft)		11.76
Min Ch El (ft)	91.93	Shear (lb/sq ft)		0.08
Alpha	1.00	Stream Power (lb/ft s)	1618.51	0.00
0.00				
Frctn Loss (ft)	1.27	Cum Volume (acre-ft)		0.20
C & E Loss (ft)	0.03	Cum SA (acres)		0.20

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the

need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	94.25	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	wt. n-Val.		0.045
w.s. Elev (ft)	94.22	Reach Len. (ft)	375.00	373.00
371.00 Crit w.s. (ft)	93.10	Flow Area (sq ft)		16.55
E.G. Slope (ft/ft)	0.001345	Area (sq ft)		16.55
Q Total (cfs)	22.00	Flow (cfs)		22.00
Top width (ft)	13.47	Top width (ft)		13.47
Vel Total (ft/s)	1.33	Avg. Vel. (ft/s)		1.33
Max Chl Dpth (ft)	2.29	Hydr. Depth (ft)		1.23
Conv. Total (cfs)	599.9	Conv. (cfs)		599.9
Length wtd. (ft)	373.00	wetted Per. (ft)		14.38
Min Ch El (ft)	91.93	Shear (lb/sq ft)		0.10
Alpha 0.00	1.00	Stream Power (lb/ft s)	1618.51	0.00
Frctn Loss (ft)	1.44	Cum Volume (acre-ft)		0.29
C & E Loss (ft)	0.02	Cum SA (acres)		0.28

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-112

REACH: NM-112

RS: 1101

INPUT

Description:

Station Elevation Data		num= 354							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	98.44	5	98.43	10	98.4	14.99	98.36	19.99	98.32
24.99	98.35	29.99	98.52	34.99	98.49	39.98	98.36	44.98	98.21
49.98	97.8	54.98	97.62	59.98	97.54	64.97	97.63	69.97	97.92
74.97	97.83	79.97	97.51	84.96	97.57	89.96	97.75	94.96	97.9
99.96	97.87	104.96	97.85	109.95	97.89	114.95	98.02	119.95	98.18
124.95	98.29	129.95	98.29	134.94	98.18	139.94	97.82	144.94	97.67
149.94	97.66	154.94	97.55	159.93	97.93	164.93	97.89	169.93	97.86
174.93	97.2	179.93	97.31	184.92	97.31	189.92	97.34	194.92	97.34

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199.92	97.34	204.92	97.19	209.91	97.47	214.91	97.47	219.91	97.49
224.91	97.38	229.9	97.44	234.9	97.41	239.9	97.47	244.9	97.7
249.9	97.68	254.89	97.63	259.89	97.31	264.89	97.09	269.89	97.05
274.89	97.09	279.88	97.1	284.88	97.27	289.88	97.22	294.88	97.31
299.88	97.41	304.87	97.39	309.87	97.46	314.87	97.49	319.87	97.47
324.87	97.47	329.86	97.53	334.86	97.58	339.86	97.56	344.86	97.34
349.86	97.26	354.85	97.4	359.85	97.41	364.85	97.36	369.85	97.31
374.84	97.2	379.84	97.21	384.84	97.22	389.84	97.24	394.84	97.32
399.83	97.46	404.83	97.54	409.83	97.52	414.83	97.52	419.83	97.6
424.82	97.61	429.82	97.62	434.82	97.61	439.82	97.52	444.82	97.79
449.81	97.97	454.81	97.98	459.81	97.99	464.81	97.85	469.81	97.76
474.8	97.75	479.8	97.68	484.8	97.55	489.8	97.5	494.8	97.53
499.79	97.43	504.79	97.24	509.79	97.34	514.79	97.35	519.78	97.28
524.78	96.77	529.78	96.64	534.78	96.58	539.78	96.91	544.77	96.92
549.77	96.98	554.77	97.23	559.77	97.24	564.77	97.3	569.76	97.4
574.76	97.41	579.76	97.42	584.76	97.41	589.76	97.38	594.75	97.56
599.75	97.55	604.75	97.69	609.75	97.72	614.75	97.77	619.74	97.78
624.74	97.94	629.74	97.88	634.74	97.91	639.74	98.05	644.73	98.09
649.73	98.03	654.73	98.06	659.73	98.07	664.72	98.07	669.72	98.15
674.72	98.22	679.72	98.27	684.72	98.38	689.71	98.48	694.71	98.52
699.71	98.51	704.71	98.54	709.71	98.67	714.7	98.72	719.7	98.69
724.7	98.72	729.7	98.73	734.7	98.76	739.69	98.87	744.69	98.79
749.69	98.72	754.69	98.81	759.69	98.85	764.68	98.82	769.68	98.77
774.68	98.71	779.68	98.64	784.68	98.64	789.67	98.62	794.67	98.65
799.67	98.63	804.67	98.67	809.66	98.72	814.66	98.58	819.66	98.55
824.66	98.65	829.66	98.66	834.65	98.69	839.65	98.67	844.65	98.59
849.65	98.62	854.65	98.82	859.64	99.15	863.3	99.42	864.64	99.53
869.64	99.39	874.64	96.05	879.64	91.15	884.63	92.39	889.63	92.43
893.3	95.93	894.63	97.19	899.63	101.6	904.63	104.9	909.62	106.08
914.62	106.14	919.62	106.33	924.62	106.48	929.62	106.43	934.61	106.43
939.61	105.95	944.61	103.91	949.61	103.47	954.61	103.5	959.6	103.26
964.6	102.9	969.6	102.62	974.6	102.56	979.59	102.55	984.59	103.72
989.59	106.17	994.59	106.96	999.59	106.96	1004.58	107	1009.58	105.63
1014.58	101.69	1019.58	99.93	1024.58	96.7	1029.57	93.61	1034.57	92.26
1039.57	91.92	1044.57	91.47	1049.57	91.97	1054.56	95.07	1059.56	97.21
1064.56	99.09	1069.56	100.78	1074.55	100.42	1079.55	99.92	1084.55	99.83
1089.55	99.85	1094.55	99.82	1099.54	99.8	1104.54	99.85	1109.54	99.83
1114.54	99.87	1119.54	100.02	1124.53	99.93	1129.53	100.01	1134.53	100.12
1139.53	100.02	1144.53	100	1149.52	100.01	1154.52	100.01	1159.52	99.98
1164.52	99.99	1169.52	99.89	1174.51	99.94	1179.51	100.15	1184.51	99.99
1189.51	99.97	1194.51	99.98	1199.5	100.04	1204.5	100.02	1209.5	99.83
1214.5	99.85	1219.5	99.89	1224.49	99.97	1229.49	99.93	1234.49	99.92
1239.49	100.09	1244.48	100.01	1249.48	100.02	1254.48	100.04	1259.48	100.01
1264.48	100.09	1269.47	100.12	1274.47	99.98	1279.47	99.97	1284.47	100.03
1289.47	100.18	1294.46	100.2	1299.46	100.2	1304.46	100.09	1309.46	99.97
1314.46	100.1	1319.45	100.13	1324.45	100.19	1329.45	100.18	1334.45	100.15
1339.45	100.18	1344.44	100.14	1349.44	100.19	1354.44	100.23	1359.44	100.22
1364.44	100.23	1369.43	100.29	1374.43	100.26	1379.43	100.26	1384.43	100.26
1389.42	100.3	1394.42	100.4	1399.42	100.33	1404.42	100.23	1409.42	100.28
1414.41	100.41	1419.41	100.54	1424.41	100.59	1429.41	100.46	1434.41	100.39
1439.4	100.46	1444.4	100.41	1449.4	100.33	1454.4	100.37	1459.4	100.38
1464.39	100.35	1469.39	100.38	1474.39	100.45	1479.39	100.59	1484.39	100.61
1489.38	100.47	1494.38	100.54	1499.38	100.71	1504.38	100.74	1509.38	100.64
1514.37	100.69	1519.37	100.84	1524.37	100.76	1529.37	100.98	1534.37	100.85
1539.36	100.85	1544.36	100.82	1549.36	100.83	1554.36	100.87	1559.35	100.89
1564.35	100.94	1569.35	100.93	1574.35	100.95	1579.35	100.98	1584.34	101.06
1589.34	100.98	1594.34	101.04	1599.34	101.08	1604.34	101.15	1609.33	101.15
1614.33	101.01	1619.33	101.15	1624.33	101.14	1629.33	101.26	1634.32	101.25
1639.32	101.19	1644.32	101.18	1649.32	101.21	1654.32	101.24	1659.31	101.36
1664.31	101.38	1669.31	101.27	1674.31	101.31	1679.31	101.49	1684.3	101.52
1689.3	101.4	1694.3	101.37	1699.3	101.42	1704.29	101.34	1709.29	101.3
1714.29	101.36	1719.29	101.4	1724.29	101.44	1729.28	101.44	1734.28	101.51
1739.28	101.54	1744.28	101.56	1749.28	101.57	1754.27	101.56		

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Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 869.64 .045 899.63 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 869.64 899.63 535 535 535 .1 .3

Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 864.95 99.5 F
 907.71 1754.27 104.59 F

Blocked Obstructions num= 2
 Sta L Sta R Elev Sta L Sta R Elev
 0 725.02 98.56 991.44 1754.27 101.58

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	92.29	Element	Left OB	Channel
Right OB Vel Head (ft)	0.23	wt. n-Val.		0.045
W.S. Elev (ft)	92.06	Reach Len. (ft)	535.00	535.00
535.00 Crit w.s. (ft)	92.06	Flow Area (sq ft)		2.08
E.G. Slope (ft/ft)	0.044287	Area (sq ft)		2.08
Q Total (cfs)	8.00	Flow (cfs)		8.00
Top width (ft)	4.58	Top width (ft)		4.58
Vel Total (ft/s)	3.84	Avg. Vel. (ft/s)		3.84
Max Chl Dpth (ft)	0.91	Hydr. Depth (ft)		0.45
Conv. Total (cfs)	38.0	Conv. (cfs)		38.0
Length wtd. (ft)	535.00	wetted Per. (ft)		5.07
Min Ch El (ft)	91.15	Shear (lb/sq ft)		1.14
Alpha 0.00	1.00	Stream Power (lb/ft s)	1754.27	0.00
Frctn Loss (ft)	0.71	Cum Volume (acre-ft)		0.09
C & E Loss (ft)	0.07	Cum SA (acres)		0.11

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
 Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.
 Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
 Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a

NM112 OUTPUT REPORT.TXT

valid subcritical answer. The program defaulted to critical depth.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	92.44	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.26	wt. n-val.		0.045
W.S. Elev (ft)	92.18	Reach Len. (ft)	535.00	535.00
535.00				
Crit w.s. (ft)	92.18	Flow Area (sq ft)		2.70
E.G. Slope (ft/ft)	0.041878	Area (sq ft)		2.70
Q Total (cfs)	11.00	Flow (cfs)		11.00
Top width (ft)	5.22	Top width (ft)		5.22
Vel Total (ft/s)	4.07	Avg. Vel. (ft/s)		4.07
Max Chl Dpth (ft)	1.03	Hydr. Depth (ft)		0.52
Conv. Total (cfs)	53.8	Conv. (cfs)		53.8
Length wtd. (ft)	535.00	wetted Per. (ft)		5.77
Min Ch El (ft)	91.15	Shear (lb/sq ft)		1.22
Alpha	1.00	Stream Power (lb/ft s)	1754.27	0.00
0.00				
Frctn Loss (ft)	0.71	Cum Volume (acre-ft)		0.11
C & E Loss (ft)	0.08	Cum SA (acres)		0.12

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	92.70	Element	Left OB	Channel
Right OB				

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Vel Head (ft)	0.22	wt. n-Val.		0.045
W.S. Elev (ft)	92.48	Reach Len. (ft)	535.00	535.00
535.00 Crit w.s. (ft)	92.48	Flow Area (sq ft)		4.83
E.G. Slope (ft/ft)	0.043318	Area (sq ft)		4.83
Q Total (cfs)	18.00	Flow (cfs)		18.00
Top Width (ft)	11.41	Top Width (ft)		11.41
Vel Total (ft/s)	3.72	Avg. Vel. (ft/s)		3.72
Max Chl Dpth (ft)	1.33	Hydr. Depth (ft)		0.42
Conv. Total (cfs)	86.5	Conv. (cfs)		86.5
Length wtd. (ft)	535.00	wetted Per. (ft)		12.12
Min Ch El (ft)	91.15	Shear (lb/sq ft)		1.08
Alpha 0.00	1.00	Stream Power (lb/ft s)	1754.27	0.00
Frctn Loss (ft)	0.71	Cum Volume (acre-ft)		0.17
C & E Loss (ft)	0.06	Cum SA (acres)		0.16

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m) between the current and previous cross section. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

Profile #ULT 10Y				
E.G. Elev (ft)	92.44	Element	Left OB	Channel
Right OB Vel Head (ft)	0.26	wt. n-Val.		0.045
W.S. Elev (ft)	92.18	Reach Len. (ft)	535.00	535.00
535.00 Crit w.s. (ft)	92.18	Flow Area (sq ft)		2.70
E.G. Slope (ft/ft)	0.041878	Area (sq ft)		2.70
Q Total (cfs)	11.00	Flow (cfs)		11.00

NM112 OUTPUT REPORT.TXT				
Top width (ft)	5.22	Top width (ft)		5.22
Vel Total (ft/s)	4.07	Avg. Vel. (ft/s)		4.07
Max Chl Dpth (ft)	1.03	Hydr. Depth (ft)		0.52
Conv. Total (cfs)	53.8	Conv. (cfs)		53.8
Length Wtd. (ft)	535.00	Wetted Per. (ft)		5.77
Min Ch El (ft)	91.15	Shear (lb/sq ft)		1.22
Alpha	1.00	Stream Power (lb/ft s)	1754.27	0.00
0.00				
Frctn Loss (ft)	0.71	Cum Volume (acre-ft)		0.11
C & E Loss (ft)	0.08	Cum SA (acres)		0.12

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	92.57	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.28	Wt. n-Val.		0.045
W.S. Elev (ft)	92.29	Reach Len. (ft)	535.00	535.00
535.00				
Crit W.S. (ft)	92.29	Flow Area (sq ft)		3.27
E.G. Slope (ft/ft)	0.040649	Area (sq ft)		3.27
Q Total (cfs)	14.00	Flow (cfs)		14.00
Top width (ft)	5.75	Top width (ft)		5.75
Vel Total (ft/s)	4.28	Avg. Vel. (ft/s)		4.28
Max Chl Dpth (ft)	1.14	Hydr. Depth (ft)		0.57
Conv. Total (cfs)	69.4	Conv. (cfs)		69.4
Length Wtd. (ft)	535.00	Wetted Per. (ft)		6.35

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Min Ch El (ft)	91.15	Shear (lb/sq ft)		1.31
Alpha 0.00	1.00	Stream Power (lb/ft s)	1754.27	0.00
Frctn Loss (ft)	0.71	Cum Volume (acre-ft)		0.13
C & E Loss (ft)	0.08	Cum SA (acres)		0.12

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	92.79	Element	Left OB	Channel
Right OB Vel Head (ft)	0.24	wt. n-val.		0.045
W.S. Elev (ft)	92.55	Reach Len. (ft)	535.00	535.00
535.00 Crit w.s. (ft)	92.55	Flow Area (sq ft)		5.58
E.G. slope (ft/ft)	0.040969	Area (sq ft)		5.58
Q Total (cfs)	22.00	Flow (cfs)		22.00
Top width (ft)	11.54	Top width (ft)		11.54
Vel Total (ft/s)	3.94	Avg. vel. (ft/s)		3.94
Max Chl Dpth (ft)	1.40	Hydr. Depth (ft)		0.48
Conv. Total (cfs)	108.7	Conv. (cfs)		108.7
Length wtd. (ft)	535.00	wetted Per. (ft)		12.31
Min Ch El (ft)	91.15	Shear (lb/sq ft)		1.16
Alpha 0.00	1.00	Stream Power (lb/ft s)	1754.27	0.00
Frctn Loss (ft)	0.71	Cum Volume (acre-ft)		0.19
C & E Loss (ft)	0.07	Cum SA (acres)		0.17

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Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
 Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
 Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
 Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
 Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-112
 REACH: NM-112 RS: 567

INPUT

Description:

Station Elevation Data		num= 360		Sta Elev		Sta Elev		Sta Elev	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	96.66	4.99	96.54	9.99	96.64	14.98	96.76	19.97	96.76
24.97	96.79	29.96	96.76	34.95	96.64	39.94	96.66	44.94	96.81
49.93	96.88	54.92	96.62	59.92	96.55	64.91	96.35	69.9	96.28
74.9	96.22	79.89	96.19	84.88	96.13	89.87	96.2	94.87	96.23
99.86	96.24	104.85	96.25	109.85	96.27	114.84	96.3	119.83	96.13
124.83	96.11	129.82	95.93	134.81	95.97	139.81	96.1	144.8	96.09
149.79	95.96	154.78	96.03	159.78	96.08	164.77	96.09	169.76	96.16
174.76	96.16	179.75	96.12	184.74	96.13	189.74	96.13	194.73	96.13
199.72	96.01	204.72	96.04	209.71	96.06	214.7	96.09	219.69	96.13
224.69	96.13	229.68	96.13	234.67	96.08	239.67	96.16	244.66	96.27
249.65	96.29	254.65	96.36	259.64	96.46	264.63	96.55	269.62	96.55
274.62	96.55	279.61	96.57	284.6	96.57	289.6	96.59	294.59	96.63
299.58	96.61	304.58	96.61	309.57	96.6	314.56	96.53	319.55	96.53
324.55	96.51	329.54	96.5	334.53	96.51	339.53	96.46	344.52	96.35
349.51	96.32	354.51	96.36	359.5	96.33	364.49	96.32	369.49	96.29
374.48	96.18	379.47	96.23	384.46	96.19	389.46	96.19	394.45	96.54
399.44	96.95	404.44	97.06	409.43	97.2	414.42	97.22	419.42	97.22
424.41	97.17	429.4	97.11	434.4	97.18	439.39	97.05	444.38	97.08
449.37	97.23	454.37	97.11	459.36	97.12	464.35	97.25	469.35	97.27
474.34	97.2	479.33	97.11	484.33	97.24	489.32	97.24	494.31	97.2
499.3	97.25	504.3	97.43	509.29	97.42	514.28	97.3	519.28	97.34
524.27	97.25	529.26	97.26	534.26	97.28	539.25	97.16	544.24	97.17
549.24	97.29	554.23	97.31	559.22	97.15	564.21	97.11	569.21	97.21
574.2	97.22	579.19	97.06	584.19	96.98	589.18	96.92	594.17	96.91
599.17	96.88	604.16	96.88	609.15	96.94	614.14	96.95	619.14	97
624.13	96.93	629.12	96.92	634.12	96.91	639.11	96.87	644.1	96.92
649.1	96.96	654.09	96.99	659.08	97.03	664.08	97.09	669.07	97.15
674.06	97.14	679.05	97.14	684.05	97.15	689.04	97.1	694.03	97.01
699.03	97.05	704.02	97.08	709.01	97.04	714.01	96.87	719	96.92
723.99	96.92	728.98	96.86	733.98	96.68	738.97	96.57	743.96	96.46
748.96	96.43	753.95	96.42	758.94	96.61	763.94	96.42	768.93	96.44
773.92	96.56	778.91	96.66	783.91	96.87	788.9	96.84	793.89	96.68
798.89	96.83	803.88	96.69	808.87	96.69	813.87	96.78	818.86	96.62
823.85	96.62	828.85	96.62	833.84	96.62	838.83	96.59	843.82	96.66
848.82	96.69	853.81	96.7	858.8	96.99	863.8	97.16	868.79	97

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873.78	96.93	874.65	96.32	878.78	93.41	883.77	89.64	888.76	88.96
893.75	89	898.75	91.67	903.74	96.32	904.65	97.16	908.73	100.93
913.73	104.06	918.72	104.8	923.71	105.48	928.71	105.82	933.7	105.93
938.69	105.97	943.68	104.98	948.68	103.52	953.67	102.89	958.66	102.82
963.66	102.73	968.65	102.59	973.64	102.56	978.64	102.6	983.63	102.72
988.62	104.26	993.62	105.69	998.61	105.55	1003.6	105.39	1008.59	104.61
1013.59	101.61	1018.58	97.24	1023.57	94.8	1028.57	93.4	1033.56	90.91
1038.55	90.36	1043.55	90.49	1048.54	91.49	1053.53	94.9	1058.53	98.04
1063.52	98.59	1068.51	98.59	1073.5	98.54	1078.5	98.26	1083.49	97.81
1088.48	97.74	1093.48	97.78	1098.47	97.73	1103.46	97.71	1108.46	97.75
1113.45	97.74	1118.44	97.78	1123.44	97.86	1128.43	97.99	1133.42	98.07
1138.41	98.11	1143.41	98.16	1148.4	98.21	1153.39	98.22	1158.39	98.26
1163.38	98.28	1168.37	98.22	1173.37	98.29	1178.36	98.18	1183.35	98.35
1188.34	98.42	1193.34	98.48	1198.33	98.5	1203.32	98.47	1208.32	98.46
1213.31	98.51	1218.3	98.52	1223.3	98.44	1228.29	98.46	1233.28	98.5
1238.28	98.52	1243.27	98.58	1248.26	98.6	1253.26	98.55	1258.25	98.63
1263.24	98.62	1268.23	98.55	1273.23	98.52	1278.22	98.48	1283.21	98.58
1288.21	98.57	1293.2	98.52	1298.19	98.54	1303.19	98.56	1308.18	98.56
1313.17	98.57	1318.16	98.61	1323.16	98.65	1328.15	98.63	1333.14	98.61
1338.14	98.61	1343.13	98.63	1348.12	98.62	1353.12	98.65	1358.11	98.75
1363.1	98.74	1368.1	98.71	1373.09	98.68	1378.08	98.63	1383.07	98.65
1388.07	98.76	1393.06	98.87	1398.05	98.75	1403.05	98.76	1408.04	98.78
1413.03	98.75	1418.03	98.76	1423.02	98.8	1428.01	98.85	1433.01	98.9
1438	98.85	1442.99	98.91	1447.98	99.04	1452.98	99	1457.97	99.01
1462.96	98.98	1467.96	99	1472.95	98.99	1477.94	99.12	1482.94	99.21
1487.93	99.2	1492.92	99.06	1497.92	99.19	1502.91	99.11	1507.9	99.11
1512.9	99.14	1517.89	99.18	1522.88	99.15	1527.87	99.15	1532.87	99.18
1537.86	99.21	1542.85	99.13	1547.85	99.22	1552.84	99.3	1557.83	99.17
1562.83	99.16	1567.82	99.22	1572.81	99.25	1577.81	99.28	1582.8	99.33
1587.79	99.31	1592.78	99.33	1597.78	99.26	1602.77	99.27	1607.76	99.34
1612.76	99.35	1617.75	99.3	1622.74	99.32	1627.74	99.3	1632.73	99.38
1637.72	99.48	1642.72	99.48	1647.71	99.44	1652.7	99.41	1657.69	99.41
1662.69	99.48	1667.68	99.49	1672.67	99.45	1677.67	99.49	1682.66	99.48
1687.65	99.47	1692.65	99.52	1697.64	99.53	1702.63	99.55	1707.63	99.52
1712.62	99.43	1717.61	99.51	1722.6	99.41	1727.6	99.43	1732.59	99.47
1737.58	99.51	1742.58	99.35	1747.57	99.37	1752.56	99.44	1757.56	99.57
1762.55	99.62	1767.54	99.66	1772.54	99.67	1777.53	99.68	1782.52	99.7

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 873.78 .045 908.73 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 873.78 908.73 560 567 573 .1 .3

Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 863.71 97.12 F
 930.54 1782.52 103.13 F

Blocked Obstructions num= 2
 Sta L Sta R Elev Sta L Sta R Elev
 0 414.84 97.15 989.53 1782.52 99.8

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	90.25	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.045
w.s. Elev (ft)	90.24	Reach Len. (ft)		
Crit w.s. (ft)	89.36	Flow Area (sq ft)		12.71

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E.G. Slope (ft/ft)	0.000400	Area (sq ft)	12.71
Q Total (cfs)	8.00	Flow (cfs)	8.00
Top Width (ft)	13.11	Top Width (ft)	13.11
Vel Total (ft/s)	0.63	Avg. Vel. (ft/s)	0.63
Max Chl Dpth (ft)	1.28	Hydr. Depth (ft)	0.97
Conv. Total (cfs)	399.9	Conv. (cfs)	399.9
Length wtd. (ft)		wetted Per. (ft)	13.67
Min Ch El (ft)	88.96	Shear (lb/sq ft)	0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	1782.52
Frctn Loss (ft)		Cum Volume (acre-ft)	0.00
C & E Loss (ft)		Cum SA (acres)	

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

Profile #EX 25Y				
E.G. Elev (ft)	90.48	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-val.		0.045
W.S. Elev (ft)	90.47	Reach Len. (ft)		
Crit w.s. (ft)	89.44	Flow Area (sq ft)		15.77
E.G. slope (ft/ft)	0.000400	Area (sq ft)		15.77
Q Total (cfs)	11.00	Flow (cfs)		11.00
Top Width (ft)	13.83	Top Width (ft)		13.83
Vel Total (ft/s)	0.70	Avg. Vel. (ft/s)		0.70
Max Chl Dpth (ft)	1.51	Hydr. Depth (ft)		1.14
Conv. Total (cfs)	549.9	Conv. (cfs)		549.9
Length wtd. (ft)		wetted Per. (ft)		14.53
Min Ch El (ft)	88.96	Shear (lb/sq ft)		0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	1782.52	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)		
C & E Loss (ft)		Cum SA (acres)		

NM112 OUTPUT REPORT.TXT

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	90.92	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-val.		0.045
W.S. Elev (ft)	90.91	Reach Len. (ft)		
Crit W.S. (ft)	89.58	Flow Area (sq ft)		22.12
E.G. Slope (ft/ft)	0.000400	Area (sq ft)		22.12
Q Total (cfs)	18.00	Flow (cfs)		18.00
Top Width (ft)	15.23	Top Width (ft)		15.23
Vel Total (ft/s)	0.81	Avg. Vel. (ft/s)		0.81
Max Chl Dpth (ft)	1.95	Hydr. Depth (ft)		1.45
Conv. Total (cfs)	899.9	Conv. (cfs)		899.9
Length Wtd. (ft)		Wetted Per. (ft)		16.18
Min Ch El (ft)	88.96	Shear (lb/sq ft)		0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	1782.52	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)		
C & E Loss (ft)		Cum SA (acres)		

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	90.48	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-val.		0.045
W.S. Elev (ft)	90.47	Reach Len. (ft)		
Crit W.S. (ft)	89.44	Flow Area (sq ft)		15.77
E.G. Slope (ft/ft)	0.000400	Area (sq ft)		15.77
Q Total (cfs)	11.00	Flow (cfs)		11.00
Top Width (ft)	13.83	Top Width (ft)		13.83
Vel Total (ft/s)	0.70	Avg. Vel. (ft/s)		0.70
Max Chl Dpth (ft)	1.51	Hydr. Depth (ft)		1.14

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Conv. Total (cfs)	549.9	Conv. (cfs)	549.9
Length wtd. (ft)		wetted Per. (ft)	14.53
Min Ch El (ft)	88.96	Shear (lb/sq ft)	0.03
Alpha	1.00	Stream Power (lb/ft s)	1782.52
0.00		Cum Volume (acre-ft)	0.00
Frctn Loss (ft)		Cum SA (acres)	
C & E Loss (ft)			

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	90.68	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	wt. n-val.		0.045
w.s. Elev (ft)	90.67	Reach Len. (ft)		
Crit w.s. (ft)	89.50	Flow Area (sq ft)		18.60
E.G. slope (ft/ft)	0.000400	Area (sq ft)		18.60
Q Total (cfs)	14.00	Flow (cfs)		14.00
Top width (ft)	14.47	Top width (ft)		14.47
vel Total (ft/s)	0.75	Avg. vel. (ft/s)		0.75
Max Chl Dpth (ft)	1.71	Hydr. Depth (ft)		1.28
Conv. Total (cfs)	699.8	Conv. (cfs)		699.8
Length wtd. (ft)		wetted Per. (ft)		15.28
Min Ch El (ft)	88.96	Shear (lb/sq ft)		0.03
Alpha	1.00	Stream Power (lb/ft s)	1782.52	0.00
0.00		Cum Volume (acre-ft)		
Frctn Loss (ft)		Cum SA (acres)		
C & E Loss (ft)				

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	91.13	Element	Left OB	Channel
Right OB				

NM112 OUTPUT REPORT.TXT				
Vel Head (ft)	0.01	Wt. n-Val.		0.045
W.S. Elev (ft)	91.12	Reach Len. (ft)		
Crit W.S. (ft)	89.65	Flow Area (sq ft)		25.44
E.G. Slope (ft/ft)	0.000401	Area (sq ft)		25.44
Q Total (cfs)	22.00	Flow (cfs)		22.00
Top Width (ft)	15.91	Top Width (ft)		15.91
Vel Total (ft/s)	0.86	Avg. Vel. (ft/s)		0.86
Max Chl Dpth (ft)	2.16	Hydr. Depth (ft)		1.60
Conv. Total (cfs)	1099.3	Conv. (cfs)		1099.3
Length wtd. (ft)		wetted Per. (ft)		16.99
Min Ch El (ft)	88.96	Shear (lb/sq ft)		0.04
Alpha	1.00	Stream Power (lb/ft s)	1782.52	0.00
0.00		Cum Volume (acre-ft)		
Frctn Loss (ft)		Cum SA (acres)		
C & E Loss (ft)				

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

SUMMARY OF MANNING'S N VALUES

River: N-NM-112

Reach	River Sta.	n1	n2	n3
NM-112	2166	.06	.045	.06
NM-112	1475	.06	.045	.06
NM-112	1101	.06	.045	.06
NM-112	567	.06	.045	.06

SUMMARY OF REACH LENGTHS

River: N-NM-112

Reach	River Sta.	Left	Channel	Right
NM-112	2166	690	692	693
NM-112	1475	375	373	371
NM-112	1101	535	535	535
NM-112	567	560	567	573

NM112 OUTPUT REPORT.TXT

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: N-NM-112

Reach	River Sta.	Contr.	Expan.
NM-112	2166	.1	.3
NM-112	1475	.1	.3
NM-112	1101	.1	.3
NM-112	567	.1	.3

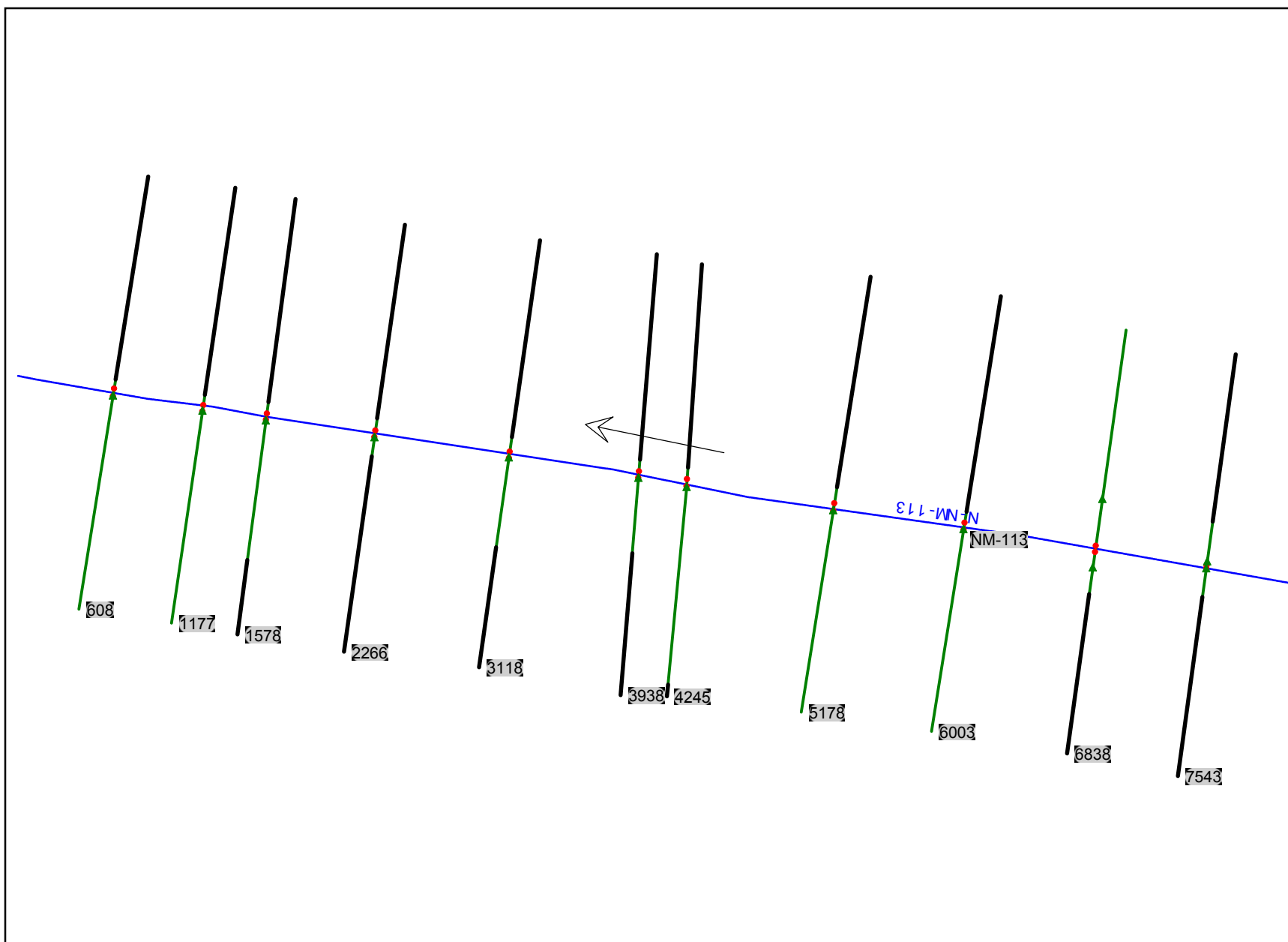
Profile Output Table - Table 1

Reach Vel Chnl (ft/s)	River Sta Flow Area (sq ft)	Profile Top Width (ft)	Q Total Volume (cfs) (acre-ft)	W.S. Elev (ft)	E.G. Elev (ft)	Min Ch El (ft)
NM-112 0.63	567 12.71	EX 10Y 13.11	8.00	90.24	90.25	88.96
NM-112 0.70	567 15.77	EX 25Y 13.83	11.00	90.47	90.48	88.96
NM-112 0.81	567 22.12	EX 100Y 15.23	18.00	90.91	90.92	88.96
NM-112 0.70	567 15.77	ULT 10Y 13.83	11.00	90.47	90.48	88.96
NM-112 0.75	567 18.60	ULT 25Y 14.47	14.00	90.67	90.68	88.96
NM-112 0.86	567 25.44	ULT 100Y 15.91	22.00	91.12	91.13	88.96
NM-112 3.84	1101 2.08	EX 10Y 4.58	8.00 0.09	92.06	92.29	91.15
NM-112 4.07	1101 2.70	EX 25Y 5.22	11.00 0.11	92.18	92.44	91.15
NM-112 3.72	1101 4.83	EX 100Y 11.41	18.00 0.17	92.48	92.70	91.15
NM-112 4.07	1101 2.70	ULT 10Y 5.22	11.00 0.11	92.18	92.44	91.15
NM-112 4.28	1101 3.27	ULT 25Y 5.75	14.00 0.13	92.29	92.57	91.15
NM-112 3.94	1101 5.58	ULT 100Y 11.54	22.00 0.19	92.55	92.79	91.15
NM-112 0.95	1475 8.41	EX 10Y 9.57	8.00 0.14	93.49	93.51	91.93
NM-112 1.06	1475 10.35	EX 25Y 10.34	11.00 0.17	93.69	93.71	91.93
NM-112 1.25	1475 14.37	EX 100Y 12.05	18.00 0.25	94.05	94.08	91.93
NM-112 1.06	1475 10.35	ULT 10Y 10.34	11.00 0.17	93.69	93.71	91.93
NM-112 1.15	1475 12.15	ULT 25Y 11.00	14.00 0.20	93.86	93.88	91.93
NM-112 1.33	1475 16.55	ULT 100Y 13.47	22.00 0.29	94.22	94.25	91.93

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NM-112	2166	EX 10Y	8.00	93.61	93.61	91.44
0.31	25.91	18.05	0.41			
NM-112	2166	EX 25Y	11.00	93.83	93.84	91.44
0.37	29.94	18.62	0.49			
NM-112	2166	EX 100Y	18.00	94.24	94.24	91.44
0.48	37.72	19.68	0.66			
NM-112	2166	ULT 10Y	11.00	93.83	93.84	91.44
0.37	29.94	18.62	0.49			
NM-112	2166	ULT 25Y	14.00	94.02	94.02	91.44
0.42	33.49	19.11	0.56			
NM-112	2166	ULT 100Y	22.00	94.43	94.44	91.44
0.53	41.54	20.18	0.75			

APPENDIX D
HEC-RAS HYDRAULIC OUTPUT
NM-113 BASE CONDITION



HEC-RAS Plan: BASE River: N-NM-113 Reach: NM-113

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
NM-113	608	EX 10Y	86.00	90.08	93.38	91.73	93.42	0.001000	1.63	52.73	25.95	0.20
NM-113	608	EX 25Y	116.00	90.08	94.32	91.95	94.36	0.000600	1.46	79.66	31.54	0.16
NM-113	608	EX 100Y	183.00	90.08	95.23	92.35	95.27	0.000600	1.66	110.43	35.77	0.17
NM-113	608	ULT 10Y	107.00	90.08	94.17	91.89	94.20	0.000600	1.43	74.85	30.48	0.16
NM-113	608	ULT 25Y	140.00	90.08	94.70	92.11	94.73	0.000600	1.52	91.97	34.05	0.16
NM-113	608	ULT 100Y	212.00	90.08	95.55	92.50	95.59	0.000600	1.74	121.99	36.66	0.17
NM-113	1177	EX 10Y	69.00	90.90	94.14	92.47	94.20	0.002214	2.02	34.23	21.58	0.28
NM-113	1177	EX 25Y	91.00	90.90	94.78	92.73	94.83	0.001380	1.80	50.43	26.25	0.23
NM-113	1177	EX 100Y	145.00	90.90	95.65	93.24	95.71	0.001097	1.96	74.08	28.28	0.21
NM-113	1177	ULT 10Y	79.00	90.90	94.62	92.59	94.67	0.001356	1.71	46.24	25.88	0.23
NM-113	1177	ULT 25Y	103.00	90.90	95.12	92.85	95.17	0.001076	1.73	59.37	27.04	0.21
NM-113	1177	ULT 100Y	160.00	90.90	95.95	93.36	96.01	0.000963	1.94	82.68	28.99	0.20
NM-113	1578	EX 10Y	69.00	92.27	94.77	93.29	94.81	0.001086	1.63	42.24	21.71	0.21
NM-113	1578	EX 25Y	91.00	92.27	95.25	93.46	95.30	0.000975	1.71	53.10	23.25	0.20
NM-113	1578	EX 100Y	145.00	92.27	96.07	93.82	96.13	0.000998	1.98	73.34	26.14	0.21
NM-113	1578	ULT 10Y	79.00	92.27	95.07	93.37	95.11	0.000924	1.61	49.03	22.68	0.19
NM-113	1578	ULT 25Y	103.00	92.27	95.52	93.54	95.56	0.000909	1.73	59.37	24.12	0.19
NM-113	1578	ULT 100Y	160.00	92.27	96.33	93.90	96.40	0.000947	1.99	80.31	27.15	0.20
NM-113	2266	EX 10Y	59.00	91.35	95.18	92.87	95.20	0.000317	0.96	61.63	53.69	0.11
NM-113	2266	EX 25Y	78.00	91.35	95.65	93.05	95.67	0.000311	1.04	75.06	62.80	0.12
NM-113	2266	EX 100Y	125.00	91.35	96.50	93.38	96.52	0.000334	1.23	101.39	70.75	0.12
NM-113	2266	ULT 10Y	69.00	91.35	95.45	92.97	95.47	0.000306	0.99	69.36	60.99	0.11
NM-113	2266	ULT 25Y	90.00	91.35	95.90	93.14	95.92	0.000312	1.09	82.66	65.17	0.12
NM-113	2266	ULT 100Y	141.00	91.35	96.75	93.48	96.78	0.000339	1.29	109.72	72.90	0.12
NM-113	3118	EX 10Y	28.00	93.28	95.58	94.58	95.61	0.001791	1.52	18.45	15.57	0.25
NM-113	3118	EX 25Y	37.00	93.28	96.02	94.73	96.05	0.001289	1.42	25.98	18.85	0.21
NM-113	3118	EX 100Y	62.00	93.28	96.86	95.07	96.89	0.000838	1.39	44.66	24.25	0.18
NM-113	3118	ULT 10Y	38.00	93.28	95.85	94.75	95.90	0.001836	1.65	23.03	17.45	0.25
NM-113	3118	ULT 25Y	49.00	93.28	96.29	94.91	96.33	0.001398	1.56	31.44	21.18	0.23
NM-113	3118	ULT 100Y	77.00	93.28	97.13	95.24	97.16	0.000861	1.50	51.20	25.06	0.19
NM-113	3938	EX 10Y	28.00	93.82	96.14	94.63	96.15	0.000340	0.82	34.04	20.66	0.11
NM-113	3938	EX 25Y	37.00	93.82	96.51	94.75	96.52	0.000324	0.88	41.91	21.91	0.11
NM-113	3938	EX 100Y	62.00	93.82	97.28	94.99	97.30	0.000327	1.04	59.85	24.52	0.12
NM-113	3938	ULT 10Y	38.00	93.82	96.46	94.76	96.47	0.000368	0.93	40.85	21.75	0.12
NM-113	3938	ULT 25Y	49.00	93.82	96.83	94.88	96.85	0.000358	1.00	49.17	23.00	0.12
NM-113	3938	ULT 100Y	77.00	93.82	97.59	95.12	97.61	0.000369	1.14	67.55	26.28	0.13
NM-113	4245	EX 10Y	15.00	94.10	96.26	94.99	96.27	0.000476	0.81	18.60	14.95	0.13
NM-113	4245	EX 25Y	20.00	94.10	96.62	95.11	96.63	0.000416	0.82	24.32	17.10	0.12
NM-113	4245	EX 100Y	36.00	94.10	97.39	95.40	97.40	0.000369	0.90	40.02	22.39	0.12
NM-113	4245	ULT 10Y	25.00	94.10	96.60	95.21	96.62	0.000672	1.04	23.97	16.91	0.15
NM-113	4245	ULT 25Y	32.00	94.10	96.97	95.33	96.98	0.000609	1.04	30.79	20.30	0.15
NM-113	4245	ULT 100Y	51.00	94.10	97.71	95.61	97.73	0.000450	1.08	47.29	23.23	0.13
NM-113	5178	EX 10Y	15.00	94.35	96.49	94.82	96.49	0.000144	0.52	28.67	17.96	0.07
NM-113	5178	EX 25Y	20.00	94.35	96.84	94.90	96.84	0.000143	0.57	35.20	19.26	0.07
NM-113	5178	EX 100Y	36.00	94.35	97.61	95.13	97.62	0.000159	0.70	51.12	21.70	0.08
NM-113	5178	ULT 10Y	25.00	94.35	96.92	94.98	96.93	0.000197	0.68	36.78	19.53	0.09
NM-113	5178	ULT 25Y	32.00	94.35	97.27	95.08	97.28	0.000195	0.73	43.87	20.70	0.09
NM-113	5178	ULT 100Y	51.00	94.35	97.99	95.31	98.00	0.000207	0.86	59.53	22.76	0.09
NM-113	6003	EX 10Y	3.00	94.44	96.56	94.90	96.56	0.000016	0.14	20.90	17.76	0.02
NM-113	6003	EX 25Y	4.00	94.44	96.91	94.96	96.91	0.000014	0.14	27.61	20.95	0.02
NM-113	6003	EX 100Y	7.00	94.44	97.68	95.09	97.68	0.000010	0.15	46.49	27.00	0.02
NM-113	6003	ULT 10Y	5.00	94.44	97.01	95.00	97.01	0.000018	0.17	29.87	21.94	0.03
NM-113	6003	ULT 25Y	6.00	94.44	97.36	95.05	97.36	0.000014	0.16	38.05	25.06	0.02
NM-113	6003	ULT 100Y	10.00	94.44	98.08	95.19	98.08	0.000012	0.17	57.62	29.36	0.02
NM-113	6838	EX 10Y	3.00	95.93	96.59	96.17	96.60	0.000497	0.42	7.11	16.24	0.11
NM-113	6838	EX 25Y	4.00	95.93	96.93	96.20	96.93	0.000140	0.31	12.83	17.72	0.06
NM-113	6838	EX 100Y	7.00	95.93	97.70	96.28	97.70	0.000042	0.25	27.69	21.09	0.04
NM-113	6838	ULT 10Y	5.00	95.93	97.04	96.23	97.04	0.000141	0.34	14.82	18.21	0.07
NM-113	6838	ULT 25Y	6.00	95.93	97.38	96.25	97.38	0.000069	0.28	21.20	19.69	0.05
NM-113	6838	ULT 100Y	10.00	95.93	98.09	96.34	98.09	0.000039	0.27	36.38	22.83	0.04
NM-113	7543	EX 10Y	3.00	100.84	101.16	101.16	101.25	0.055878	2.35	1.28	63.37	1.02
NM-113	7543	EX 25Y	4.00	100.84	101.20	101.20	101.30	0.052783	2.51	1.59	66.85	1.01
NM-113	7543	EX 100Y	7.00	100.84	101.30	101.30	101.42	0.047482	2.85	2.46	77.67	1.00
NM-113	7543	ULT 10Y	5.00	100.84	101.24	101.24	101.34	0.049199	2.62	1.91	70.11	1.00
NM-113	7543	ULT 25Y	6.00	100.84	101.27	101.27	101.38	0.044408	2.66	2.25	73.83	0.96

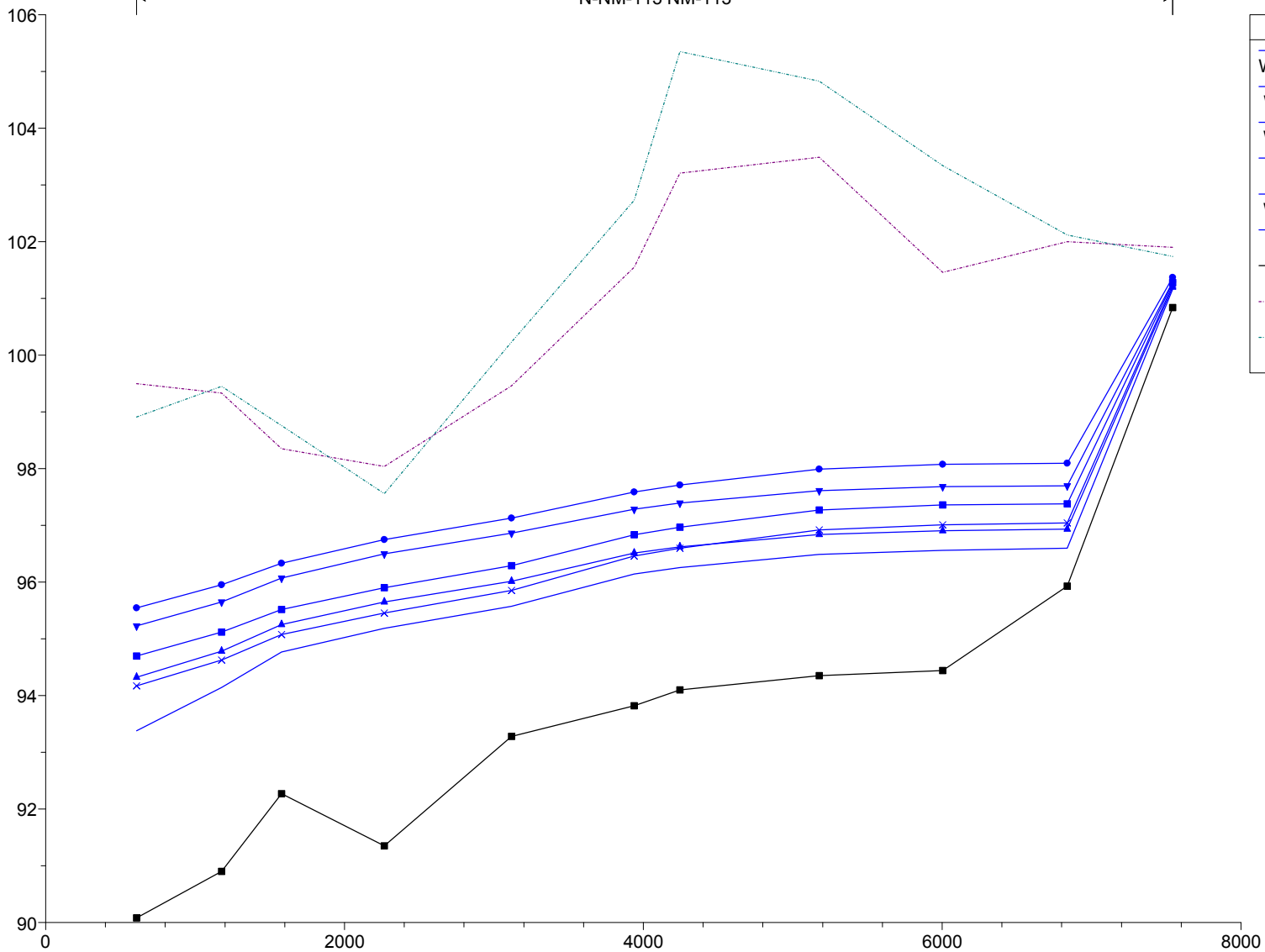
HEC-RAS Plan: BASE River: N-NM-113 Reach: NM-113 (Continued)

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
NM-113	7543	ULT 100Y	10.00	100.84	101.37	101.37	101.52	0.045745	3.11	3.22	96.57	1.01

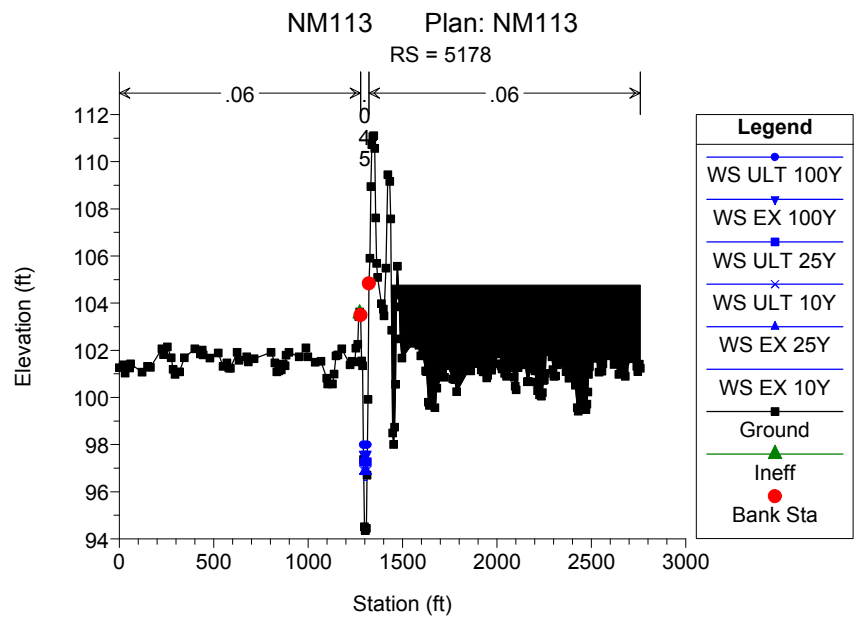
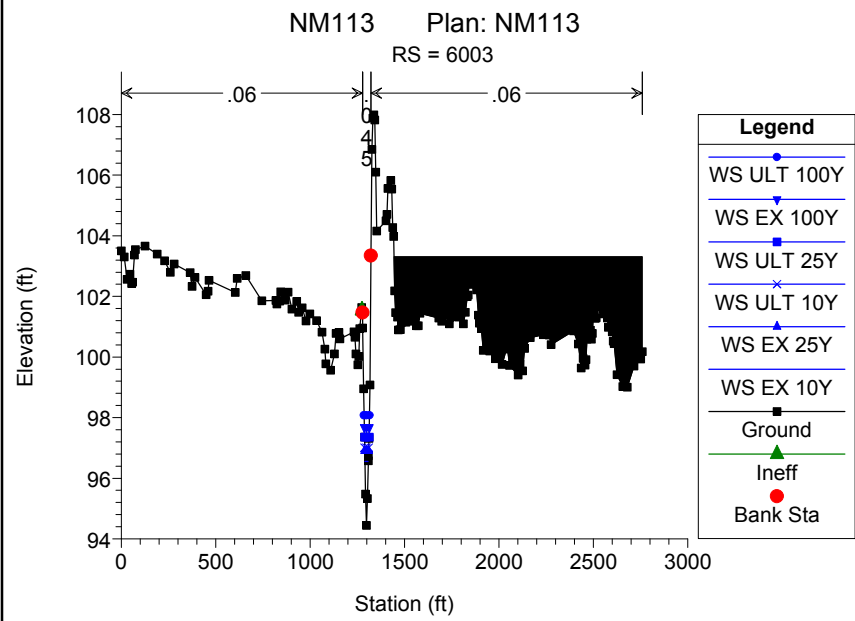
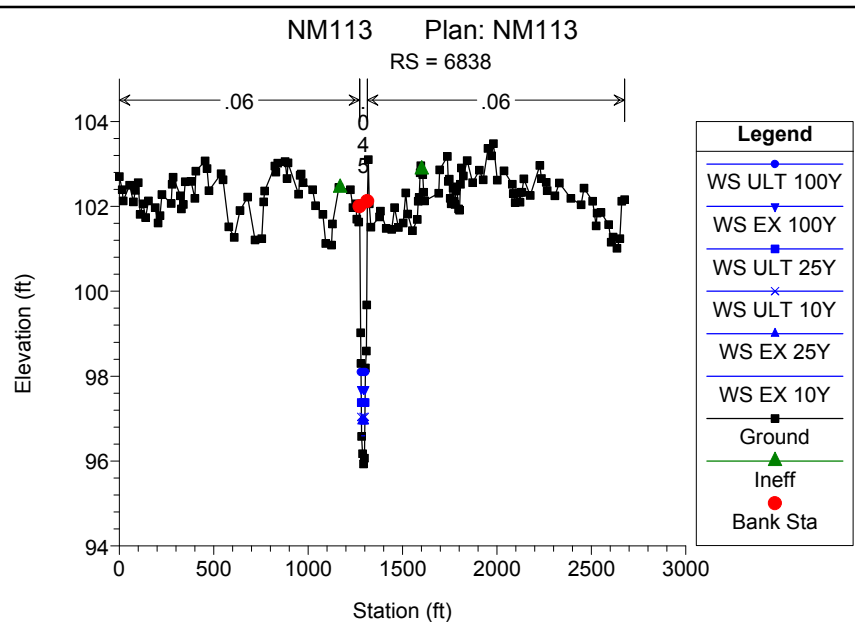
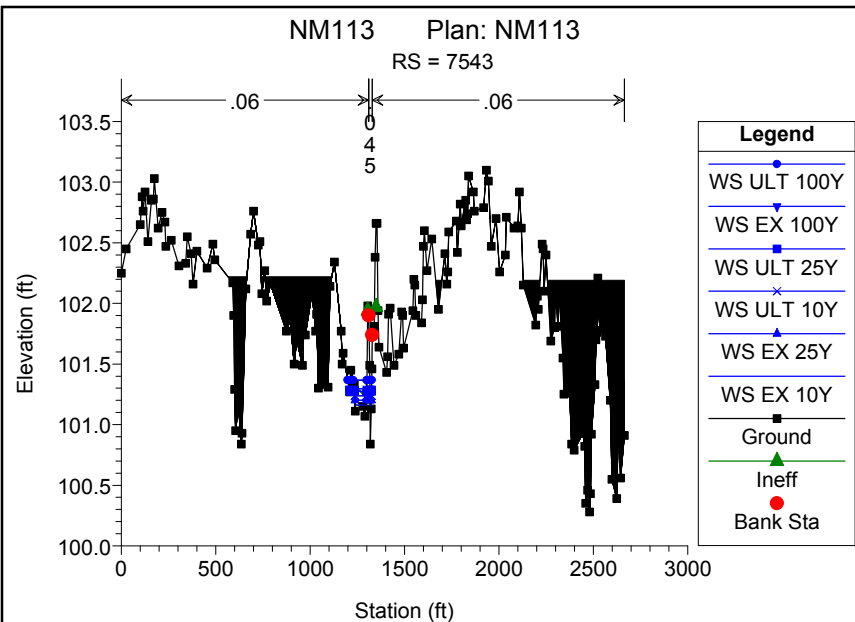
NM113 Plan: NM113

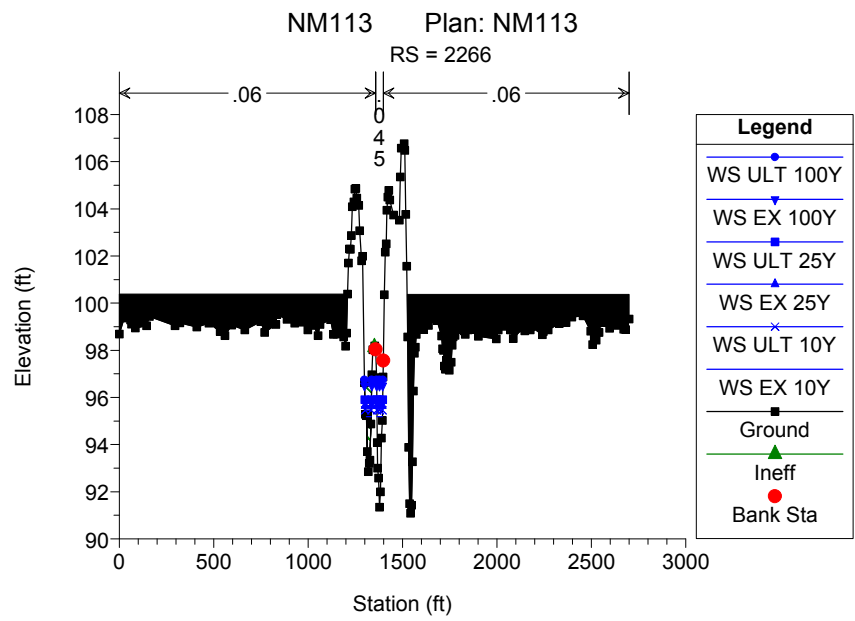
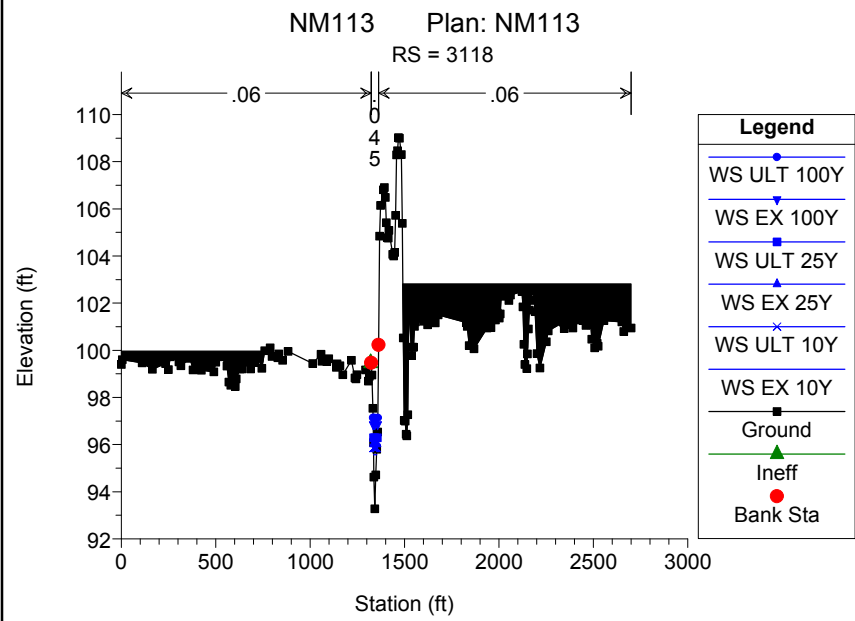
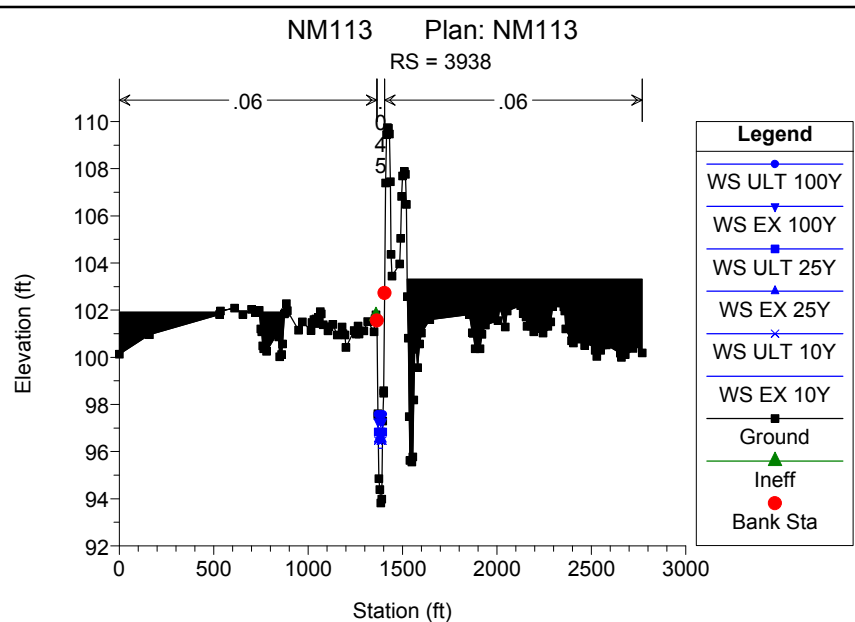
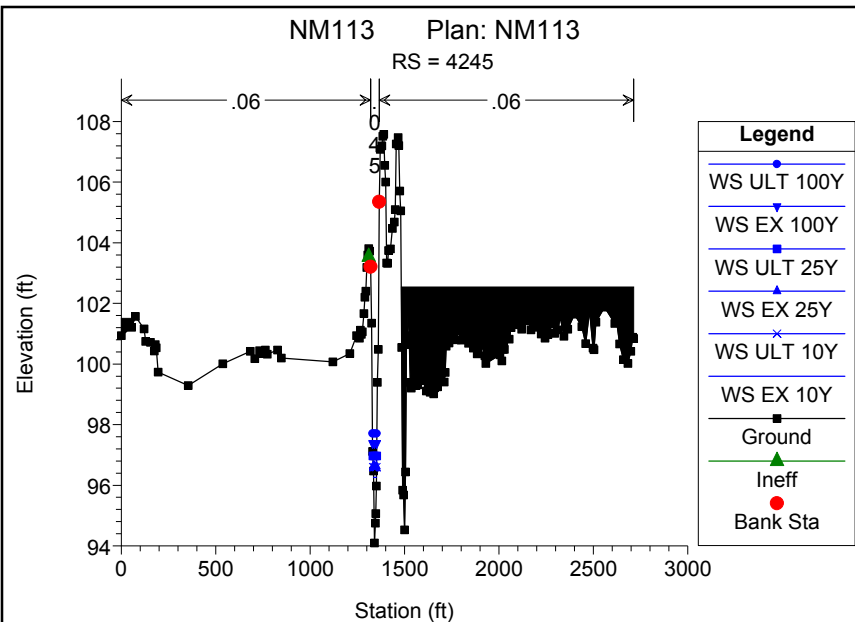
N-NM-113 NM-113

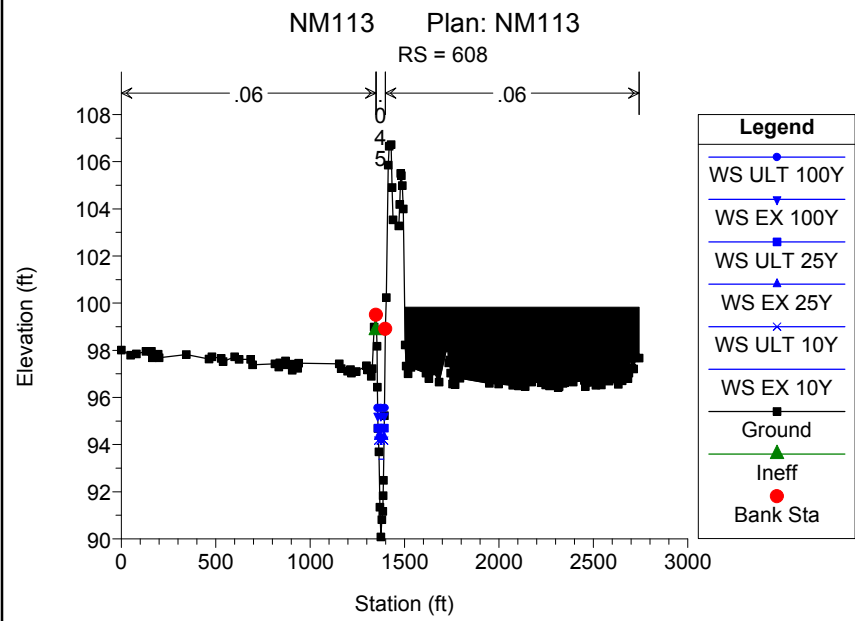
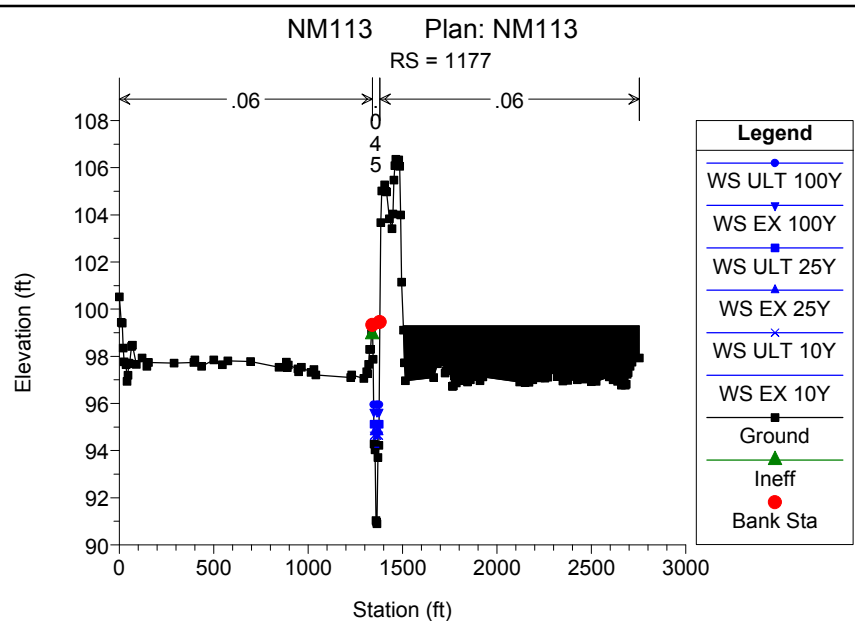
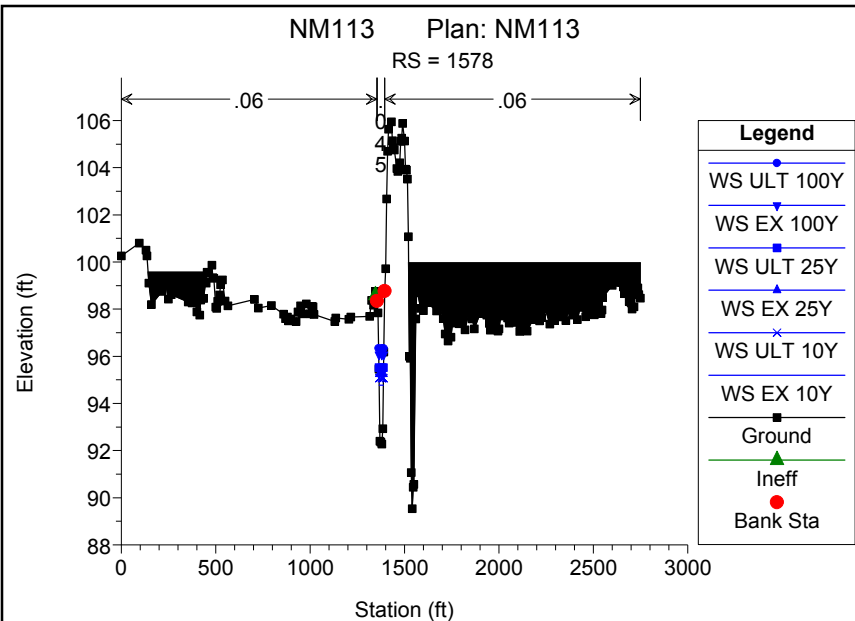
Elevation (ft)



Legend	
WS ULT 100Y	●
WS EX 100Y	▼
WS ULT 25Y	■
WS EX 25Y	▲
WS ULT 10Y	×
WS EX 10Y	×
Ground	■
LOB	- - -
ROB	⋯







NM113 OUTPUT REPORT.TXT

HEC-RAS Version 4.1.0 Jan 2010
U.S. Army Corps of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

```

X      X  XXXXXX      XXXX      XXXX      XX      XXXX
X      X  X          X      X      X      X      X
X      X  X          X          X      X      X      X
XXXXXXXX XXXX      X          XXX XXXX      XXXXXX      XXXX
X      X  X          X          X      X      X          X
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PROJECT DATA

Project Title: NM113
Project File : NM113.prj

Project in English units

PLAN DATA

Plan Title: NM113
Plan File : K:\2014PROJECTS\COE_MDP_TEDSI\MODEL\APPENDIX C - HYDRAULICS
\NM113\NM113.p01

Geometry Title: NM113
Geometry File : K:\2014PROJECTS\COE_MDP_TEDSI\MODEL\APPENDIX C -

HYDRAULICS\NM113\NM113.g01

Flow Title : NM113 FLOW
Flow File : K:\2014PROJECTS\COE_MDP_TEDSI\MODEL\APPENDIX C -

HYDRAULICS\NM113\NM113.f01

Plan Summary Information:

Number of:	Cross Sections =	11	Multiple Openings =	0
	Culverts =	0	Inline Structures =	0
	Bridges =	0	Lateral Structures =	0

Computational Information

Water surface calculation tolerance =	0.01
Critical depth calculation tolerance =	0.01
Maximum number of iterations =	20
Maximum difference tolerance =	0.3
Flow tolerance factor =	0.001

Computation Options

Critical depth computed only where necessary
Conveyance Calculation Method: At breaks in n values only
Friction Slope Method: Average Conveyance
Computational Flow Regime: Subcritical Flow

NM113 OUTPUT REPORT.TXT

FLOW DATA

Flow Title: NM113 FLOW

Flow File : K:\2014PROJECTS\COE_MDP_TEDSI\MODEL\APPENDIX C - HYDRAULICS

\NM113\NM113.f01

Flow Data (cfs)

River	Reach	RS	EX 10Y	EX 25Y
EX 100Y N-NM-113	ULT 10Y NM-113	ULT 25Y 7543	ULT 100Y 3	4
7 N-NM-113	5 NM-113	6 5178	10 15	20
36 N-NM-113	25 NM-113	32 3938	51 28	37
62 N-NM-113	38 NM-113	49 2266	77 59	78
125 N-NM-113	69 NM-113	90 1578	141 69	91
145 N-NM-113	79 NM-113	103 608	160 86	116
183	107	140	212	

Boundary Conditions

River	Reach	Profile	Upstream
	Downstream		
N-NM-113	NM-113	EX 10Y	
Normal S = 0.001 N-NM-113	NM-113	EX 25Y	
Normal S = 0.0006 N-NM-113	NM-113	EX 100Y	
Normal S = 0.0006 N-NM-113	NM-113	ULT 10Y	
Normal S = 0.0006			

NM113 OUTPUT REPORT.TXT

GEOMETRY DATA

Geometry Title: NM113
 Geometry File : K:\2014PROJECTS\COE_MDP_TEDSI\MODEL\APPENDIX C - HYDRAULICS
 \NM113\NM113.g01

CROSS SECTION

RIVER: N-NM-113
 REACH: NM-113 RS: 7543

INPUT

Description:

Station	Elevation	Data	num=	160	Elev	Sta	Elev	Sta	Elev	Sta
Elev	0	102.25	24.99	102.45	99.96	102.65	109.96	102.88	114.96	
102.76	124.95	102.92	139.95	102.51	159.94	102.85	169.93	102.86	174.93	
103.03	194.92	102.62	214.92	102.75	229.91	102.67	234.91	102.47	264.9	
102.52	304.88	102.31	339.87	102.33	349.86	102.55	369.86	102.41	379.85	
102.16	399.84	102.43	454.82	102.29	484.81	102.49	494.81	102.36	589.77	
102.17	594.77	101.9	599.77	101.29	604.76	100.95	619.76	101.15	634.75	
100.84	639.75	100.93	659.74	102.12	684.73	102.57	699.73	102.76	724.72	
102.48	734.71	102.51	744.71	102.08	759.7	102.27	769.7	102.02	789.69	
102.16	874.66	101.77	894.65	101.87	914.64	101.5	929.64	101.7	959.63	
101.49	969.62	101.9	974.62	101.74	1009.61	102.09	1029.6	101.77	1034.6	
101.91	1044.59	101.3	1094.57	101.31	1104.57	102.14	1129.56	102.34	1164.55	
101.77	1169.54	101.5	1174.54	101.59	1209.53	101.27	1214.53	101.45	1234.52	
101.33	1239.52	101.11	1279.5	101.15	1289.5	101.07	1299.49	101.27	1304.49	
101.98	1309.49	101.9	1314.49	101.49	1319.48	100.84	1324.48	101.13	1327.12	

NM113 OUTPUT REPORT.TXT

101.46								
1329.48	101.74	1339.48	101.81	1344.47	102.38	1349.47	102.66	1354.47
102.66								
1359.47	101.94	1364.47	101.64	1404.45	101.43	1409.45	101.56	1414.45
101.91								
1424.44	101.96	1444.43	101.49	1469.42	101.58	1484.42	101.93	1489.42
101.9								
1494.41	101.63	1544.39	101.94	1549.39	102.2	1554.39	102.15	1559.39
101.9								
1589.38	101.84	1594.37	102.03	1599.37	102.47	1604.37	102.6	1619.36
102.27								
1644.35	102.53	1679.34	101.95	1714.33	102.41	1724.32	102.16	1729.32
102.26								
1734.32	102.59	1774.3	102.68	1779.3	102.42	1794.3	102.82	1799.29
102.64								
1824.28	102.85	1829.28	102.69	1834.28	102.74	1839.28	103.05	1864.27
102.92								
1869.27	102.76	1919.25	102.79	1934.24	103.1	1944.24	103.01	1959.23
102.47								
1984.22	102.7	2004.21	102.26	2034.2	102.4	2039.2	102.71	2079.18
102.62								
2099.18	102.64	2109.17	102.92	2119.17	102.62	2129.16	102.15	2194.14
101.82								
2204.14	102.06	2209.13	101.95	2229.13	102.49	2234.12	102.45	2239.12
102.1								
2249.12	102.4	2274.11	101.69	2294.1	101.8	2299.1	102.06	2314.09
101.81								
2319.09	102.1	2339.08	101.55	2344.08	101.25	2374.07	101.26	2384.07
100.84								
2399.06	100.79	2444.04	100.93	2454.04	100.82	2459.04	100.35	2469.04
100.46								
2479.03	100.28	2484.03	100.43	2489.03	100.92	2509.02	101.33	2514.02
101.7								
2519.02	101.76	2524.01	102.21	2534.01	101.78	2564	101.73	2588.99
101.2								
2598.99	100.55	2623.98	100.39	2633.97	101.09	2643.97	100.56	2663.96

100.91

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 1309.49 .045 1329.48 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr.

NM113 OUTPUT REPORT.TXT

Expan. 1309.49 1329.48 705.29 705.21 705.13 .1 .3
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 1305.04 101.94 F
 1348.67 2663.96 101.97 F
 Blocked Obstructions num= 2
 Sta L Sta R Elev Sta L Sta R Elev
 0 1130.35 102.22 1607.04 2663.96 102.19

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	101.25	Element	Left OB
Channel Right OB Vel Head (ft)	0.09	wt. n-Val.	
0.045 W.S. Elev (ft)	101.16	Reach Len. (ft)	705.29
705.21 705.13 Crit w.s. (ft)	101.16	Flow Area (sq ft)	
1.28 E.G. slope (ft/ft)	0.055878	Area (sq ft)	1.97
1.28 Q Total (cfs)	3.00	Flow (cfs)	
3.00 Top width (ft)	63.37	Top width (ft)	55.67
7.71 Vel Total (ft/s)	2.35	Avg. Vel. (ft/s)	
2.35 Max chl Dpth (ft)	0.32	Hydr. Depth (ft)	
0.17 Conv. Total (cfs)	12.7	Conv. (cfs)	
12.7 Length wtd. (ft)	705.21	wetted Per. (ft)	
7.74 Min Ch El (ft)	100.84	Shear (lb/sq ft)	
0.58 Alpha	1.00	Stream Power (lb/ft s)	2663.96
0.00 0.00 Frctn Loss (ft)	1.17	Cum Volume (acre-ft)	0.70
4.52 C & E Loss (ft)	0.02	Cum SA (acres)	0.90
3.01			

NM113 OUTPUT REPORT.TXT

warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
 warning: Divided flow computed for this cross-section.
 warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.
 warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
 warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
 Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	101.30	Element	Left OB
Channel Right OB Vel Head (ft)	0.10	wt. n-Val.	
0.045 W.S. Elev (ft)	101.20	Reach Len. (ft)	705.29
705.21 705.13 Crit w.s. (ft)	101.20	Flow Area (sq ft)	
1.59 E.G. Slope (ft/ft)	0.052783	Area (sq ft)	4.22
1.59 Q Total (cfs)	4.00	Flow (cfs)	
4.00 Top width (ft)	66.85	Top width (ft)	58.52
8.32 Vel Total (ft/s)	2.51	Avg. Vel. (ft/s)	
2.51 Max Chl Dpth (ft)	0.36	Hydr. Depth (ft)	
0.19 Conv. Total (cfs)	17.4	Conv. (cfs)	
17.4 Length wtd. (ft)	705.21	wetted Per. (ft)	
8.36 Min Ch El (ft)	100.84	Shear (lb/sq ft)	

NM113 OUTPUT REPORT.TXT

0.63	Alpha	1.00	Stream Power (lb/ft s)	2663.96
0.00	0.00			
	Frctn Loss (ft)	0.36	Cum Volume (acre-ft)	0.98
5.94	C & E Loss (ft)	0.03	Cum SA (acres)	1.06
3.37				

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: Divided flow computed for this cross-section.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is

not a valid subcritical answer. The program defaulted to critical depth.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	101.42	Element	Left OB
Channel Right OB			
Vel Head (ft)	0.13	wt. n-Val.	
0.045			
W.S. Elev (ft)	101.30	Reach Len. (ft)	705.29
705.21	705.13		
Crit w.s. (ft)	101.30	Flow Area (sq ft)	
2.46			
E.G. slope (ft/ft)	0.047482	Area (sq ft)	10.16
2.46			
Q Total (cfs)	7.00	Flow (cfs)	
7.00			
Top width (ft)	77.67	Top width (ft)	67.85
9.82			

NM113 OUTPUT REPORT.TXT
2.85 Avg. Vel. (ft/s)

Vel Total (ft/s)	2.85		
2.85 Max Chl Dpth (ft)	0.46	Hydr. Depth (ft)	
0.25 Conv. Total (cfs)	32.1	Conv. (cfs)	
32.1 Length wtd. (ft)	705.21	wetted Per. (ft)	
9.87 Min ch El (ft)	100.84	Shear (lb/sq ft)	
0.74 Alpha	1.00	Stream Power (lb/ft s)	2663.96
0.00 Frctn Loss (ft)	0.11	Cum volume (acre-ft)	1.56
8.88 C & E Loss (ft)	0.04	Cum SA (acres)	1.23
3.95			

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: Divided flow computed for this cross-section.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	101.34	Element	Left OB
Channel Right OB Vel Head (ft)	0.11	wt. n-val.	
0.045 W.S. Elev (ft)	101.24	Reach Len. (ft)	705.29

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705.21	705.13			
Crit w.s. (ft)		101.24	Flow Area (sq ft)	
1.91				
E.G. Slope (ft/ft)		0.049199	Area (sq ft)	6.43
1.91				
Q Total (cfs)		5.00	Flow (cfs)	
5.00				
Top width (ft)		70.11	Top width (ft)	61.21
8.90				
Vel Total (ft/s)		2.62	Avg. Vel. (ft/s)	
2.62				
Max Chl Dpth (ft)		0.40	Hydr. Depth (ft)	
0.21				
Conv. Total (cfs)		22.5	Conv. (cfs)	
22.5				
Length wtd. (ft)		705.21	wetted Per. (ft)	
8.94				
Min Ch El (ft)		100.84	Shear (lb/sq ft)	
0.66				
Alpha		1.00	Stream Power (lb/ft s)	2663.96
0.00	0.00			
Frctn Loss (ft)		0.36	Cum Volume (acre-ft)	0.88
5.74				
C & E Loss (ft)		0.03	Cum SA (acres)	1.06
3.35				

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: Divided flow computed for this cross-section.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Note: Multiple critical depths were found at this location. The critical

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depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	101.38	Element	Left OB
Channel Right OB Vel Head (ft)	0.11	wt. n-Val.	
0.045 W.S. Elev (ft)	101.27	Reach Len. (ft)	705.29
705.21 705.13 Crit w.s. (ft)	101.27	Flow Area (sq ft)	
2.25 E.G. Slope (ft/ft)	0.044408	Area (sq ft)	8.77
2.25 Q Total (cfs)	6.00	Flow (cfs)	
6.00 Top width (ft)	73.83	Top width (ft)	64.34
9.49 Vel Total (ft/s)	2.66	Avg. Vel. (ft/s)	
2.66 Max Chl Dpth (ft)	0.43	Hydr. Depth (ft)	
0.24 Conv. Total (cfs)	28.5	Conv. (cfs)	
28.5 Length wtd. (ft)	705.21	Wetted Per. (ft)	
9.54 Min Ch El (ft)	100.84	Shear (lb/sq ft)	
0.66 Alpha	1.00	Stream Power (lb/ft s)	2663.96
0.00 0.00 Frctn Loss (ft)	0.18	Cum Volume (acre-ft)	1.16
7.15 C & E Loss (ft)	0.03	Cum SA (acres)	1.13
3.68			

warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
 warning: Divided flow computed for this cross-section.
 warning: The conveyance ratio (upstream conveyance divided by downstream

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conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.
 Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current
 and previous cross section. This may indicate the
 need for additional cross sections.
 Warning: During the standard step iterations, when the assumed water surface
 was set equal to critical depth, the calculated water
 surface came back below critical depth. This indicates that there is
 not a valid subcritical answer. The program defaulted
 to critical depth.
 Note: Multiple critical depths were found at this location. The critical
 depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	101.52	Element	Left OB
Channel Right OB Vel Head (ft)	0.15	wt. n-val.	
0.045 W.S. Elev (ft)	101.37	Reach Len. (ft)	705.29
705.21 705.13 Crit w.s. (ft)	101.37	Flow Area (sq ft)	
3.22 E.G. slope (ft/ft)	0.045745	Area (sq ft)	15.67
3.22 Q Total (cfs)	10.00	Flow (cfs)	
10.00 Top width (ft)	96.57	Top width (ft)	85.60
10.97 Vel Total (ft/s)	3.11	Avg. Vel. (ft/s)	
3.11 Max Chl Dpth (ft)	0.53	Hydr. Depth (ft)	
0.29 Conv. Total (cfs)	46.8	Conv. (cfs)	
46.8 Length wtd. (ft)	705.21	wetted Per. (ft)	
11.02 Min Ch El (ft)	100.84	Shear (lb/sq ft)	
0.83 Alpha	1.00	Stream Power (lb/ft s)	2663.96
0.00 0.00 Frctn Loss (ft)	0.10	Cum Volume (acre-ft)	1.78
10.16			

C & E Loss (ft)

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0.04 Cum SA (acres)

1.39

4.15

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: Divided flow computed for this cross-section.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m) between the current and previous cross section. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-113

REACH: NM-113

RS: 6838

INPUT

Description:

Station	Elevation	Data	num=	148					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Elev	0	102.7	14.98	102.39	19.97	102.13	54.91	102.5	74.88
102.11	84.86	102.38	99.84	102.56	109.83	101.81	124.8	102.06	139.78
101.74	154.75	102.13	189.7	101.97	204.67	101.61	214.66	101.78	224.64
102.28	274.56	102.07	279.56	102.52	284.55	102.69	324.48	102.25	329.48
101.94	339.46	102.05	349.44	102.58	379.4	102.59	399.36	102.19	404.36
102.83	454.28	103.07	464.26	102.89	474.25	102.37	539.14	102.77	549.13
102.63	579.08	101.52	609.03	101.27	638.98	101.9	678.92	102.22	718.86

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101.21	753.8	101.24	763.78	102.11	768.78	102.36	823.69	102.95	828.68
102.81	838.67	103.02	878.6	103.06	888.59	102.66	893.58	103.03	948.49
102.29	958.47	102.73	963.47	102.76	973.45	102.56	1023.37	102.39	1038.35
102.02	1078.28	101.81	1093.26	101.13	1123.21	101.09	1128.2	101.59	1163.15
102.45	1223.05	102.39	1238.03	101.97	1253	102.06	1258	101.7	1267.98
101.63	1272.97	102	1277.96	99.02	1279.44	98.3	1282.96	96.58	1287.95
96.17	1292.94	95.93	1297.93	96.07	1302.92	98.19	1307.92	98.59	1309.46
99.68	1312.91	102.12	1317.9	103.1	1322.89	102.06	1332.88	101.51	1377.8
101.75	1382.8	101.89	1412.75	101.48	1442.7	101.46	1457.68	101.97	1477.64
101.5	1502.6	101.61	1517.58	102.32	1527.56	101.82	1552.52	101.43	1577.48
101.69	1582.48	102.12	1587.47	102.21	1592.46	102.79	1597.45	102.96	1607.44
102.75	1612.43	102.33	1617.42	102.13	1692.3	102.31	1697.29	102.86	1737.23
103.18	1742.22	102.59	1747.21	102.64	1752.2	102.19	1757.2	102.06	1767.18
102.43	1772.17	102.12	1777.16	102.05	1782.16	102.36	1787.15	102.46	1797.13
101.94	1802.12	101.91	1807.12	102.52	1812.11	102.91	1822.09	102.72	1842.06
103.08	1872.01	102.56	1906.96	102.85	1926.93	102.63	1951.89	103.37	1971.85
103.19	1981.84	103.48	2001.81	102.62	2036.75	102.84	2081.68	102.52	2086.67
102.3	2091.66	102.3	2096.65	102.09	2116.62	102.32	2121.61	102.1	2126.61
102.33	2131.6	102.33	2141.58	102.65	2176.53	102.26	2226.45	102.97	2236.43
102.66	2261.39	102.57	2266.39	102.37	2306.32	102.25	2331.28	102.55	2391.19
102.19	2446.1	102.04	2461.08	102.43	2506	102.12	2525.97	101.54	2530.97

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101.84
 2550.93 101.86 2590.87 101.57 2605.85 101.16 2615.83 101.28 2635.8

101.01
 2650.78 101.24 2660.76 102.12 2675.74 102.16

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 1272.97 .045 1312.91 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr.

Expan. 1272.97 1312.91 835.48 834.91 834.33 .1 .3

Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 1170.31 102.44 F
 1601.33 2675.74 102.87 F

Blocked Obstructions num= 1
 Sta L Sta R Elev
 0 1007.61 99.95

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	96.60	Element	Left OB
Channel Right OB Vel Head (ft)	0.00	wt. n-Val.	
0.045 W.S. Elev (ft)	96.59	Reach Len. (ft)	835.48
834.91 834.33 Crit w.s. (ft)	96.17	Flow Area (sq ft)	
7.11 E.G. slope (ft/ft)	0.000497	Area (sq ft)	
7.11 Q Total (cfs)	3.00	Flow (cfs)	
3.00 Top width (ft)	16.24	Top width (ft)	
16.24 Vel Total (ft/s)	0.42	Avg. Vel. (ft/s)	
0.42 Max chl Dpth (ft)	0.66	Hydr. Depth (ft)	
0.44 Conv. Total (cfs)	134.6	Conv. (cfs)	
134.6 Length wtd. (ft)	834.91	wetted Per. (ft)	
16.37 Min ch El (ft)	95.93	shear (lb/sq ft)	
0.01 Alpha	1.00	Stream Power (lb/ft s)	2675.74

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0.00	0.00		
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	0.69
4.45			
C & E Loss (ft)	0.00	Cum SA (acres)	0.45
2.81			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	96.93	Element	Left OB
Channel Right OB			
Vel Head (ft)	0.00	wt. n-val.	
0.045			
W.S. Elev (ft)	96.93	Reach Len. (ft)	835.48
834.91	834.33		
Crit w.s. (ft)	96.20	Flow Area (sq ft)	
12.83			
E.G. slope (ft/ft)	0.000140	Area (sq ft)	
12.83			
Q Total (cfs)	4.00	Flow (cfs)	
4.00			
Top width (ft)	17.72	Top width (ft)	
17.72			
Vel Total (ft/s)	0.31	Avg. vel. (ft/s)	
0.31			
Max chl Dpth (ft)	1.00	Hydr. Depth (ft)	
0.72			
Conv. Total (cfs)	338.1	Conv. (cfs)	
338.1			
Length wtd. (ft)	834.91	wetted Per. (ft)	
18.00			
Min ch El (ft)	95.93	Shear (lb/sq ft)	
0.01			
Alpha	1.00	Stream Power (lb/ft s)	2675.74
0.00	0.00		

Frctn Loss (ft)	0.03	NM113 OUTPUT REPORT.TXT Cum Volume (acre-ft)	0.94
5.82 C & E Loss (ft)	0.00	Cum SA (acres)	0.59
3.16			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	97.70	Element	Left OB
Channel Right OB Vel Head (ft)	0.00	wt. n-Val.	
0.045 W.S. Elev (ft)	97.70	Reach Len. (ft)	835.48
834.91 834.33 Crit w.s. (ft)	96.28	Flow Area (sq ft)	
27.69 E.G. Slope (ft/ft)	0.000042	Area (sq ft)	
27.69 Q Total (cfs)	7.00	Flow (cfs)	
7.00 Top width (ft)	21.09	Top width (ft)	
21.09 Vel Total (ft/s)	0.25	Avg. Vel. (ft/s)	
0.25 Max Chl Dpth (ft)	1.77	Hydr. Depth (ft)	
1.31 Conv. Total (cfs)	1075.7	Conv. (cfs)	
1075.7 Length wtd. (ft)	834.91	Wetted Per. (ft)	
21.70 Min Ch El (ft)	95.93	Shear (lb/sq ft)	
0.00 Alpha	1.00	Stream Power (lb/ft s)	2675.74
0.00 0.00 Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	1.48

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8.64
 C & E Loss (ft) 0.00 Cum SA (acres) 0.68
 3.70

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.
 Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	97.04	Element	Left OB
Channel Right OB Vel Head (ft)	0.00	wt. n-Val.	
0.045 W.S. Elev (ft)	97.04	Reach Len. (ft)	835.48
834.91 834.33 Crit w.s. (ft)	96.23	Flow Area (sq ft)	
14.82 E.G. slope (ft/ft)	0.000141	Area (sq ft)	
14.82 Q Total (cfs)	5.00	Flow (cfs)	
5.00 Top width (ft)	18.21	Top width (ft)	
18.21 Vel Total (ft/s)	0.34	Avg. Vel. (ft/s)	
0.34 Max Chl Dpth (ft)	1.11	Hydr. Depth (ft)	
0.81 Conv. Total (cfs)	421.4	Conv. (cfs)	
421.4 Length wtd. (ft)	834.91	wetted Per. (ft)	
18.53 Min Ch El (ft)	95.93	Shear (lb/sq ft)	
0.01 Alpha	1.00	Stream Power (lb/ft s)	2675.74
0.00 0.00 Frctn Loss (ft)	0.03	cum volume (acre-ft)	0.83
5.61 C & E Loss (ft)	0.00	Cum SA (acres)	0.57

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3.13

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	97.38	Element	Left OB
Channel Right OB Vel Head (ft)	0.00	wt. n-val.	
0.045 W.S. Elev (ft)	97.38	Reach Len. (ft)	835.48
834.91 834.33 Crit w.s. (ft)	96.25	Flow Area (sq ft)	
21.20 E.G. slope (ft/ft)	0.000069	Area (sq ft)	
21.20 Q Total (cfs)	6.00	Flow (cfs)	
6.00 Top width (ft)	19.69	Top width (ft)	
19.69 Vel Total (ft/s)	0.28	Avg. vel. (ft/s)	
0.28 Max Chl Dpth (ft)	1.45	Hydr. Depth (ft)	
1.08 Conv. Total (cfs)	723.8	Conv. (cfs)	
723.8 Length wtd. (ft)	834.91	wetted Per. (ft)	
20.16 Min ch El (ft)	95.93	Shear (lb/sq ft)	
0.00 Alpha	1.00	Stream Power (lb/ft s)	2675.74
0.00 0.00 Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	1.09
6.96 C & E Loss (ft)	0.00	Cum SA (acres)	0.61

3.44

NM113 OUTPUT REPORT.TXT

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	98.09	Element	Left OB
Channel Right OB Vel Head (ft)	0.00	wt. n-Val.	
0.045 W.S. Elev (ft)	98.09	Reach Len. (ft)	835.48
834.91 834.33 Crit W.S. (ft)	96.34	Flow Area (sq ft)	
36.38 E.G. Slope (ft/ft)	0.000039	Area (sq ft)	
36.38 Q Total (cfs)	10.00	Flow (cfs)	
10.00 Top width (ft)	22.83	Top width (ft)	
22.83 Vel Total (ft/s)	0.27	Avg. Vel. (ft/s)	
0.27 Max Chl Dpth (ft)	2.16	Hydr. Depth (ft)	
1.59 Conv. Total (cfs)	1602.3	Conv. (cfs)	
1602.3 Length Wtd. (ft)	834.91	Wetted Per. (ft)	
23.62 Min Ch El (ft)	95.93	Shear (lb/sq ft)	
0.00 Alpha	1.00	Stream Power (lb/ft s)	2675.74
0.00 0.00 Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	1.65
9.84 C & E Loss (ft)	0.00	Cum SA (acres)	0.70
3.88			

NM113 OUTPUT REPORT.TXT

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-113

REACH: NM-113

RS: 6003

INPUT

Description:

Station	Elevation	Data	num=	151					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Elev	0	103.5	14.97	103.3	29.95	102.56	44.92	102.73	54.9
102.43	59.89	102.47	69.87	103.36	74.87	103.54	124.78	103.66	189.66
103.4	229.59	103.18	259.53	102.8	279.5	103.07	364.34	102.78	374.33
102.33	389.3	102.63	449.19	102.06	459.17	102.17	464.16	102.53	603.91
102.13	613.9	102.59	658.81	102.69	743.66	101.85	818.53	101.87	823.52
101.75	838.49	101.84	843.48	102.15	868.44	101.88	883.41	102.14	903.38
101.58	928.33	101.83	938.31	101.48	958.28	101.62	978.24	101.19	998.2
101.42	1033.14	101.2	1063.09	100.82	1078.06	100.26	1083.05	99.77	1108.01
99.56	1127.97	100.1	1137.95	100.78	1152.93	100.81	1157.92	100.6	1232.78
100.83	1237.77	100.65	1242.76	100.1	1252.75	99.74	1257.74	100.02	1262.73
100.94	1272.71	101.63	1277.7	101.46	1278.71	100.96	1282.69	98.95	1287.68
97.36	1292.67	95.48	1297.67	94.44	1302.66	95.33	1307.65	96.58	1308.71
96.74	1312.64	97.32	1317.63	99.08	1322.62	103.34	1327.61	106.85	1332.6
107.88	1337.59	107.99	1342.58	107.82	1347.58	106.1	1352.57	104.16	1402.48

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104.49									
1407.47	104.71	1412.46	105.56	1427.43	105.83	1432.42	105.54	1437.41	
104.27									
1442.4	103.98	1447.4	102.18	1452.39	101.46	1462.37	101.32	1467.36	
100.89									
1477.34	100.9	1482.33	101.14	1507.29	101.15	1547.22	101.18	1552.21	
101.37									
1557.2	101.36	1562.19	101.03	1572.17	101.03	1582.15	101.44	1681.97	
101.29									
1686.96	101.42	1696.95	101.18	1706.93	101.45	1736.87	101.1	1786.78	
101.32									
1811.74	101.1	1821.72	101.47	1831.7	101.99	1836.69	102.04	1841.68	
102.52									
1846.68	102.67	1851.67	102.39	1881.61	102.21	1891.59	101.38	1896.59	
101.12									
1906.57	100.94	1916.55	100.22	1951.49	100.2	1981.43	99.94	2016.37	
99.75									
2041.32	100.29	2046.32	100.26	2056.3	99.72	2101.22	99.41	2111.2	
99.76									
2126.17	99.54	2136.16	100.28	2166.1	100.64	2235.98	100.74	2265.92	
100.73									
2275.9	100.41	2395.69	100.86	2420.65	100.43	2435.62	99.64	2445.6	
99.96									
2455.58	99.73	2460.57	99.91	2465.56	100.59	2470.56	100.89	2485.53	
100.88									
2490.52	100.59	2495.51	100.78	2500.5	101.43	2505.49	101.47	2510.48	
101.27									
2515.48	101.3	2520.47	101.67	2550.41	101.57	2555.4	101.42	2575.37	
101.29									
2580.36	100.98	2600.32	100.83	2605.31	100.52	2610.31	100.44	2625.28	
99.42									
2655.23	99.03	2665.21	99.23	2680.18	99	2715.12	99.7	2750.06	
99.93									
2760.04	100.18								

Manning's n values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 1277.7 .045 1322.62 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr.
 Expan. 1277.7 1322.62 825.07 825.07 825.07 .1 .3
 Ineffective Flow num= 1
 Sta L Sta R Elev Permanent
 0 1275.37 101.54 F
 Blocked Obstructions num= 1

NM113 OUTPUT REPORT.TXT

Sta L Sta R Elev
1392.96 2760.04 103.31

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	96.56	Element	Left OB
Channel Right OB Vel Head (ft)	0.00	wt. n-Val.	
0.045 W.S. Elev (ft)	96.56	Reach Len. (ft)	825.07
825.07 825.07 Crit w.s. (ft)	94.90	Flow Area (sq ft)	
20.90 E.G. Slope (ft/ft)	0.000016	Area (sq ft)	
20.90 Q Total (cfs)	3.00	Flow (cfs)	
3.00 Top width (ft)	17.76	Top width (ft)	
17.76 Vel Total (ft/s)	0.14	Avg. Vel. (ft/s)	
0.14 Max Chl Dpth (ft)	2.12	Hydr. Depth (ft)	
1.18 Conv. Total (cfs)	754.3	Conv. (cfs)	
754.3 Length wtd. (ft)	825.07	Wetted Per. (ft)	
18.29 Min Ch El (ft)	94.44	Shear (lb/sq ft)	
0.00 Alpha	1.00	Stream Power (lb/ft s)	2760.04
0.00 0.00 Frctn Loss (ft)	0.07	Cum Volume (acre-ft)	0.69
4.18 C & E Loss (ft)	0.00	Cum SA (acres)	0.45
2.49			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

NM113 OUTPUT REPORT.TXT

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	96.91	Element	Left OB
Channel Right OB Vel Head (ft)	0.00	wt. n-Val.	
0.045 W.S. Elev (ft)	96.91	Reach Len. (ft)	825.07
825.07 825.07 Crit w.s. (ft)	94.96	Flow Area (sq ft)	
27.61 E.G. slope (ft/ft)	0.000014	Area (sq ft)	
27.61 Q Total (cfs)	4.00	Flow (cfs)	
4.00 Top width (ft)	20.95	Top width (ft)	
20.95 Vel Total (ft/s)	0.14	Avg. Vel. (ft/s)	
0.14 Max Chl Dpth (ft)	2.47	Hydr. Depth (ft)	
1.32 Conv. Total (cfs)	1074.8	Conv. (cfs)	
1074.8 Length wtd. (ft)	825.07	wetted Per. (ft)	
21.57 Min ch El (ft)	94.44	Shear (lb/sq ft)	
0.00 Alpha	1.00	Stream Power (lb/ft s)	2760.04
0.00 0.00 Frctn Loss (ft)	0.06	Cum Volume (acre-ft)	0.94
5.43 C & E Loss (ft)	0.00	Cum SA (acres)	0.59
2.79			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

NM113 OUTPUT REPORT.TXT

E.G. Elev (ft)	97.68	Element	Left OB
Channel Right OB Vel Head (ft)	0.00	wt. n-val.	
0.045 W.S. Elev (ft)	97.68	Reach Len. (ft)	825.07
825.07 825.07 Crit w.s. (ft)	95.09	Flow Area (sq ft)	
46.49 E.G. slope (ft/ft)	0.000010	Area (sq ft)	
46.49 Q Total (cfs)	7.00	Flow (cfs)	
7.00 Top width (ft)	27.00	Top width (ft)	
27.00 Vel Total (ft/s)	0.15	Avg. vel. (ft/s)	
0.15 Max chl Dpth (ft)	3.24	Hydr. Depth (ft)	
1.72 Conv. Total (cfs)	2160.4	Conv. (cfs)	
2160.4 Length wtd. (ft)	825.07	wetted Per. (ft)	
27.85 Min ch El (ft)	94.44	shear (lb/sq ft)	
0.00 Alpha	1.00	Stream Power (lb/ft s)	2760.04
0.00 0.00 Frctn Loss (ft)	0.06	Cum volume (acre-ft)	1.48
7.93 C & E Loss (ft)	0.00	Cum SA (acres)	0.68
3.24			

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	97.01	Element	Left OB
Channel Right OB			

		NM113	OUTPUT REPORT.TXT	
Vel Head (ft)	0.00		wt. n-Val.	
0.045				
W.S. Elev (ft)	97.01	Reach Len. (ft)		825.07
825.07	825.07			
Crit w.s. (ft)	95.00	Flow Area (sq ft)		
29.87				
E.G. slope (ft/ft)	0.000018	Area (sq ft)		
29.87				
Q Total (cfs)	5.00	Flow (cfs)		
5.00				
Top width (ft)	21.94	Top width (ft)		
21.94				
Vel Total (ft/s)	0.17	Avg. vel. (ft/s)		
0.17				
Max chl Dpth (ft)	2.57	Hydr. Depth (ft)		
1.36				
Conv. Total (cfs)	1188.0	Conv. (cfs)		
1188.0				
Length wtd. (ft)	825.07	wetted Per. (ft)		
22.59				
Min ch El (ft)	94.44	Shear (lb/sq ft)		
0.00				
Alpha	1.00	Stream Power (lb/ft s)	2760.04	
0.00	0.00			
Frctn Loss (ft)	0.08	Cum volume (acre-ft)	0.83	
5.18				
C & E Loss (ft)	0.00	Cum SA (acres)	0.57	
2.74				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	97.36	Element	Left OB
Channel Right OB			
Vel Head (ft)	0.00	wt. n-Val.	

NM113 OUTPUT REPORT.TXT

0.045				
W.S. Elev (ft)	97.36	Reach Len. (ft)		825.07
825.07	825.07			
Crit w.s. (ft)	95.05	Flow Area (sq ft)		
38.05				
E.G. slope (ft/ft)	0.000014	Area (sq ft)		
38.05				
Q Total (cfs)	6.00	Flow (cfs)		
6.00				
Top width (ft)	25.06	Top width (ft)		
25.06				
Vel Total (ft/s)	0.16	Avg. Vel. (ft/s)		
0.16				
Max chl Dpth (ft)	2.92	Hydr. Depth (ft)		
1.52				
Conv. Total (cfs)	1627.4	Conv. (cfs)		
1627.4				
Length wtd. (ft)	825.07	wetted Per. (ft)		
25.81				
Min Ch El (ft)	94.44	Shear (lb/sq ft)		
0.00				
Alpha	1.00	Stream Power (lb/ft s)	2760.04	
0.00	0.00			
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)	1.09	
6.39				
C & E Loss (ft)	0.00	Cum SA (acres)	0.61	
3.01				

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	98.08	Element	Left OB
Channel Right OB			
Vel Head (ft)	0.00	wt. n-Val.	
0.045			
W.S. Elev (ft)	98.08	Reach Len. (ft)	825.07
825.07	825.07		
Crit w.s. (ft)	95.19	Flow Area (sq ft)	

NM113 OUTPUT REPORT.TXT

57.62	E.G. slope (ft/ft)	0.000012	Area (sq ft)	
57.62	Q Total (cfs)	10.00	Flow (cfs)	
10.00	Top width (ft)	29.36	Top width (ft)	
29.36	Vel Total (ft/s)	0.17	Avg. Vel. (ft/s)	
0.17	Max Chl Dpth (ft)	3.64	Hydr. Depth (ft)	
1.96	Conv. Total (cfs)	2918.1	Conv. (cfs)	
2918.1	Length wtd. (ft)	825.07	wetted Per. (ft)	
30.34	Min Ch El (ft)	94.44	Shear (lb/sq ft)	
0.00	Alpha	1.00	Stream Power (lb/ft s)	2760.04
0.00	0.00	Frctn Loss (ft)	0.07	Cum Volume (acre-ft) 1.65
8.94	C & E Loss (ft)	0.00	Cum SA (acres)	0.70
3.38				

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-113
 REACH: NM-113 RS: 5178

INPUT

Description:

Station	Elevation	Data	num=	206	Elev	Sta	Elev	Sta	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	
Elev	0	101.26	19.96	101.39	29.95	101.03	54.9	101.25	59.89
101.42	119.78	101.07	149.73	101.32	164.7	101.28	224.6	102.07	234.58
101.82	254.54	102.15	274.51	101.69	284.49	101.19	294.47	100.98	319.43
101.08									

NM113 OUTPUT REPORT.TXT

344.38	101.69	399.28	102.06	429.23	101.84	439.21	102.01	444.2
101.81								
479.14	101.67	524.06	101.89	549.01	101.31	568.98	101.46	578.96
101.25								
588.94	101.23	623.88	101.91	633.86	101.57	673.79	101.72	683.77
101.51								
713.72	101.64	803.55	101.91	823.52	101.47	833.5	101.08	843.48
101.12								
848.47	101.33	858.46	101.17	868.44	101.41	878.42	101.35	883.41
101.79								
898.38	101.92	953.29	101.72	988.22	102.1	998.2	101.72	1038.13
101.5								
1068.08	101.54	1098.03	100.82	1103.02	100.57	1127.97	100.57	1137.95
100.99								
1147.94	101.76	1157.92	101.81	1177.88	102.06	1222.8	101.38	1232.78
101.53								
1247.76	101.51	1252.75	102.09	1262.73	102.26	1267.72	103.44	1272.71
103.63								
1277.7	103.49	1282.69	101.55	1287.68	101.35	1292.67	97.36	1297.67
94.52								
1301.81	94.38	1302.66	94.35	1307.65	94.45	1312.64	96.7	1317.63
99.92								
1322.62	104.83	1327.61	105.91	1332.6	108.95	1337.59	110.72	1342.58
111.07								
1347.58	111.1	1352.57	110.56	1357.56	107.62	1362.55	105.69	1367.54
105.09								
1387.5	103.98	1397.49	103.74	1402.48	103.46	1412.46	105.48	1422.44
109.45								
1432.42	109.16	1437.41	107.58	1442.4	102.85	1447.4	98.5	1452.39
98								
1457.38	98.74	1462.37	100.56	1467.36	104.35	1472.35	105.57	1477.34
104.51								
1482.33	103.84	1487.32	102.49	1497.31	101.67	1552.21	102.29	1587.14
102.21								
1597.13	101.77	1607.11	101.9	1622.08	101.12	1627.07	101.1	1637.05
99.79								
1642.04	99.66	1657.02	99.95	1671.99	99.57	1681.97	100.39	1711.92
100.99								
1721.9	100.85	1731.88	101.34	1736.87	101.43	1766.82	100.79	1776.8
100.76								
1786.78	100.25	1856.66	101.25	1861.65	101.13	1871.63	101.48	1886.6
101.44								

NM113 OUTPUT REPORT.TXT

1916.55	101.17	1921.54	101.28	1926.53	101.09	1931.52	101.16	1946.5
100.83								
1951.49	100.94	1956.48	101.26	1961.47	101.33	1971.45	101.15	1991.41
101.43								
2011.38	102.14	2016.37	101.84	2021.36	101.33	2026.35	101.21	2031.34
101.42								
2036.33	101.35	2041.32	101.02	2051.31	100.9	2071.27	101.25	2081.25
101.28								
2091.24	100.85	2096.23	100.48	2101.22	100.32	2111.2	101.26	2116.19
101.49								
2151.13	101.38	2161.11	100.66	2166.1	100.68	2176.08	101.21	2186.07
101.35								
2201.04	101.13	2206.03	100.65	2216.01	100.29	2221	100.33	2225.99
100.11								
2235.98	100.06	2240.97	100.21	2245.96	100.72	2250.95	100.74	2255.94
101.02								
2260.93	102	2270.91	102.13	2275.9	101.94	2285.89	101.96	2290.88
101.72								
2295.87	101.18	2300.86	100.89	2310.84	100.91	2315.83	101.54	2320.82
101.38								
2335.8	101.73	2340.79	101.45	2345.78	101.81	2350.77	101.93	2365.74
101.1								
2370.73	101.14	2380.72	100.82	2415.65	100.52	2425.64	99.57	2430.63
99.41								
2455.58	99.69	2470.56	99.49	2475.55	99.71	2480.54	100.23	2485.53
100.98								
2490.52	101.3	2525.46	101.66	2540.43	101.07	2550.41	101.25	2555.4
101.11								
2560.4	101.42	2595.33	101.77	2605.31	101.96	2620.29	101.4	2635.26
101.59								
2645.24	100.98	2655.23	101.08	2660.22	101.35	2665.21	101.11	2675.19
101.13								
2680.18	100.9	2705.14	101.64	2740.07	101.31	2745.06	101.1	2755.05
101.41								
2760.04	101.23							

Manning's n Values num= 3
 Sta n Val Sta n Val
 0 .06 1277.7 .045 1322.62 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr.
 Expan. 1277.7 1322.62 929.96 932.65 935.34 .1 .3
 Ineffective Flow num= 1
 Sta L Sta R Elev Permanent

NM113 OUTPUT REPORT.TXT

0 1273.06 103.55
 Blocked Obstructions num= 1
 Sta L Sta R Elev
 1424.36 2760.04 104.76

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	96.49	Element	Left OB
Channel Right OB Vel Head (ft)	0.00	wt. n-val.	
0.045 W.S. Elev (ft)	96.49	Reach Len. (ft)	929.96
932.65 935.34 Crit w.s. (ft)	94.82	Flow Area (sq ft)	
28.67 E.G. slope (ft/ft)	0.000144	Area (sq ft)	
28.67 Q Total (cfs)	15.00	Flow (cfs)	
15.00 Top width (ft)	17.96	Top width (ft)	
17.96 Vel Total (ft/s)	0.52	Avg. vel. (ft/s)	
0.52 Max chl Dpth (ft)	2.14	Hydr. Depth (ft)	
1.60 Conv. Total (cfs)	1248.6	Conv. (cfs)	
1248.6 Length wtd. (ft)	932.65	wetted Per. (ft)	
18.92 Min Ch El (ft)	94.35	shear (lb/sq ft)	
0.01 Alpha	1.00	Stream Power (lb/ft s)	2760.04
0.00 0.00 Frctn Loss (ft)	0.22	Cum volume (acre-ft)	0.69
3.71 C & E Loss (ft)	0.00	Cum SA (acres)	0.45
2.15			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical

NM113 OUTPUT REPORT.TXT

depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	96.84	Element	Left OB
Channel Right OB Vel Head (ft)	0.01	wt. n-Val.	
0.045 W.S. Elev (ft)	96.84	Reach Len. (ft)	929.96
932.65 935.34 Crit W.S. (ft)	94.90	Flow Area (sq ft)	
35.20 E.G. Slope (ft/ft)	0.000143	Area (sq ft)	
35.20 Q Total (cfs)	20.00	Flow (cfs)	
20.00 Top width (ft)	19.26	Top width (ft)	
19.26 Vel Total (ft/s)	0.57	Avg. Vel. (ft/s)	
0.57 Max Chl Dpth (ft)	2.49	Hydr. Depth (ft)	
1.83 Conv. Total (cfs)	1671.6	Conv. (cfs)	
1671.6 Length wtd. (ft)	932.65	Wetted Per. (ft)	
20.40 Min Ch El (ft)	94.35	Shear (lb/sq ft)	
0.02 Alpha	1.00	Stream Power (lb/ft s)	2760.04
0.00 0.00 Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	0.94
4.84 C & E Loss (ft)	0.00	Cum SA (acres)	0.59
2.41			

warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

NM113 OUTPUT REPORT.TXT

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	97.62	Element	Left OB
Channel Right OB Vel Head (ft)	0.01	Wt. n-Val.	
0.045 W.S. Elev (ft)	97.61	Reach Len. (ft)	929.96
932.65 935.34 Crit W.S. (ft)	95.13	Flow Area (sq ft)	
51.12 E.G. slope (ft/ft)	0.000159	Area (sq ft)	
51.12 Q Total (cfs)	36.00	Flow (cfs)	
36.00 Top width (ft)	21.70	Top width (ft)	
21.70 Vel Total (ft/s)	0.70	Avg. Vel. (ft/s)	
0.70 Max Chl Dpth (ft)	3.26	Hydr. Depth (ft)	
2.36 Conv. Total (cfs)	2850.6	Conv. (cfs)	
2850.6 Length wtd. (ft)	932.65	wetted Per. (ft)	
23.30 Min Ch El (ft)	94.35	Shear (lb/sq ft)	
0.02 Alpha	1.00	Stream Power (lb/ft s)	2760.04
0.00 0.00 Frctn Loss (ft)	0.22	Cum Volume (acre-ft)	1.48
7.00 C & E Loss (ft)	0.00	Cum SA (acres)	0.68
2.78			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

NM113 OUTPUT REPORT.TXT

E.G. Elev (ft)	96.93	Element	Left OB
Channel Right OB Vel Head (ft)	0.01	wt. n-Val.	
0.045 W.S. Elev (ft)	96.92	Reach Len. (ft)	929.96
932.65 935.34 Crit w.s. (ft)	94.98	Flow Area (sq ft)	
36.78 E.G. slope (ft/ft)	0.000197	Area (sq ft)	
36.78 Q Total (cfs)	25.00	Flow (cfs)	
25.00 Top width (ft)	19.53	Top width (ft)	
19.53 Vel Total (ft/s)	0.68	Avg. vel. (ft/s)	
0.68 Max chl Dpth (ft)	2.57	Hydr. Depth (ft)	
1.88 Conv. Total (cfs)	1780.5	Conv. (cfs)	
1780.5 Length wtd. (ft)	932.65	wetted Per. (ft)	
20.72 Min ch El (ft)	94.35	shear (lb/sq ft)	
0.02 Alpha	1.00	Stream Power (lb/ft s)	2760.04
0.00 0.00 Frctn Loss (ft)	0.31	Cum volume (acre-ft)	0.83
4.55 C & E Loss (ft)	0.00	Cum SA (acres)	0.57
2.35			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

NM113 OUTPUT REPORT.TXT

E.G. Elev (ft)	97.28	Element	Left OB
Channel Right OB Vel Head (ft)	0.01	wt. n-Val.	
0.045 W.S. Elev (ft)	97.27	Reach Len. (ft)	929.96
932.65 935.34 Crit W.S. (ft)	95.08	Flow Area (sq ft)	
43.87 E.G. Slope (ft/ft)	0.000195	Area (sq ft)	
43.87 Q Total (cfs)	32.00	Flow (cfs)	
32.00 Top width (ft)	20.70	Top width (ft)	
20.70 Vel Total (ft/s)	0.73	Avg. Vel. (ft/s)	
0.73 Max Chl Dpth (ft)	2.92	Hydr. Depth (ft)	
2.12 Conv. Total (cfs)	2289.2	Conv. (cfs)	
2289.2 Length wtd. (ft)	932.65	wetted Per. (ft)	
22.08 Min Ch El (ft)	94.35	Shear (lb/sq ft)	
0.02 Alpha	1.00	Stream Power (lb/ft s)	2760.04
0.00 0.00 Frctn Loss (ft)	0.30	Cum Volume (acre-ft)	1.09
5.61 C & E Loss (ft)	0.00	Cum SA (acres)	0.61
2.58			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	98.00	Element	Left OB
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NM113 OUTPUT REPORT.TXT

Channel Right OB			
Vel Head (ft)	0.01	Wt. n-Val.	
0.045			
W.S. Elev (ft)	97.99	Reach Len. (ft)	929.96
932.65			
935.34			
Crit w.s. (ft)	95.31	Flow Area (sq ft)	
59.53			
E.G. slope (ft/ft)	0.000207	Area (sq ft)	
59.53			
Q Total (cfs)	51.00	Flow (cfs)	
51.00			
Top width (ft)	22.76	Top width (ft)	
22.76			
Vel Total (ft/s)	0.86	Avg. Vel. (ft/s)	
0.86			
Max Ch1 Dpth (ft)	3.64	Hydr. Depth (ft)	
2.62			
Conv. Total (cfs)	3543.3	Conv. (cfs)	
3543.3			
Length wtd. (ft)	932.65	wetted Per. (ft)	
24.60			
Min ch El (ft)	94.35	Shear (lb/sq ft)	
0.03			
Alpha	1.00	Stream Power (lb/ft s)	2760.04
0.00			
0.00			
Frctn Loss (ft)	0.27	Cum Volume (acre-ft)	1.65
7.83			
C & E Loss (ft)	0.00	Cum SA (acres)	0.70
2.88			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-113
 REACH: NM-113

RS: 4245

INPUT

NM113 OUTPUT REPORT.TXT

Description:

Station	Elevation	Data	num=	148					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Elev	0	100.94	54.81	101.21	74.74	101.57	119.58	101.16	129.54
100.75	154.46	100.72	174.39	100.43	179.37	100.64	184.35	100.54	194.32
99.73	353.75	99.29	538.11	100.01	682.6	100.42	707.51	100.18	732.42
100.44	752.35	100.35	762.32	100.46	772.28	100.32	827.09	100.46	847.02
100.2	1121.05	100.07	1210.74	100.35	1245.61	100.94	1260.56	100.85	1265.54
101.12	1270.53	100.98	1275.51	101.06	1285.47	101.67	1290.46	102.2	1295.45
102.4	1300.45	103.19	1305.44	103.6	1310.43	103.81	1315.43	103.72	1320.42
103.21	1325.42	101.35	1330.41	97.11	1335.41	96.47	1340.4	94.1	1345.39
94.75	1346.73	95.07	1350.39	95.97	1355.38	99.39	1360.38	100.48	1365.37
105.35	1370.37	107.08	1380.35	107.2	1385.35	107.51	1390.34	107.58	1395.34
106.55	1400.33	106	1405.33	103.33	1410.32	103.32	1415.31	103.74	1425.3
103.8	1435.29	104.47	1445.28	104.69	1450.28	105.1	1455.27	107.26	1465.26
107.47	1470.25	107.21	1475.25	105.71	1480.24	105.05	1485.24	100.55	1490.23
95.84	1495.22	95.68	1500.22	94.53	1505.21	96.44	1510.21	100.79	1515.2
100.94	1520.2	102.1	1525.19	100.64	1530.18	99.4	1535.18	99.21	1555.16
99.5	1560.15	99.29	1565.14	99.42	1570.14	99.31	1600.1	99.66	1610.09
99.45	1615.09	99.11	1625.08	99.33	1635.07	99.07	1655.04	99.02	1660.04
99.22	1675.02	99.25	1680.01	99.5	1695	99.7	1709.98	99.41	1714.97
99.72	1719.97	100.59	1734.95	100.69	1739.95	100.9	1774.91	100.8	1784.9
101.09	1799.88	100.79	1839.83	100.68	1844.83	100.91	1859.81	100.77	1864.8

NM113 OUTPUT REPORT.TXT

100.53	1879.79	100.75	1884.78	100.33	1889.78	100.46	1894.77	100.89	1904.76
101.04	1909.75	100.62	1924.74	100.27	1929.73	100.02	2004.65	100.3	2014.63
100.1	2019.63	100.48	2024.62	100.62	2029.62	100.48	2039.61	100.92	2054.59
100.82	2064.58	101.2	2119.51	101.15	2154.47	101.42	2169.46	101.13	2204.42
101.21	2224.39	100.99	2244.37	100.85	2254.36	101.11	2259.35	100.97	2269.34
101.37	2284.33	101.32	2294.31	101.01	2314.29	101.13	2324.28	101.57	2344.26
100.92	2354.25	101.4	2364.23	101.15	2399.19	101.64	2439.15	101.23	2459.12
100.67	2479.1	101.76	2499.08	100.52	2504.07	100.47	2514.06	101.38	2559.01
101.88	2613.95	101.34	2623.94	101.39	2638.92	100.66	2658.9	100.15	2683.87
100.02	2698.85	100.42	2708.84	100.88	2713.83	100.84			

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 1320.42 .045 1365.37 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr.
 Expan. 1320.42 1365.37 307.38 306.99 306.61 .1 .3
 Ineffective Flow num= 1
 Sta L Sta R Elev Permanent
 0 1310.18 103.53 F
 Blocked Obstructions num= 2
 Sta L Sta R Elev Sta L Sta R Elev
 0 74.22 101.51 1438.63 2713.83 102.54

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	96.27	Element	Left OB
Channel Right OB Vel Head (ft)	0.01	wt. n-val.	
0.045 W.S. Elev (ft)	96.26	Reach Len. (ft)	307.38
306.99 306.61 Crit w.s. (ft)	94.99	Flow Area (sq ft)	
18.60 E.G. slope (ft/ft)	0.000476	Area (sq ft)	

NM113 OUTPUT REPORT.TXT

18.60	Q Total (cfs)	15.00	Flow (cfs)	
15.00	Top width (ft)	14.95	Top width (ft)	
14.95	Vel Total (ft/s)	0.81	Avg. Vel. (ft/s)	
0.81	Max Ch1 Dpth (ft)	2.16	Hydr. Depth (ft)	
1.24	Conv. Total (cfs)	687.4	Conv. (cfs)	
687.4	Length wtd. (ft)	306.99	wetted Per. (ft)	
15.71	Min Ch El (ft)	94.10	Shear (lb/sq ft)	
0.04	Alpha	1.00	Stream Power (lb/ft s)	2713.83
0.00	0.00 Frctn Loss (ft)	0.12	Cum Volume (acre-ft)	0.69
3.20	C & E Loss (ft)	0.00	Cum SA (acres)	0.45
1.80				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	96.63	Element	Left OB
Channel Right OB Vel Head (ft)	0.01	wt. n-Val.	
0.045 W.S. Elev (ft)	96.62	Reach Len. (ft)	307.38
306.99 306.61 Crit W.S. (ft)	95.11	Flow Area (sq ft)	
24.32 E.G. Slope (ft/ft)	0.000416	Area (sq ft)	
24.32			

NM113 OUTPUT REPORT.TXT			
Q Total (cfs)	20.00	Flow (cfs)	
20.00			
Top width (ft)	17.10	Top width (ft)	
17.10			
Vel Total (ft/s)	0.82	Avg. vel. (ft/s)	
0.82			
Max chl Dpth (ft)	2.52	Hydr. Depth (ft)	
1.42			
Conv. Total (cfs)	980.4	conv. (cfs)	
980.4			
Length wtd. (ft)	306.99	wetted Per. (ft)	
18.03			
Min ch El (ft)	94.10	shear (lb/sq ft)	
0.04			
Alpha	1.00	Stream Power (lb/ft s)	2713.83
0.00			
Frctn Loss (ft)	0.11	cum volume (acre-ft)	0.94
0.00			
C & E Loss (ft)	0.00	Cum SA (acres)	0.59
4.20			
2.02			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	97.40	Element	Left OB
Channel Right OB			
Vel Head (ft)	0.01	Wt. n-Val.	
0.045			
W.S. Elev (ft)	97.39	Reach Len. (ft)	307.38
306.99			
Crit w.s. (ft)	95.40	Flow Area (sq ft)	
40.02			
E.G. slope (ft/ft)	0.000369	Area (sq ft)	
40.02			
Q Total (cfs)	36.00	Flow (cfs)	

NM113 OUTPUT REPORT.TXT

36.00	Top width (ft)	22.39	Top width (ft)	
22.39	Vel Total (ft/s)	0.90	Avg. Vel. (ft/s)	
0.90	Max Chl Dpth (ft)	3.29	Hydr. Depth (ft)	
1.79	Conv. Total (cfs)	1874.5	Conv. (cfs)	
1874.5	Length Wtd. (ft)	306.99	Wetted Per. (ft)	
23.69	Min Ch El (ft)	94.10	Shear (lb/sq ft)	
0.04	Alpha	1.00	Stream Power (lb/ft s)	2713.83
0.00	0.00 Frctn Loss (ft)	0.10	Cum Volume (acre-ft)	1.48
6.03	C & E Loss (ft)	0.00	Cum SA (acres)	0.68
2.31				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.
 Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	96.62	Element	Left OB
Channel Right OB Vel Head (ft)	0.02	wt. n-Val.	
0.045 W.S. Elev (ft)	96.60	Reach Len. (ft)	307.38
306.99 306.61 Crit w.s. (ft)	95.21	Flow Area (sq ft)	
23.97 E.G. slope (ft/ft)	0.000672	Area (sq ft)	
23.97 Q Total (cfs)	25.00	Flow (cfs)	
25.00 Top width (ft)	16.91	Top width (ft)	

NM113 OUTPUT REPORT.TXT

16.91	Vel Total (ft/s)	1.04	Avg. Vel. (ft/s)	
1.04	Max Ch1 Dpth (ft)	2.50	Hydr. Depth (ft)	
1.42	Conv. Total (cfs)	964.3	Conv. (cfs)	
964.3	Length wtd. (ft)	306.99	Wetted Per. (ft)	
17.83	Min Ch El (ft)	94.10	Shear (lb/sq ft)	
0.06	Alpha	1.00	Stream Power (lb/ft s)	2713.83
0.00	0.00 Frctn Loss (ft)	0.14	Cum Volume (acre-ft)	0.83
3.90	C & E Loss (ft)	0.00	Cum SA (acres)	0.57
1.96				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	96.98	Element	Left OB
Channel Right OB Vel Head (ft)	0.02	wt. n-Val.	
0.045 W.S. Elev (ft)	96.97	Reach Len. (ft)	307.38
306.99 306.61 Crit w.s. (ft)	95.33	Flow Area (sq ft)	
30.79 E.G. Slope (ft/ft)	0.000609	Area (sq ft)	
30.79 Q Total (cfs)	32.00	Flow (cfs)	
32.00 Top width (ft)	20.30	Top width (ft)	
20.30			

NM113 OUTPUT REPORT.TXT			
Vel Total (ft/s)	1.04	Avg. Vel. (ft/s)	
1.04			
Max Chl Dpth (ft)	2.87	Hydr. Depth (ft)	
1.52			
Conv. Total (cfs)	1297.0	Conv. (cfs)	
1297.0			
Length wtd. (ft)	306.99	wetted Per. (ft)	
21.37			
Min ch El (ft)	94.10	Shear (lb/sq ft)	
0.05			
Alpha	1.00	Stream Power (lb/ft s)	2713.83
0.00			
Frctn Loss (ft)	0.13	cum volume (acre-ft)	1.09
0.00			
C & E Loss (ft)	0.00	cum SA (acres)	0.61
4.81			
2.14			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	97.73	Element	Left OB
Channel Right OB			
Vel Head (ft)	0.02	wt. n-Val.	
0.045			
W.S. Elev (ft)	97.71	Reach Len. (ft)	307.38
306.99			
Crit w.s. (ft)	306.61	Flow Area (sq ft)	
95.61			
47.29			
E.G. Slope (ft/ft)	0.000450	Area (sq ft)	
47.29			
Q Total (cfs)	51.00	Flow (cfs)	
51.00			
Top width (ft)	23.23	Top width (ft)	
23.23			
Vel Total (ft/s)	1.08	Avg. Vel. (ft/s)	

NM113 OUTPUT REPORT.TXT

1.08	Max Chl Dpth (ft)	3.61	Hydr. Depth (ft)	
2.04	Conv. Total (cfs)	2404.3	Conv. (cfs)	
2404.3	Length Wtd. (ft)	306.99	Wetted Per. (ft)	
24.75	Min Ch El (ft)	94.10	Shear (lb/sq ft)	
0.05	Alpha	1.00	Stream Power (lb/ft s)	2713.83
0.00	Frctn Loss (ft)	0.12	Cum Volume (acre-ft)	1.65
6.68	C & E Loss (ft)	0.00	Cum SA (acres)	0.70
2.39				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.
 Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-113
 REACH: NM-113 RS: 3938

INPUT

Description:

Station	Elevation	Data	num=	141					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Elev	0	100.13	159.98	100.96	529.93	101.81	534.93	101.96	609.92
102.09	654.91	101.81	699.91	102.03	719.9	101.9	739.9	101.99	749.9
101.21	754.9	101.08	759.9	100.49	764.9	100.36	774.9	100.45	779.89
100.25	839.89	101.07	844.89	100.86	849.89	100.02	859.88	100.12	864.88
100.56	874.88	101.84	879.88	101.89	884.88	102.28	889.88	101.98	949.87
101.15	969.87	101.5	1014.86	101.14	1019.86	101.48	1029.86	101.6	1034.86

NM113 OUTPUT REPORT.TXT

101.43	1039.86	101.63	1049.86	101.45	1054.86	101.69	1059.86	101.68	1064.86
101.93	1069.85	101.84	1079.85	101.38	1104.85	101.12	1109.85	101.3	1129.85
101.4	1154.84	100.95	1179.84	101.29	1184.84	101	1194.84	100.94	1199.84
100.41	1244.83	101.13	1254.83	100.99	1264.83	101.33	1269.83	100.98	1294.83
101.12	1314.82	101.52	1349.82	101.08	1354.82	101.64	1359.82	101.8	1364.82
101.55	1369.71	97.61	1369.82	97.52	1374.81	94.85	1379.81	94.39	1384.81
93.82	1389.81	93.98	1394.81	97.3	1399.81	98.48	1399.92	98.58	1404.81
102.73	1409.81	107.4	1414.81	109.45	1419.81	109.74	1424.81	109.71	1429.81
109.47	1434.81	107.45	1439.81	104.36	1444.81	103.44	1484.8	103.96	1489.8
105.04	1494.8	106.83	1499.8	107.69	1509.8	107.88	1514.8	107.76	1519.8
106.49	1524.8	102.57	1529.79	100.81	1534.79	97.48	1539.79	95.62	1549.79
95.56	1554.79	95.78	1559.79	98.19	1564.79	100.33	1569.79	100.81	1579.79
99.56	1589.79	100.57	1599.79	101.03	1644.78	101.6	1854.75	101.82	1869.75
101.04	1874.75	101.02	1884.75	100.36	1909.74	100.36	1919.74	100.97	1939.74
101.37	2004.73	101.55	2014.73	102.13	2044.73	101.29	2054.73	101.96	2124.72
102.19	2139.71	101.85	2149.71	101.86	2154.71	101.7	2159.71	101.31	2179.71
101.32	2194.71	101.08	2239.7	101.22	2244.7	101.03	2249.7	101.3	2269.7
101.31	2284.7	101.5	2294.69	102.16	2354.69	102.14	2359.69	101.96	2364.68
101.21	2394.68	100.7	2399.68	100.76	2404.68	100.6	2424.68	100.77	2464.67
100.5	2479.67	100.68	2519.66	100.3	2529.66	100.04	2549.66	100.29	2559.66
100.52	2564.66	100.8	2569.66	100.88	2579.66	100.53	2654.65	100.17	2659.65

NM113 OUTPUT REPORT.TXT

99.99
 2679.64 100.12 2684.64 100.36 2699.64 100.59 2719.64 100.38 2734.64

100.57
 2769.63 100.19

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 1364.82 .045 1404.81 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr.

Expan. 1364.82 1404.81 821.56 819.73 817.91 .1 .3

Ineffective Flow num= 1
 Sta L Sta R Elev Permanent
 0 1359.15 101.74 F

Blocked Obstructions num= 2
 Sta L Sta R Elev Sta L Sta R Elev
 0 890.58 101.92 1478.59 2769.63 103.32

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	96.15	Element	Left OB
Channel Right OB Vel Head (ft)	0.01	wt. n-Val.	
0.045 W.S. Elev (ft)	96.14	Reach Len. (ft)	821.56
819.73 817.91 Crit w.s. (ft)	94.63	Flow Area (sq ft)	
34.04 E.G. Slope (ft/ft)	0.000340	Area (sq ft)	
34.04 Q Total (cfs)	28.00	Flow (cfs)	
28.00 Top width (ft)	20.66	Top width (ft)	
20.66 Vel Total (ft/s)	0.82	Avg. Vel. (ft/s)	
0.82 Max chl Dpth (ft)	2.32	Hydr. Depth (ft)	
1.65 Conv. Total (cfs)	1517.8	Conv. (cfs)	
1517.8 Length wtd. (ft)	819.73	Wetted Per. (ft)	
21.69 Min Ch El (ft)	93.82	Shear (lb/sq ft)	
0.03 Alpha	1.00	Stream Power (lb/ft s)	2769.63

NM113 OUTPUT REPORT.TXT

0.00	0.00		
Frctn Loss (ft)	0.54	Cum Volume (acre-ft)	0.69
3.02			
C & E Loss (ft)	0.00	Cum SA (acres)	0.45
1.67			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	96.52	Element	Left OB
Channel Right OB Vel Head (ft)	0.01	wt. n-Val.	
0.045			
W.S. Elev (ft)	96.51	Reach Len. (ft)	821.56
819.73 817.91 Crit w.s. (ft)	94.75	Flow Area (sq ft)	
41.91			
E.G. Slope (ft/ft)	0.000324	Area (sq ft)	
41.91			
Q Total (cfs)	37.00	Flow (cfs)	
37.00			
Top width (ft)	21.91	Top width (ft)	
21.91			
Vel Total (ft/s)	0.88	Avg. Vel. (ft/s)	
0.88			
Max Chl Dpth (ft)	2.69	Hydr. Depth (ft)	
1.91			
Conv. Total (cfs)	2055.8	Conv. (cfs)	
2055.8			
Length wtd. (ft)	819.73	wetted Per. (ft)	
23.15			
Min ch El (ft)	93.82	Shear (lb/sq ft)	
0.04			
Alpha	1.00	Stream Power (lb/ft s)	2769.63
0.00	0.00		
Frctn Loss (ft)	0.47	Cum Volume (acre-ft)	0.94

NM113 OUTPUT REPORT.TXT

3.97
 C & E Loss (ft) 0.00 Cum SA (acres) 0.59
 1.88

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.
 Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	97.30	Element	Left OB
Channel Right OB Vel Head (ft)	0.02	wt. n-val.	
0.045 W.S. Elev (ft)	97.28	Reach Len. (ft)	821.56
819.73 817.91 Crit w.s. (ft)	94.99	Flow Area (sq ft)	
59.85 E.G. slope (ft/ft)	0.000327	Area (sq ft)	
59.85 Q Total (cfs)	62.00	Flow (cfs)	
62.00 Top width (ft)	24.52	Top width (ft)	
24.52 Vel Total (ft/s)	1.04	Avg. vel. (ft/s)	
1.04 Max Chl Dpth (ft)	3.46	Hydr. Depth (ft)	
2.44 Conv. Total (cfs)	3429.8	Conv. (cfs)	
3429.8 Length wtd. (ft)	819.73	wetted Per. (ft)	
26.18 Min Ch El (ft)	93.82	Shear (lb/sq ft)	
0.05 Alpha	1.00	Stream Power (lb/ft s)	2769.63
0.00 0.00 Frctn Loss (ft)	0.41	Cum Volume (acre-ft)	1.48
5.68			

C & E Loss (ft)

0.68

2.14

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	96.47	Element	Left OB
Channel Right OB Vel Head (ft)	0.01	wt. n-Val.	
0.045 W.S. Elev (ft)	96.46	Reach Len. (ft)	821.56
819.73 817.91 Crit w.s. (ft)	94.76	Flow Area (sq ft)	
40.85 E.G. Slope (ft/ft)	0.000368	Area (sq ft)	
40.85 Q Total (cfs)	38.00	Flow (cfs)	
38.00 Top width (ft)	21.75	Top width (ft)	
21.75 Vel Total (ft/s)	0.93	Avg. Vel. (ft/s)	
0.93 Max Chl Dpth (ft)	2.64	Hydr. Depth (ft)	
1.88 Conv. Total (cfs)	1981.1	Conv. (cfs)	
1981.1 Length wtd. (ft)	819.73	Wetted Per. (ft)	
22.96 Min Ch El (ft)	93.82	Shear (lb/sq ft)	
0.04 Alpha	1.00	Stream Power (lb/ft s)	2769.63
0.00 0.00 Frctn Loss (ft)	0.58	Cum Volume (acre-ft)	0.83
3.67 C & E Loss (ft)	0.00	Cum SA (acres)	0.57

1.82

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

Note: This may indicate the need for additional cross sections. Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	96.85	Element	Left OB
Channel Right OB Vel Head (ft)	0.02	wt. n-Val.	
0.045 W.S. Elev (ft)	96.83	Reach Len. (ft)	821.56
819.73 817.91 Crit w.s. (ft)	94.88	Flow Area (sq ft)	
49.17 E.G. Slope (ft/ft)	0.000358	Area (sq ft)	
49.17 Q Total (cfs)	49.00	Flow (cfs)	
49.00 Top width (ft)	23.00	Top width (ft)	
23.00 Vel Total (ft/s)	1.00	Avg. Vel. (ft/s)	
1.00 Max Chl Dpth (ft)	3.01	Hydr. Depth (ft)	
2.14 Conv. Total (cfs)	2589.5	Conv. (cfs)	
2589.5 Length wtd. (ft)	819.73	wetted Per. (ft)	
24.42 Min ch El (ft)	93.82	Shear (lb/sq ft)	
0.05 Alpha	1.00	Stream Power (lb/ft s)	2769.63
0.00 0.00 Frctn Loss (ft)	0.52	Cum Volume (acre-ft)	1.09
4.53 C & E Loss (ft)	0.00	Cum SA (acres)	0.61
1.99			

NM113 OUTPUT REPORT.TXT

warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	97.61	Element	Left OB
Channel Right OB Vel Head (ft)	0.02	wt. n-val.	
0.045 W.S. Elev (ft)	97.59	Reach Len. (ft)	821.56
819.73 817.91 Crit w.s. (ft)	95.12	Flow Area (sq ft)	
67.55 E.G. slope (ft/ft)	0.000369	Area (sq ft)	
67.55 Q Total (cfs)	77.00	Flow (cfs)	
77.00 Top width (ft)	26.28	Top width (ft)	
26.28 Vel Total (ft/s)	1.14	Avg. vel. (ft/s)	
1.14 Max Chl Dpth (ft)	3.77	Hydr. Depth (ft)	
2.57 Conv. Total (cfs)	4006.2	Conv. (cfs)	
4006.2 Length wtd. (ft)	819.73	wetted Per. (ft)	
28.06 Min Ch El (ft)	93.82	Shear (lb/sq ft)	
0.06 Alpha	1.00	Stream Power (lb/ft s)	2769.63
0.00 0.00 Frctn Loss (ft)	0.44	Cum volume (acre-ft)	1.65
6.28 C & E Loss (ft)	0.00	Cum SA (acres)	0.70
2.22			

NM113 OUTPUT REPORT.TXT

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-113
 REACH: NM-113

RS: 3118

INPUT

Description:

Station	Elevation	Data	num=	151	Sta	Elev	Sta	Elev	Sta
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Elev	0	99.4	4.99	99.6	109.83	99.47	164.74	99.19	234.63
99.44	249.61	99.18	259.59	99.73	304.52	99.51	314.51	99.34	364.43
99.65	379.4	99.17	399.37	99.33	424.33	99.15	489.23	99.09	499.22
99.49	529.17	99.73	559.12	99.33	569.11	98.65	579.09	98.51	584.08
98.63	604.05	98.46	609.04	98.79	629.01	99.21	639	99.21	663.96
99.5	683.93	99.21	693.91	99.6	708.89	99.48	728.86	99.66	743.83
99.24	758.81	99.98	788.76	100.1	798.75	99.74	828.7	99.69	833.69
99.85	853.66	99.57	883.61	99.96	1013.41	99.44	1058.34	99.83	1063.33
99.54	1088.29	99.52	1098.28	99.64	1138.21	99.28	1143.2	99.43	1158.18
99.34	1173.16	98.96	1218.09	99.58	1238.06	98.83	1243.05	98.79	1248.04
98.96	1292.97	99.17	1307.95	98.69	1312.94	98.89	1317.93	99.44	1322.92
99.46	1327.91	98.95	1332.91	97.54	1335.38	96.09	1337.9	94.62	1342.89
93.28	1347.88	94.72	1352.87	95.8	1357.87	96.53	1362.86	100.23	1367.85
104.84	1372.84	106.14	1387.82	106.81	1392.81	106.9	1397.8	106.48	1402.8
105.41									

NM113 OUTPUT REPORT.TXT

1407.79	104.77	1412.78	104.76	1417.77	105.08	1437.74	104.07	1442.73
104								
1447.73	104.15	1452.72	105.72	1457.71	108.29	1462.7	108.46	1467.69
109.02								
1472.69	109	1482.67	108.3	1487.66	105.39	1492.65	100.52	1497.65
97.02								
1502.64	97	1507.63	96.44	1512.62	96.37	1517.61	97.27	1522.61
101.39								
1527.6	101.34	1537.58	99.78	1542.58	100.13	1547.57	100.13	1552.56
101.01								
1557.55	101.21	1587.5	101.35	1592.5	101.59	1602.48	101.23	1622.45
101.08								
1627.44	101.35	1657.39	101.35	1662.39	101.16	1677.36	101.5	1827.13
101.18								
1832.12	101.01	1842.1	100.2	1857.08	100.24	1867.06	100.07	1936.95
100.94								
1941.95	101.12	1956.92	100.96	1981.88	101.28	1991.87	101.58	2001.85
101.37								
2006.84	101.54	2011.84	102.29	2016.83	102.36	2051.77	102.11	2061.76
102.34								
2121.66	102.5	2126.66	101.84	2131.65	100.26	2136.64	99.4	2146.62
99.22								
2151.62	99.85	2156.61	100.91	2161.6	101.7	2176.58	102.54	2186.56
102.11								
2191.55	101.64	2201.54	99.86	2216.52	99.25	2251.46	100.36	2261.45
100.83								
2341.32	101.19	2346.31	100.92	2391.24	100.95	2411.21	101.28	2446.16
101.26								
2461.13	101.06	2466.13	101.23	2486.09	101.08	2491.09	100.47	2506.06
100.1								
2521.04	100.3	2526.03	100.17	2555.99	101.26	2650.84	101.2	2660.82
100.8								
2700.76	100.94							

Manning's n values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 1322.92 .045 1362.86 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr.
 Expan. 1322.92 1362.86 852.02 852.02 852.02 .1 .3

Ineffective Flow num= 1
 Sta L Sta R Elev Permanent
 0 1320.13 99.47 F

Blocked Obstructions num= 2
 Sta L Sta R Elev

0 759.28 99.97 1455.76 2700.76 102.82

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	95.61	Element	Left OB
Channel Right OB Vel Head (ft)	0.04	wt. n-val.	
0.045 W.S. Elev (ft)	95.58	Reach Len. (ft)	852.02
852.02 852.02 Crit w.s. (ft)	94.58	Flow Area (sq ft)	
18.45 E.G. slope (ft/ft)	0.001791	Area (sq ft)	
18.45 Q Total (cfs)	28.00	Flow (cfs)	
28.00 Top width (ft)	15.57	Top width (ft)	
15.57 Vel Total (ft/s)	1.52	Avg. vel. (ft/s)	
1.52 Max chl Dpth (ft)	2.30	Hydr. Depth (ft)	
1.18 Conv. Total (cfs)	661.7	Conv. (cfs)	
661.7 Length wtd. (ft)	852.02	wetted Per. (ft)	
16.30 Min Ch El (ft)	93.28	shear (lb/sq ft)	
0.13 Alpha	1.00	Stream Power (lb/ft s)	2700.76
0.00 0.00 Frctn Loss (ft)	0.41	Cum volume (acre-ft)	0.69
2.52 C & E Loss (ft)	0.01	Cum SA (acres)	0.45
1.33			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	96.05	Element	Left OB
Channel Right OB Vel Head (ft)	0.03	wt. n-Val.	
0.045 W.S. Elev (ft)	96.02	Reach Len. (ft)	852.02
852.02 852.02 Crit W.S. (ft)	94.73	Flow Area (sq ft)	
25.98 E.G. Slope (ft/ft)	0.001289	Area (sq ft)	
25.98 Q Total (cfs)	37.00	Flow (cfs)	
37.00 Top width (ft)	18.85	Top width (ft)	
18.85 Vel Total (ft/s)	1.42	Avg. Vel. (ft/s)	
1.42 Max Chl Dpth (ft)	2.74	Hydr. Depth (ft)	
1.38 Conv. Total (cfs)	1030.4	Conv. (cfs)	
1030.4 Length wtd. (ft)	852.02	wetted Per. (ft)	
19.74 Min Ch El (ft)	93.28	Shear (lb/sq ft)	
0.11 Alpha	1.00	Stream Power (lb/ft s)	2700.76
0.00 0.00 Frctn Loss (ft)	0.38	Cum Volume (acre-ft)	0.94
3.33 C & E Loss (ft)	0.00	Cum SA (acres)	0.59
1.50			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

NM113 OUTPUT REPORT.TXT

E.G. Elev (ft)	96.89	Element	Left OB
Channel Right OB Vel Head (ft)	0.03	Wt. n-Val.	
0.045 W.S. Elev (ft)	96.86	Reach Len. (ft)	852.02
852.02 852.02 Crit w.s. (ft)	95.07	Flow Area (sq ft)	
44.66 E.G. slope (ft/ft)	0.000838	Area (sq ft)	
44.66 Q Total (cfs)	62.00	Flow (cfs)	
62.00 Top width (ft)	24.25	Top width (ft)	
24.25 Vel Total (ft/s)	1.39	Avg. Vel. (ft/s)	
1.39 Max Ch1 Dpth (ft)	3.58	Hydr. Depth (ft)	
1.84 Conv. Total (cfs)	2142.1	Conv. (cfs)	
2142.1 Length wtd. (ft)	852.02	wetted Per. (ft)	
25.52 Min Ch E1 (ft)	93.28	Shear (lb/sq ft)	
0.09 Alpha	1.00	Stream Power (lb/ft s)	2700.76
0.00 0.00 Frctn Loss (ft)	0.37	Cum Volume (acre-ft)	1.48
4.69 C & E Loss (ft)	0.00	Cum SA (acres)	0.68
1.69			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

NM113 OUTPUT REPORT.TXT			
E.G. Elev (ft)	95.90	Element	Left OB
Channel Right OB Vel Head (ft)	0.04	wt. n-val.	
0.045 W.S. Elev (ft)	95.85	Reach Len. (ft)	852.02
852.02 852.02 Crit w.s. (ft)	94.75	Flow Area (sq ft)	
23.03 E.G. slope (ft/ft)	0.001836	Area (sq ft)	
23.03 Q Total (cfs)	38.00	Flow (cfs)	
38.00 Top width (ft)	17.45	Top width (ft)	
17.45 Vel Total (ft/s)	1.65	Avg. vel. (ft/s)	
1.65 Max chl Dpth (ft)	2.57	Hydr. Depth (ft)	
1.32 Conv. Total (cfs)	886.8	Conv. (cfs)	
886.8 Length wtd. (ft)	852.02	wetted Per. (ft)	
18.29 Min ch El (ft)	93.28	shear (lb/sq ft)	
0.14 Alpha	1.00	Stream Power (lb/ft s)	2700.76
0.00 0.00 Frctn Loss (ft)	0.42	Cum volume (acre-ft)	0.83
3.07 C & E Loss (ft)	0.01	Cum SA (acres)	0.57
1.45			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	96.33	Element	Left OB
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NM113 OUTPUT REPORT.TXT

Channel Right OB			
Vel Head (ft)	0.04	wt. n-Val.	
0.045			
W.S. Elev (ft)	96.29	Reach Len. (ft)	852.02
852.02			
Crit W.S. (ft)	94.91	Flow Area (sq ft)	
31.44			
E.G. Slope (ft/ft)	0.001398	Area (sq ft)	
31.44			
Q Total (cfs)	49.00	Flow (cfs)	
49.00			
Top width (ft)	21.18	Top width (ft)	
21.18			
Vel Total (ft/s)	1.56	Avg. Vel. (ft/s)	
1.56			
Max Chl Dpth (ft)	3.01	Hydr. Depth (ft)	
1.48			
Conv. Total (cfs)	1310.5	Conv. (cfs)	
1310.5			
Length wtd. (ft)	852.02	wetted Per. (ft)	
22.16			
Min Ch El (ft)	93.28	Shear (lb/sq ft)	
0.12			
Alpha	1.00	Stream Power (lb/ft s)	2700.76
0.00			
Frctn Loss (ft)	0.40	Cum Volume (acre-ft)	1.09
3.77			
C & E Loss (ft)	0.01	Cum SA (acres)	0.61
1.57			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	97.16	Element	Left OB
Channel Right OB			
Vel Head (ft)	0.04	wt. n-Val.	

NM113 OUTPUT REPORT.TXT

0.045				
W.S. Elev (ft)	97.13	Reach Len. (ft)	852.02	
852.02	852.02			
Crit w.s. (ft)	95.24	Flow Area (sq ft)		
51.20				
E.G. slope (ft/ft)	0.000861	Area (sq ft)		
51.20				
Q Total (cfs)	77.00	Flow (cfs)		
77.00				
Top width (ft)	25.06	Top width (ft)		
25.06				
Vel Total (ft/s)	1.50	Avg. Vel. (ft/s)		
1.50				
Max Ch1 Dpth (ft)	3.85	Hydr. Depth (ft)		
2.04				
Conv. Total (cfs)	2623.6	Conv. (cfs)		
2623.6				
Length wtd. (ft)	852.02	wetted Per. (ft)		
26.49				
Min Ch E1 (ft)	93.28	Shear (lb/sq ft)		
0.10				
Alpha	1.00	Stream Power (lb/ft s)	2700.76	
0.00	0.00			
Frctn Loss (ft)	0.38	Cum Volume (acre-ft)	1.65	
5.16				
C & E Loss (ft)	0.00	Cum SA (acres)	0.70	
1.73				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-113
 REACH: NM-113 RS: 2266

INPUT

Description:

Station	Elevation	Data	num=	155				
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta

NM113 OUTPUT REPORT.TXT

Elev	0	98.69	24.96	99.36	59.91	99.28	64.9	99.11	74.88
99.17	84.87	98.95	144.77	99.04	159.75	99.44	294.54	99.04	309.51
99.51	319.5	99.16	409.36	98.98	474.25	99.15	534.16	98.79	539.15
98.88	559.12	98.62	594.07	99.07	663.96	98.86	748.82	99.22	768.79
98.76	828.7	99.09	833.69	99.52	888.6	99.31	913.57	99.45	928.54
99.15	973.47	99.19	998.43	98.87	1008.42	99.08	1028.39	99.06	1053.35
98.62	1063.33	99.09	1118.24	99.3	1133.22	98.68	1153.19	98.69	1188.13
98.57	1198.12	98.17	1203.11	98.73	1208.1	100.39	1213.09	101.7	1218.09
102.3	1223.08	102.29	1228.07	102.87	1233.06	104.09	1243.05	104.29	1248.04
104.84	1253.03	104.87	1258.02	104.46	1268.01	104.15	1273	103.07	1282.98
101.8	1287.98	101.98	1297.96	96.63	1302.95	95.28	1307.95	95.22	1312.94
93.71	1317.93	92.85	1322.92	93.21	1327.91	93.34	1332.91	94.88	1337.9
96.96	1342.89	98.02	1352.87	98.18	1357.87	98.04	1362.86	96.84	1366.44
94.08	1367.85	93	1372.84	92.58	1377.84	91.35	1382.83	91.99	1387.82
94.27	1392.81	95.02	1396.45	96.87	1397.8	97.56	1402.8	100.36	1407.79
102.16	1412.78	102.51	1417.77	103.94	1422.76	104.5	1427.76	104.78	1432.75
104.37	1452.72	103.74	1482.67	103.52	1487.66	105.35	1492.65	106.57	1507.63
106.76	1512.62	106.48	1517.61	103.76	1522.61	101.56	1527.6	98.57	1532.59
93.88	1537.58	91.5	1542.58	91.08	1547.57	91.42	1552.56	93.27	1557.55
96.27	1562.54	97.88	1567.54	98.13	1572.53	98.67	1612.47	98.88	1637.43
99.05	1647.41	99.34	1682.36	99.26	1707.32	98.61	1712.31	98.07	1717.3

NM113 OUTPUT REPORT.TXT

98	1722.29	97.33	1727.28	97.2	1732.28	97.57	1742.26	97.4	1747.25
97.15	1757.24	97.5	1762.23	98.21	1767.22	98.56	1777.21	98.64	1827.13
98.83	1832.12	98.67	1847.1	98.86	1887.03	98.88	1892.02	99.04	1902.01
98.59	1996.86	98.49	2006.84	98.87	2071.74	98.87	2086.72	98.5	2136.64
98.94	2141.63	99.1	2146.62	98.82	2176.58	98.86	2181.57	99	2241.48
98.66	2246.47	98.8	2271.43	98.86	2331.34	99.14	2351.31	99.32	2366.28
99.17	2396.24	99.41	2456.14	99.46	2496.08	98.81	2506.06	98.24	2516.05
98.58	2526.03	98.43	2536.02	98.77	2541.01	98.76	2550.99	99.18	2565.97
99.17	2580.95	99.27	2595.92	98.93	2600.92	99.23	2630.87	99.23	2635.86
99.06	2650.84	99.14	2670.81	98.89	2675.8	98.99	2680.79	98.88	2700.76

99.33

Manning's n values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 1357.87 .045 1397.8 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr.
 Expan. 1357.87 1397.8 687.92 688.18 688.45 .1 .3

Ineffective Flow num= 1
 Sta L Sta R Elev Permanent
 0 1350.31 98.13 F
 Blocked Obstructions num= 2
 Sta L Sta R Elev Sta L Sta R Elev
 0 1235.97 100.39 1475.74 2700.76 100.37

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft) 95.20 Element Left OB
 Channel Right OB
 Vel Head (ft) 0.01 wt. n-Val.
 0.045
 w.s. Elev (ft) 95.18 Reach Len. (ft) 687.92
 688.18 688.45
 Crit w.s. (ft) 92.87 Flow Area (sq ft)

NM113 OUTPUT REPORT.TXT

61.63	E.G. slope (ft/ft)	0.000317	Area (sq ft)	38.83
61.63	Q Total (cfs)	59.00	Flow (cfs)	
59.00	Top width (ft)	53.69	Top width (ft)	25.57
28.12	Vel Total (ft/s)	0.96	Avg. Vel. (ft/s)	
0.96	Max Chl Dpth (ft)	3.83	Hydr. Depth (ft)	
2.19	Conv. Total (cfs)	3313.4	Conv. (cfs)	
3313.4	Length wtd. (ft)	688.18	wetted Per. (ft)	
29.66	Min Ch El (ft)	91.35	Shear (lb/sq ft)	
0.04	Alpha	1.00	Stream Power (lb/ft s)	2700.76
0.00	0.00 Frctn Loss (ft)	0.39	Cum Volume (acre-ft)	0.31
1.74	C & E Loss (ft)	0.00	Cum SA (acres)	0.20
0.90				

Warning: Divided flow computed for this cross-section.
 Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.
 Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	95.67	Element	Left OB
Channel Right OB Vel Head (ft)	0.02	wt. n-Val.	
0.045 W.S. Elev (ft)	95.65	Reach Len. (ft)	687.92
688.18 688.45 Crit W.S. (ft)	93.05	Flow Area (sq ft)	

NM113 OUTPUT REPORT.TXT			
E.G. Slope (ft/ft)	0.000311	Area (sq ft)	53.27
75.06 Q Total (cfs)	78.00	Flow (cfs)	
78.00 Top width (ft)	62.80	Top width (ft)	33.16
29.64 Vel Total (ft/s)	1.04	Avg. vel. (ft/s)	
1.04 Max chl Dpth (ft)	4.30	Hydr. Depth (ft)	
2.53 Conv. Total (cfs)	4426.1	Conv. (cfs)	
4426.1 Length wtd. (ft)	688.18	wetted Per. (ft)	
31.45 Min ch El (ft)	91.35	Shear (lb/sq ft)	
0.05 Alpha	1.00	Stream Power (lb/ft s)	2700.76
0.00 0.00 Frctn Loss (ft)	0.36	Cum volume (acre-ft)	0.42
2.34 C & E Loss (ft)	0.00	Cum SA (acres)	0.26
1.02			

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	96.52	Element	Left OB
Channel Right OB Vel Head (ft)	0.02	wt. n-val.	
0.045 W.S. Elev (ft)	96.50	Reach Len. (ft)	687.92
688.18 688.45 Crit w.s. (ft)	93.38	Flow Area (sq ft)	
101.39 E.G. slope (ft/ft)	0.000334	Area (sq ft)	83.61

NM113 OUTPUT REPORT.TXT

101.39	Q Total (cfs)	125.00	Flow (cfs)	
125.00	Top width (ft)	70.75	Top width (ft)	38.34
32.41	Vel Total (ft/s)	1.23	Avg. Vel. (ft/s)	
1.23	Max Ch1 Dpth (ft)	5.15	Hydr. Depth (ft)	
3.13	Conv. Total (cfs)	6840.8	Conv. (cfs)	
6840.8	Length wtd. (ft)	688.18	Wetted Per. (ft)	
34.71	Min Ch El (ft)	91.35	Shear (lb/sq ft)	
0.06	Alpha	1.00	Stream Power (lb/ft s)	2700.76
0.00	0.00 Frctn Loss (ft)	0.38	Cum Volume (acre-ft)	0.66
3.26	C & E Loss (ft)	0.00	Cum SA (acres)	0.30
1.13				

Warning: Divided flow computed for this cross-section.
 Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.
 Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	95.47	Element	Left OB
Channel Right OB Vel Head (ft)	0.02	Wt. n-Val.	
0.045 W.S. Elev (ft)	95.45	Reach Len. (ft)	687.92
688.18 688.45 Crit w.s. (ft)	92.97	Flow Area (sq ft)	
69.36 E.G. Slope (ft/ft)	0.000306	Area (sq ft)	46.94

NM113 OUTPUT REPORT.TXT

69.36	Q Total (cfs)	69.00	Flow (cfs)	
69.00	Top width (ft)	60.99	Top width (ft)	31.98
29.01	Vel Total (ft/s)	0.99	Avg. Vel. (ft/s)	
0.99	Max Chl Dpth (ft)	4.10	Hydr. Depth (ft)	
2.39	Conv. Total (cfs)	3943.4	Conv. (cfs)	
3943.4	Length wtd. (ft)	688.18	wetted Per. (ft)	
30.70	Min Ch El (ft)	91.35	Shear (lb/sq ft)	
0.04	Alpha	1.00	Stream Power (lb/ft s)	2700.76
0.00	Frctn Loss (ft)	0.35	Cum Volume (acre-ft)	0.37
2.17	C & E Loss (ft)	0.00	Cum SA (acres)	0.25
1.00				

Warning: Divided flow computed for this cross-section.
 Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.
 Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	95.92	Element	Left OB
Channel Right OB Vel Head (ft)	0.02	wt. n-Val.	
0.045 W.S. Elev (ft)	95.90	Reach Len. (ft)	687.92
688.18 Crit W.S. (ft)	93.14	Flow Area (sq ft)	
82.66 E.G. slope (ft/ft)	0.000312	Area (sq ft)	61.86
82.66			

NM113 OUTPUT REPORT.TXT			
Q Total (cfs)	90.00	Flow (cfs)	
90.00	Top width (ft)	65.17	Top width (ft) 34.71
30.47	Vel Total (ft/s)	1.09	Avg. Vel. (ft/s)
1.09	Max chl Dpth (ft)	4.55	Hydr. Depth (ft)
2.71	Conv. Total (cfs)	5093.8	Conv. (cfs)
5093.8	Length wtd. (ft)	688.18	wetted Per. (ft)
32.42	Min ch El (ft)	91.35	shear (lb/sq ft)
0.05	Alpha	1.00	Stream Power (lb/ft s) 2700.76
0.00	Frctn Loss (ft)	0.35	cum volume (acre-ft) 0.49
2.66	C & E Loss (ft)	0.00	Cum SA (acres) 0.27
1.07			

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	96.78	Element	Left OB
Channel Right OB Vel Head (ft)	0.03	wt. n-val.	
0.045 W.S. Elev (ft)	96.75	Reach Len. (ft)	687.92
688.18 688.45 Crit w.s. (ft)	93.48	Flow Area (sq ft)	
109.72 E.G. slope (ft/ft)	0.000339	Area (sq ft)	93.52
109.72 Q Total (cfs)	141.00	Flow (cfs)	

NM113 OUTPUT REPORT.TXT

141.00	Top width (ft)	72.90	Top width (ft)	39.66
33.24	Vel Total (ft/s)	1.29	Avg. Vel. (ft/s)	
1.29	Max Chl Dpth (ft)	5.40	Hydr. Depth (ft)	
3.30	Conv. Total (cfs)	7659.7	Conv. (cfs)	
7659.7	Length wtd. (ft)	688.18	Wetted Per. (ft)	
35.69	Min Ch El (ft)	91.35	Shear (lb/sq ft)	
0.07	Alpha	1.00	Stream Power (lb/ft s)	2700.76
0.00	Frctn Loss (ft)	0.38	Cum Volume (acre-ft)	0.74
3.59	C & E Loss (ft)	0.00	Cum SA (acres)	0.31
1.16				

Warning: Divided flow computed for this cross-section.
 Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.
 Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-113
 REACH: NM-113 RS: 1578

INPUT

Description:
 Station Elevation Data num= 164

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	
Elev	0	100.26	95	100.8	130	100.5	135	100.26	145
99.11	160	98.2	215	98.75	235	99.05	250	98.43	265
98.62	355	98.3	370	98.45	375	98.26	390	98.37	400
97.88									

NM113 OUTPUT REPORT.TXT

415	97.74	420	98.39	435	98.45	445	99.13	449.99	
99.1	454.99	99.57	459.99	99.52	479.99	99.87	484.99	99.34	489.99
99.31	499.99	98.08	504.99	98.03	509.99	98.33	519.99	98.6	524.99
99.04	534.99	99.24	549.99	98.34	564.99	98.14	704.99	98.41	724.99
98.04	794.99	98.15	859.99	97.79	869.99	97.6	879.99	97.67	884.99
97.5	899.99	97.59	924.99	97.48	934.99	97.88	949.99	98.14	959.99
97.8	979.99	98.22	999.99	97.8	1009.99	98.11	1014.99	98.1	1019.99
97.77	1129.99	97.47	1134.99	97.62	1204.99	97.57	1214.99	97.67	1314.99
97.69	1324.98	98.37	1334.98	98.17	1339.98	98.33	1344.98	98.75	1354.98
98.35	1359.98	97.84	1364.98	95.45	1369.98	92.4	1374.98	92.36	1379.98
92.27	1384.98	92.93	1389.98	96.18	1390	96.19	1394.98	98.76	1399.98
99.72	1404.98	102.68	1409.98	104.7	1414.98	105.63	1429.98	105.95	1434.98
105.14	1439.98	104.84	1444.98	104.75	1459.98	103.96	1464.98	103.84	1474.98
104.21	1479.98	105.12	1484.98	105.26	1489.98	105.88	1499.98	105.13	1504.98
103.93	1509.98	103.89	1514.98	103.51	1519.98	101.07	1524.98	96	1529.98
95.92	1534.98	91.07	1539.98	89.54	1544.98	90.44	1549.98	90.56	1559.98
97.58	1564.98	98.7	1569.98	98.7	1584.98	98.03	1599.98	97.94	1619.98
98.28	1669.98	97.92	1684.98	98.12	1704.98	97.6	1714.98	96.94	1729.98
96.65	1744.98	96.81	1754.98	97.41	1774.98	97.81	1784.98	97.7	1789.98
97.38	1819.98	97.12	1839.98	97.84	1859.98	97.59	1869.98	97.16	1899.98
97.82	1934.98	97.75	1949.98	97.4	1954.98	97.11	1964.98	97.19	1969.98
97.45									

NM113 OUTPUT REPORT.TXT

1994.98	97.07	1999.98	97.16	2009.98	97.71	2044.98	97.63	2054.98
97.41								
2074.98	97.66	2079.97	97.44	2109.97	97.05	2134.97	97.4	2149.97
97.07								
2179.97	97.56	2214.97	97.5	2219.97	97.72	2224.97	97.64	2244.97
97.99								
2269.97	97.37	2279.97	97.82	2284.97	97.87	2294.97	97.51	2354.97
97.51								
2369.97	97.97	2389.97	97.74	2414.97	97.56	2429.97	98.07	2459.97
97.68								
2474.97	97.93	2504.97	97.76	2529.97	97.96	2539.97	97.82	2544.97
97.97								
2549.97	98.49	2599.97	99.01	2659.97	98.94	2664.97	98.65	2679.97
98.73								
2689.97	98.32	2699.97	98.26	2704.96	98.01	2714.96	98.1	2719.96
98.61								
2724.96	98.88	2734.96	98.9	2739.96	98.62	2749.96	98.46	

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 1354.98 .045 1394.98 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr.
 Expan. 1354.98 1394.98 401.67 401.3 400.92 .1 .3
 Ineffective Flow num= 1
 Sta L Sta R Elev Permanent
 0 1345.84 98.59 F
 Blocked Obstructions num= 2
 Sta L Sta R Elev Sta L Sta R Elev
 0 470.98 99.58 1467.17 2749.96 99.97

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	94.81	Element	Left OB
Channel Right OB			
Vel Head (ft)	0.04	wt. n-val.	
0.045			
W.S. Elev (ft)	94.77	Reach Len. (ft)	401.67
401.30 400.92			
Crit w.s. (ft)	93.29	Flow Area (sq ft)	
42.24			
E.G. slope (ft/ft)	0.001086	Area (sq ft)	
42.24			
Q Total (cfs)	69.00	Flow (cfs)	
69.00			

NM113 OUTPUT REPORT.TXT

21.71	Top width (ft)	21.71	Top width (ft)	
1.63	Vel Total (ft/s)	1.63	Avg. Vel. (ft/s)	
1.95	Max Chl Dpth (ft)	2.50	Hydr. Depth (ft)	
2093.6	Conv. Total (cfs)	2093.6	Conv. (cfs)	
22.96	Length wtd. (ft)	401.30	wetted Per. (ft)	
0.12	Min ch El (ft)	92.27	Shear (lb/sq ft)	
0.00	Alpha	1.00	Stream Power (lb/ft s)	2749.96
0.00	Frctn Loss (ft)	0.60	Cum Volume (acre-ft)	
0.92	C & E Loss (ft)	0.00	Cum SA (acres)	
0.51				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.
 Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

95.30	E.G. Elev (ft)	95.30	Element	Left OB
0.05	Channel Right OB Vel Head (ft)	0.05	Wt. n-Val.	
95.25	0.045 W.S. Elev (ft)	95.25	Reach Len. (ft)	401.67
93.46	401.30 400.92 Crit w.s. (ft)	93.46	Flow Area (sq ft)	
0.000975	53.10 E.G. Slope (ft/ft)	0.000975	Area (sq ft)	
91.00	53.10 Q Total (cfs)	91.00	Flow (cfs)	
23.25	91.00 Top width (ft)	23.25	Top width (ft)	

NM113 OUTPUT REPORT.TXT

23.25	Vel Total (ft/s)	1.71	Avg. Vel. (ft/s)	
1.71	Max Chl Dpth (ft)	2.98	Hydr. Depth (ft)	
2.28	Conv. Total (cfs)	2914.7	Conv. (cfs)	
2914.7	Length Wtd. (ft)	401.30	Wetted Per. (ft)	
24.78	Min Ch El (ft)	92.27	Shear (lb/sq ft)	
0.13	Alpha	1.00	Stream Power (lb/ft s)	2749.96
0.00	0.00 Frctn Loss (ft)	0.46	Cum Volume (acre-ft)	
1.33	C & E Loss (ft)	0.00	Cum SA (acres)	
0.61				

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	96.13	Element	Left OB
Channel Right OB Vel Head (ft)	0.06	Wt. n-Val.	
0.045 W.S. Elev (ft)	96.07	Reach Len. (ft)	401.67
401.30 400.92 Crit w.s. (ft)	93.82	Flow Area (sq ft)	
73.34 E.G. Slope (ft/ft)	0.000998	Area (sq ft)	
73.34 Q Total (cfs)	145.00	Flow (cfs)	
145.00 Top width (ft)	26.14	Top width (ft)	
26.14 Vel Total (ft/s)	1.98	Avg. Vel. (ft/s)	
1.98 Max Chl Dpth (ft)	3.80	Hydr. Depth (ft)	

NM113 OUTPUT REPORT.TXT

2.81	Conv. Total (cfs)	4589.7	Conv. (cfs)	
4589.7	Length Wtd. (ft)	401.30	Wetted Per. (ft)	
28.11	Min Ch El (ft)	92.27	Shear (lb/sq ft)	
0.16	Alpha	1.00	Stream Power (lb/ft s)	2749.96
0.00	0.00 Frctn Loss (ft)	0.42	Cum Volume (acre-ft)	
1.88	C & E Loss (ft)	0.00	Cum SA (acres)	
0.67				

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	95.11	Element	Left OB
Channel Right OB Vel Head (ft)	0.04	wt. n-Val.	
0.045 W.S. Elev (ft)	95.07	Reach Len. (ft)	401.67
401.30 400.92 Crit w.s. (ft)	93.37	Flow Area (sq ft)	
49.03 E.G. Slope (ft/ft)	0.000924	Area (sq ft)	
49.03 Q Total (cfs)	79.00	Flow (cfs)	
79.00 Top width (ft)	22.68	Top width (ft)	
22.68 Vel Total (ft/s)	1.61	Avg. Vel. (ft/s)	
1.61 Max Chl Dpth (ft)	2.80	Hydr. Depth (ft)	
2.16 Conv. Total (cfs)	2598.3	Conv. (cfs)	
2598.3 Length Wtd. (ft)	401.30	Wetted Per. (ft)	

NM113 OUTPUT REPORT.TXT

24.11	Min Ch El (ft)	92.27	Shear (lb/sq ft)	
0.12	Alpha	1.00	Stream Power (lb/ft s)	2749.96
0.00	0.00			
	Frctn Loss (ft)	0.45	Cum Volume (acre-ft)	
1.23	C & E Loss (ft)	0.00	Cum SA (acres)	
0.59				

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	95.56	Element	Left OB
Channel Right OB			
Vel Head (ft)	0.05	wt. n-Val.	
0.045			
W.S. Elev (ft)	95.52	Reach Len. (ft)	401.67
401.30	400.92		
Crit w.s. (ft)	93.54	Flow Area (sq ft)	
59.37			
E.G. Slope (ft/ft)	0.000909	Area (sq ft)	
59.37			
Q Total (cfs)	103.00	Flow (cfs)	
103.00			
Top width (ft)	24.12	Top width (ft)	
24.12			
Vel Total (ft/s)	1.73	Avg. Vel. (ft/s)	
1.73			
Max Chl Dpth (ft)	3.25	Hydr. Depth (ft)	
2.46			
Conv. Total (cfs)	3416.8	Conv. (cfs)	
3416.8			
Length wtd. (ft)	401.30	Wetted Per. (ft)	
25.80			
Min Ch El (ft)	92.27	Shear (lb/sq ft)	
0.13			
Alpha	1.00	Stream Power (lb/ft s)	2749.96

NM113 OUTPUT REPORT.TXT

0.00 0.00
Frctn Loss (ft) 0.40 Cum Volume (acre-ft)

1.54
C & E Loss (ft) 0.00 Cum SA (acres)

0.63

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	96.40	Element	Left OB
Channel Right OB Vel Head (ft)	0.06	wt. n-Val.	
0.045 W.S. Elev (ft)	96.33	Reach Len. (ft)	401.67
401.30 400.92 Crit w.s. (ft)	93.90	Flow Area (sq ft)	
80.31 E.G. Slope (ft/ft)	0.000947	Area (sq ft)	
80.31 Q Total (cfs)	160.00	Flow (cfs)	
160.00 Top width (ft)	27.15	Top width (ft)	
27.15 Vel Total (ft/s)	1.99	Avg. Vel. (ft/s)	
1.99 Max Chl Dpth (ft)	4.06	Hydr. Depth (ft)	
2.96 Conv. Total (cfs)	5199.7	Conv. (cfs)	
5199.7 Length wtd. (ft)	401.30	Wetted Per. (ft)	
29.25 Min Ch El (ft)	92.27	Shear (lb/sq ft)	
0.16 Alpha	1.00	Stream Power (lb/ft s)	2749.96
0.00 0.00 Frctn Loss (ft)	0.38	Cum Volume (acre-ft)	
2.09 C & E Loss (ft)	0.00	Cum SA (acres)	

NM113 OUTPUT REPORT.TXT

0.69

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-113
 REACH: NM-113

RS: 1177

INPUT

Description:

Station	Elevation	Data	num=	130					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
Elev	0	100.52	10	99.44	15	99.41	20	98.35	25
97.76	35	97.64	40	96.93	45	97.19	50	97.71	55
97.68	65	98.41	69.99	98.47	89.99	97.65	119.99	97.93	144.99
97.58	154.99	97.74	289.98	97.71	394.97	97.74	399.97	97.85	434.97
97.57	499.96	97.84	544.96	97.64	574.96	97.8	694.95	97.78	844.93
97.54	884.93	97.75	889.93	97.52	894.93	97.63	944.93	97.47	949.92
97.34	964.92	97.54	1014.92	97.32	1029.92	97.44	1039.92	97.21	1224.9
97.1	1229.9	97.21	1294.9	97.06	1309.9	97.35	1314.9	97.26	1319.9
97.66	1324.9	98.29	1329.89	98.29	1334.89	98.96	1339.89	99.33	1344.89
97.88	1349.89	94.27	1354.89	94.03	1359.89	91.03	1362.39	90.96	1364.89
90.9	1369.89	93.7	1374.89	94.22	1379.89	99.45	1384.89	103.67	1389.89
105.01	1404.89	105.27	1409.89	105	1414.89	104.97	1429.89	103.83	1444.89
103.41	1449.89	104.03	1454.89	105.47	1459.88	106.09	1464.88	106.36	1479.88
106.33	1484.88	106.06	1489.88	104	1494.88	101.15	1504.88	99.11	1509.88
97.72									

NM113 OUTPUT REPORT.TXT

1514.88	96.97	1664.87	97.1	1684.87	97.69	1689.87	97.97	1714.86
97.76								
1724.86	97.29	1729.86	97.38	1734.86	97.77	1739.86	97.74	1744.86
97.47								
1749.86	97.44	1764.86	96.72	1769.86	96.74	1774.86	97.17	1784.86
96.87								
1804.86	96.96	1834.85	97.24	1844.85	96.91	1859.85	97.01	1909.85
96.96								
1924.85	97.13	2119.83	96.91	2124.83	97.04	2149.83	96.88	2169.83
96.89								
2184.83	97.19	2189.83	97.01	2229.83	97.08	2244.83	97.15	2249.83
97.38								
2254.82	97.07	2269.82	97.11	2274.82	97.43	2319.82	97.14	2329.82
97.29								
2349.82	96.95	2369.82	97.17	2374.82	96.98	2424.81	97	2454.81
97.2								
2464.81	97.03	2489.81	97.2	2499.81	96.92	2509.81	97.1	2524.81
96.94								
2594.8	97.13	2614.8	97.01	2629.8	97.2	2639.8	96.93	2654.8
96.97								
2659.8	96.77	2674.8	96.92	2679.8	96.77	2684.8	96.82	2689.8
97.23								
2694.8	97.3	2699.8	97.66	2704.8	97.58	2714.8	97.75	2754.79
97.93								

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 1339.89 .045 1379.89 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr.
 Expan. 1339.89 1379.89 569.5 569.1 568.69 .1 .3
 Ineffective Flow num= 1
 Sta L Sta R Elev Permanent
 0 1338.34 98.93 F
 Blocked Obstructions num= 1
 Sta L Sta R Elev
 1444.34 2754.79 99.3

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft) 94.20 Element Left OB
 Channel Right OB
 Vel Head (ft) 0.06 wt. n-val.
 0.045
 W.S. Elev (ft) 94.14 Reach Len. (ft) 569.50

NM113 OUTPUT REPORT.TXT

569.10	568.69			
Crit w.s. (ft)		92.47	Flow Area (sq ft)	
34.23				
E.G. Slope (ft/ft)		0.002214	Area (sq ft)	
34.23				
Q Total (cfs)		69.00	Flow (cfs)	
69.00				
Top width (ft)		21.58	Top width (ft)	
21.58				
Vel Total (ft/s)		2.02	Avg. Vel. (ft/s)	
2.02				
Max Chl Dpth (ft)		3.24	Hydr. Depth (ft)	
1.59				
Conv. Total (cfs)		1466.5	Conv. (cfs)	
1466.5				
Length wtd. (ft)		569.10	wetted Per. (ft)	
23.17				
Min Ch El (ft)		90.90	Shear (lb/sq ft)	
0.20				
Alpha		1.00	Stream Power (lb/ft s)	2754.79
0.00	0.00			
Frctn Loss (ft)		0.78	cum Volume (acre-ft)	
0.57				
C & E Loss (ft)		0.01	cum SA (acres)	
0.31				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	94.83	Element	Left OB
Channel Right OB			
Vel Head (ft)	0.05	wt. n-Val.	
0.045			
w.s. Elev (ft)	94.78	Reach Len. (ft)	569.50
569.10	568.69		

NM113 OUTPUT REPORT.TXT
 92.73 Flow Area (sq ft)

Crit w.s. (ft)	92.73	Flow Area (sq ft)	
50.43 E.G. slope (ft/ft)	0.001380	Area (sq ft)	
50.43 Q Total (cfs)	91.00	Flow (cfs)	
91.00 Top width (ft)	26.25	Top width (ft)	
26.25 Vel Total (ft/s)	1.80	Avg. vel. (ft/s)	
1.80 Max chl Dpth (ft)	3.88	Hydr. Depth (ft)	
1.92 Conv. Total (cfs)	2449.9	Conv. (cfs)	
2449.9 Length wtd. (ft)	569.10	wetted Per. (ft)	
28.25 Min ch El (ft)	90.90	shear (lb/sq ft)	
0.15 Alpha	1.00	Stream Power (lb/ft s)	2754.79
0.00 0.00 Frctn Loss (ft)	0.47	Cum volume (acre-ft)	
0.85 C & E Loss (ft)	0.01	Cum SA (acres)	
0.38			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	95.71	Element	Left OB
Channel Right OB Vel Head (ft)	0.06	wt. n-Val.	
0.045 w.s. Elev (ft)	95.65	Reach Len. (ft)	569.50
569.10 568.69 Crit w.s. (ft)	93.24	Flow Area (sq ft)	

NM113 OUTPUT REPORT.TXT

74.08	E.G. slope (ft/ft)	0.001097	Area (sq ft)	
74.08	Q Total (cfs)	145.00	Flow (cfs)	
145.00	Top width (ft)	28.28	Top width (ft)	
28.28	Vel Total (ft/s)	1.96	Avg. Vel. (ft/s)	
1.96	Max Chl Dpth (ft)	4.75	Hydr. Depth (ft)	
2.62	Conv. Total (cfs)	4378.2	Conv. (cfs)	
4378.2	Length wtd. (ft)	569.10	wetted Per. (ft)	
30.94	Min Ch El (ft)	90.90	Shear (lb/sq ft)	
0.16	Alpha	1.00	Stream Power (lb/ft s)	2754.79
0.00	0.00 Frctn Loss (ft)	0.44	Cum Volume (acre-ft)	
1.21	C & E Loss (ft)	0.01	Cum SA (acres)	
0.42				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.
 Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	94.67	Element	Left OB
Channel Right OB Vel Head (ft)	0.05	wt. n-val.	
0.045 W.S. Elev (ft)	94.62	Reach Len. (ft)	569.50
569.10 568.69 Crit w.s. (ft)	92.59	Flow Area (sq ft)	
46.24 E.G. slope (ft/ft)	0.001356	Area (sq ft)	

NM113 OUTPUT REPORT.TXT

46.24	Q Total (cfs)	79.00	Flow (cfs)	
79.00	Top width (ft)	25.88	Top width (ft)	
25.88	Vel Total (ft/s)	1.71	Avg. Vel. (ft/s)	
1.71	Max Ch1 Dpth (ft)	3.72	Hydr. Depth (ft)	
1.79	Conv. Total (cfs)	2145.4	Conv. (cfs)	
2145.4	Length wtd. (ft)	569.10	wetted Per. (ft)	
27.76	Min Ch El (ft)	90.90	Shear (lb/sq ft)	
0.14	Alpha	1.00	Stream Power (lb/ft s)	2754.79
0.00	Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	
0.79	C & E Loss (ft)	0.00	Cum SA (acres)	
0.37				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	95.17	Element	Left OB
Channel Right OB Vel Head (ft)	0.05	wt. n-Val.	
0.045 W.S. Elev (ft)	95.12	Reach Len. (ft)	569.50
569.10 568.69 Crit W.S. (ft)	92.85	Flow Area (sq ft)	
59.37 E.G. Slope (ft/ft)	0.001076	Area (sq ft)	
59.37			

		NM113 OUTPUT REPORT.TXT	
Q Total (cfs)	103.00	Flow (cfs)	
103.00			
Top width (ft)	27.04	Top width (ft)	
27.04			
Vel Total (ft/s)	1.73	Avg. vel. (ft/s)	
1.73			
Max chl Dpth (ft)	4.22	Hydr. Depth (ft)	
4.22			
Conv. Total (cfs)	3139.9	Conv. (cfs)	
3139.9			
Length wtd. (ft)	569.10	wetted Per. (ft)	
569.10			
Min ch El (ft)	90.90	shear (lb/sq ft)	
90.90			
Alpha	1.00	Stream Power (lb/ft s)	2754.79
0.14			
Frctn Loss (ft)	0.43	cum volume (acre-ft)	
0.00			
C & E Loss (ft)	0.00	Cum SA (acres)	
0.99			
0.40			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	96.01	Element	Left OB
Channel Right OB			
Vel Head (ft)	0.06	Wt. n-Val.	
0.045			
W.S. Elev (ft)	95.95	Reach Len. (ft)	569.50
569.10			
568.69			
Crit w.s. (ft)	93.36	Flow Area (sq ft)	
82.68			
E.G. slope (ft/ft)	0.000963	Area (sq ft)	
82.68			
Q Total (cfs)	160.00	Flow (cfs)	

NM113 OUTPUT REPORT.TXT

160.00	Top width (ft)	28.99	Top width (ft)	
28.99	Vel Total (ft/s)	1.94	Avg. Vel. (ft/s)	
1.94	Max Chl Dpth (ft)	5.05	Hydr. Depth (ft)	
2.85	Conv. Total (cfs)	5154.8	Conv. (cfs)	
5154.8	Length Wtd. (ft)	569.10	Wetted Per. (ft)	
31.87	Min Ch El (ft)	90.90	Shear (lb/sq ft)	
0.16	Alpha	1.00	Stream Power (lb/ft s)	2754.79
0.00	Frctn Loss (ft)	0.41	Cum Volume (acre-ft)	
1.34	C & E Loss (ft)	0.00	Cum SA (acres)	
0.43				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.
 Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-113
 REACH: NM-113 RS: 608

INPUT

Description:

Station	Elevation	Data	num=	126	Sta	Elev	Sta	Elev	Sta
Elev	0	98.01	49.96	97.79	79.94	97.84	129.9	97.96	159.88
97.95	164.87	97.68	194.85	97.83	199.85	97.69	344.74	97.82	464.64
97.63	479.63	97.72	529.59	97.66	539.59	97.52	599.54	97.73	624.52
97.61	684.47	97.62	694.47	97.38	814.37	97.43	834.36	97.29	839.35

NM113 OUTPUT REPORT.TXT

97.47 869.33	97.55	874.33	97.38	899.31	97.41	904.3	97.15	919.29
97.35 934.28	97.24	939.28	97.45	1154.11	97.42	1164.1	97.22	1199.08
97.11 1214.07	97.18	1219.06	97.03	1244.04	97.1	1299	97.34	1304
97.17 1318.98	97.18	1323.98	96.89	1328.98	97.22	1338.97	98.99	1348.96
99.5 1353.96	98.17	1356.45	96.43	1358.95	94.68	1363.95	93.69	1368.95
91.35 1373.94	90.08	1378.94	90.81	1383.93	91.17	1386.45	91.83	1388.93
92.48 1393.93	95.22	1398.92	98.91	1403.92	100.23	1413.91	105.86	1418.91
106.65 1428.9	106.73	1433.9	104.91	1438.89	103.53	1468.87	103.27	1473.86
104.19 1478.86	105.5	1483.86	105.41	1488.85	104.99	1493.85	104	1503.84
98.23 1508.84	97.33	1518.83	97	1528.82	97.72	1533.82	97.27	1613.76
97.03 1628.74	96.8	1638.74	97.13	1653.73	97.13	1683.7	96.65	1723.67
98.1 1728.67	98.14	1733.66	97.46	1738.66	97.59	1743.66	97.03	1753.65
96.57 1758.64	96.86	1768.64	96.54	1793.62	96.82	1948.5	96.6	1998.46
96.57 2073.4	96.52	2093.39	96.64	2103.38	96.49	2108.38	96.62	2123.36
96.51 2128.36	96.68	2138.35	96.46	2173.33	96.65	2223.29	96.63	2238.28
96.81 2248.27	96.53	2263.26	96.62	2268.25	96.49	2303.23	96.76	2313.22
96.42 2318.22	96.46	2323.21	96.72	2328.21	96.69	2333.2	96.88	2338.2
96.6 2348.19	96.63	2353.19	96.86	2363.18	96.72	2373.17	96.9	2393.16
96.65 2453.11	96.72	2458.11	96.46	2513.07	96.52	2518.06	96.75	2543.05
96.53 2583.01	96.69	2632.98	96.55	2652.96	96.7	2657.96	96.87	2682.94
96.8 2687.94	97.03	2697.93	97.85	2702.92	97.24	2712.92	97.21	2722.91

NM113 OUTPUT REPORT.TXT

97.69
2742.89 97.67

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
0 .06 1348.96 .045 1398.92 .06

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.	1348.96	1398.92	608.9	607.78	606.67	.1	.3
Ineffective Flow	num= 1						
Sta L	Sta R	Elev	Permanent				
0	1347.29	98.85	F				
Blocked Obstructions	num= 1						
Sta L	Sta R	Elev					
1455.76	2742.89	99.83					

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	93.42	Element	Left OB
Channel Right OB	0.04	wt. n-Val.	
Vel Head (ft)			
0.045			
W.S. Elev (ft)	93.38	Reach Len. (ft)	
Crit w.s. (ft)	91.73	Flow Area (sq ft)	
52.73			
E.G. Slope (ft/ft)	0.001000	Area (sq ft)	
52.73			
Q Total (cfs)	86.00	Flow (cfs)	
86.00			
Top width (ft)	25.95	Top width (ft)	
25.95			
Vel Total (ft/s)	1.63	Avg. Vel. (ft/s)	
1.63			
Max Chl Dpth (ft)	3.30	Hydr. Depth (ft)	
2.03			
Conv. Total (cfs)	2719.3	Conv. (cfs)	
2719.3			
Length wtd. (ft)		Wetted Per. (ft)	
27.02			
Min Ch El (ft)	90.08	Shear (lb/sq ft)	
0.12			
Alpha	1.00	Stream Power (lb/ft s)	2742.89
0.00	0.00		
Frctn Loss (ft)		Cum Volume (acre-ft)	

NM113 OUTPUT REPORT.TXT

C & E Loss (ft)

Cum SA (acres)

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	94.36	Element	Left OB
Channel Right OB Vel Head (ft)	0.03	wt. n-Val.	
0.045 W.S. Elev (ft)	94.32	Reach Len. (ft)	
Crit w.s. (ft)	91.95	Flow Area (sq ft)	
79.66 E.G. Slope (ft/ft)	0.000600	Area (sq ft)	
79.66 Q Total (cfs)	116.00	Flow (cfs)	
116.00 Top width (ft)	31.54	Top width (ft)	
31.54 Vel Total (ft/s)	1.46	Avg. Vel. (ft/s)	
1.46 Max Chl Dpth (ft)	4.24	Hydr. Depth (ft)	
2.53 Conv. Total (cfs)	4734.4	Conv. (cfs)	
4734.4 Length Wtd. (ft)		Wetted Per. (ft)	
32.99 Min Ch El (ft)	90.08	Shear (lb/sq ft)	
0.09 Alpha	1.00	Stream Power (lb/ft s)	2742.89
0.00 Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	
C & E Loss (ft)		Cum SA (acres)	

NM113 OUTPUT REPORT.TXT

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	95.27	Element	Left OB
Channel Right OB Vel Head (ft)	0.04	wt. n-Val.	
0.045 W.S. Elev (ft)	95.23	Reach Len. (ft)	
Crit W.S. (ft)	92.35	Flow Area (sq ft)	
110.43 E.G. Slope (ft/ft)	0.000600	Area (sq ft)	
110.43 Q Total (cfs)	183.00	Flow (cfs)	
183.00 Top width (ft)	35.77	Top width (ft)	
35.77 Vel Total (ft/s)	1.66	Avg. Vel. (ft/s)	
1.66 Max Chl Dpth (ft)	5.15	Hydr. Depth (ft)	
3.09 Conv. Total (cfs)	7470.3	Conv. (cfs)	
7470.3 Length wtd. (ft)		Wetted Per. (ft)	
37.66 Min Ch El (ft)	90.08	Shear (lb/sq ft)	
0.11 Alpha	1.00	Stream Power (lb/ft s)	2742.89
0.00 0.00 Frctn Loss (ft)		Cum Volume (acre-ft)	
C & E Loss (ft)		Cum SA (acres)	

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	94.20	Element	Left OB
Channel Right OB Vel Head (ft)	0.03	wt. n-Val.	
0.045 W.S. Elev (ft)	94.17	Reach Len. (ft)	
Crit W.S. (ft)	91.89	Flow Area (sq ft)	
74.85 E.G. Slope (ft/ft)	0.000600	Area (sq ft)	
74.85 Q Total (cfs)	107.00	Flow (cfs)	
107.00 Top width (ft)	30.48	Top width (ft)	
30.48 Vel Total (ft/s)	1.43	Avg. Vel. (ft/s)	
1.43 Max Chl Dpth (ft)	4.09	Hydr. Depth (ft)	
2.46 Conv. Total (cfs)	4367.0	Conv. (cfs)	
4367.0 Length wtd. (ft)		Wetted Per. (ft)	
31.87 Min Ch El (ft)	90.08	Shear (lb/sq ft)	
0.09 Alpha	1.00	Stream Power (lb/ft s)	2742.89
0.00 0.00 Frctn Loss (ft)		Cum Volume (acre-ft)	
C & E Loss (ft)		Cum SA (acres)	

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	94.73	Element	Left OB
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NM113 OUTPUT REPORT.TXT

Channel Right OB			
Vel Head (ft)	0.04	Wt. n-Val.	
0.045			
W.S. Elev (ft)	94.70	Reach Len. (ft)	
Crit W.S. (ft)	92.11	Flow Area (sq ft)	
91.97			
E.G. Slope (ft/ft)	0.000600	Area (sq ft)	
91.97			
Q Total (cfs)	140.00	Flow (cfs)	
140.00			
Top width (ft)	34.05	Top width (ft)	
34.05			
Vel Total (ft/s)	1.52	Avg. Vel. (ft/s)	
1.52			
Max Chl Dpth (ft)	4.62	Hydr. Depth (ft)	
2.70			
Conv. Total (cfs)	5713.3	Conv. (cfs)	
5713.3			
Length wtd. (ft)		wetted Per. (ft)	
35.64			
Min Ch El (ft)	90.08	Shear (lb/sq ft)	
0.10			
Alpha	1.00	Stream Power (lb/ft s)	2742.89
0.00			
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	
C & E Loss (ft)		Cum SA (acres)	

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	95.59	Element	Left OB
Channel Right OB			
Vel Head (ft)	0.05	Wt. n-Val.	
0.045			
W.S. Elev (ft)	95.55	Reach Len. (ft)	

NM113 OUTPUT REPORT.TXT

Crit w.s. (ft)	92.50	Flow Area (sq ft)	
121.99			
E.G. slope (ft/ft)	0.000600	Area (sq ft)	
121.99			
Q Total (cfs)	212.00	Flow (cfs)	
212.00			
Top width (ft)	36.66	Top width (ft)	
36.66			
Vel Total (ft/s)	1.74	Avg. Vel. (ft/s)	
1.74			
Max Chl Dpth (ft)	5.47	Hydr. Depth (ft)	
3.33			
Conv. Total (cfs)	8652.4	Conv. (cfs)	
8652.4			
Length wtd. (ft)		wetted Per. (ft)	
38.75			
Min Ch El (ft)	90.08	Shear (lb/sq ft)	
0.12			
Alpha	1.00	Stream Power (lb/ft s)	2742.89
0.00	0.00		
Frctn Loss (ft)		Cum Volume (acre-ft)	
C & E Loss (ft)		Cum SA (acres)	

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

SUMMARY OF MANNING'S N VALUES

River:N-NM-113

Reach	River Sta.	n1	n2	n3
NM-113	7543	.06	.045	.06
NM-113	6838	.06	.045	.06
NM-113	6003	.06	.045	.06
NM-113	5178	.06	.045	.06
NM-113	4245	.06	.045	.06
NM-113	3938	.06	.045	.06
NM-113	3118	.06	.045	.06
NM-113	2266	.06	.045	.06
NM-113	1578	.06	.045	.06
NM-113	1177	.06	.045	.06

SUMMARY OF REACH LENGTHS

River: N-NM-113

Reach	River Sta.	Left	Channel	Right
NM-113	7543	705.29	705.21	705.13
NM-113	6838	835.48	834.91	834.33
NM-113	6003	825.07	825.07	825.07
NM-113	5178	929.96	932.65	935.34
NM-113	4245	307.38	306.99	306.61
NM-113	3938	821.56	819.73	817.91
NM-113	3118	852.02	852.02	852.02
NM-113	2266	687.92	688.18	688.45
NM-113	1578	401.67	401.3	400.92
NM-113	1177	569.5	569.1	568.69
NM-113	608	608.9	607.78	606.67

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS

River: N-NM-113

Reach	River Sta.	Contr.	Expan.
NM-113	7543	.1	.3
NM-113	6838	.1	.3
NM-113	6003	.1	.3
NM-113	5178	.1	.3
NM-113	4245	.1	.3
NM-113	3938	.1	.3
NM-113	3118	.1	.3
NM-113	2266	.1	.3
NM-113	1578	.1	.3
NM-113	1177	.1	.3
NM-113	608	.1	.3

Profile Output Table - Table 1

Reach	River Sta	Profile	Q Total	W.S. Elev	E.G. Elev	Min
Ch El	vel Chnl	Flow Area	Top width	Volume	(ft)	(ft)
(ft)	(ft/s)	(sq ft)	(ft)	(cfs)		
				(acre-ft)		
NM-113	608	EX 10Y	86.00	93.38	93.42	
90.08	1.63	52.73	25.95			
NM-113	608	EX 25Y	116.00	94.32	94.36	

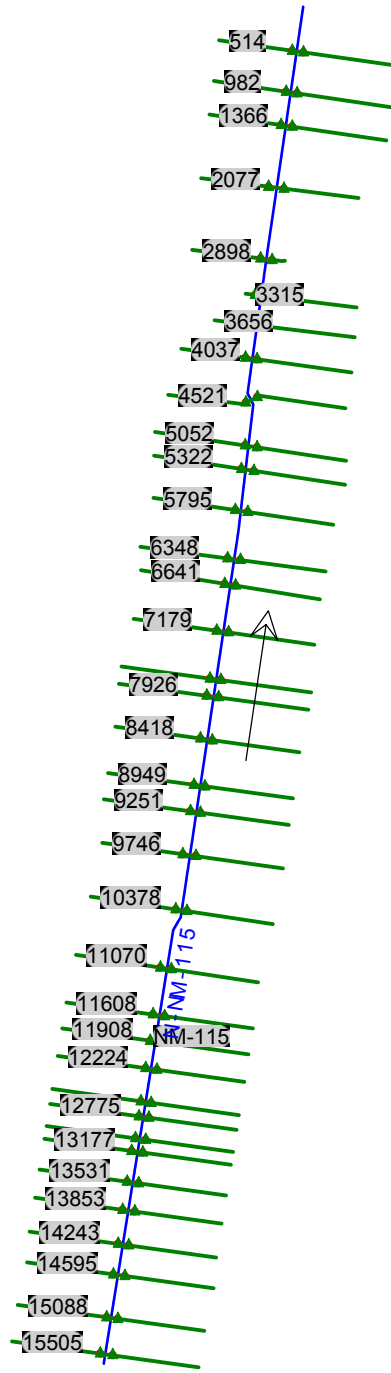
NM113 OUTPUT REPORT.TXT						
90.08	1.46	79.66	31.54			
NM-113	608		EX 100Y	183.00	95.23	95.27
90.08	1.66	110.43	35.77			
NM-113	608		ULT 10Y	107.00	94.17	94.20
90.08	1.43	74.85	30.48			
NM-113	608		ULT 25Y	140.00	94.70	94.73
90.08	1.52	91.97	34.05			
NM-113	608		ULT 100Y	212.00	95.55	95.59
90.08	1.74	121.99	36.66			
NM-113	1177		EX 10Y	69.00	94.14	94.20
90.90	2.02	34.23	21.58	0.57		
NM-113	1177		EX 25Y	91.00	94.78	94.83
90.90	1.80	50.43	26.25	0.85		
NM-113	1177		EX 100Y	145.00	95.65	95.71
90.90	1.96	74.08	28.28	1.21		
NM-113	1177		ULT 10Y	79.00	94.62	94.67
90.90	1.71	46.24	25.88	0.79		
NM-113	1177		ULT 25Y	103.00	95.12	95.17
90.90	1.73	59.37	27.04	0.99		
NM-113	1177		ULT 100Y	160.00	95.95	96.01
90.90	1.94	82.68	28.99	1.34		
NM-113	1578		EX 10Y	69.00	94.77	94.81
92.27	1.63	42.24	21.71	0.92		
NM-113	1578		EX 25Y	91.00	95.25	95.30
92.27	1.71	53.10	23.25	1.33		
NM-113	1578		EX 100Y	145.00	96.07	96.13
92.27	1.98	73.34	26.14	1.88		
NM-113	1578		ULT 10Y	79.00	95.07	95.11
92.27	1.61	49.03	22.68	1.23		
NM-113	1578		ULT 25Y	103.00	95.52	95.56
92.27	1.73	59.37	24.12	1.54		
NM-113	1578		ULT 100Y	160.00	96.33	96.40
92.27	1.99	80.31	27.15	2.09		
NM-113	2266		EX 10Y	59.00	95.18	95.20
91.35	0.96	61.63	53.69	2.05		
NM-113	2266		EX 25Y	78.00	95.65	95.67

NM113 OUTPUT REPORT.TXT						
91.35	1.04	75.06	62.80	2.76		
NM-113	2266		EX 100Y	125.00	96.50	96.52
91.35	1.23	101.39	70.75	3.92		
NM-113	2266		ULT 10Y	69.00	95.45	95.47
91.35	0.99	69.36	60.99	2.54		
NM-113	2266		ULT 25Y	90.00	95.90	95.92
91.35	1.09	82.66	65.17	3.15		
NM-113	2266		ULT 100Y	141.00	96.75	96.78
91.35	1.29	109.72	72.90	4.33		
NM-113	3118		EX 10Y	28.00	95.58	95.61
93.28	1.52	18.45	15.57	3.21		
NM-113	3118		EX 25Y	37.00	96.02	96.05
93.28	1.42	25.98	18.85	4.27		
NM-113	3118		EX 100Y	62.00	96.86	96.89
93.28	1.39	44.66	24.25	6.17		
NM-113	3118		ULT 10Y	38.00	95.85	95.90
93.28	1.65	23.03	17.45	3.90		
NM-113	3118		ULT 25Y	49.00	96.29	96.33
93.28	1.56	31.44	21.18	4.87		
NM-113	3118		ULT 100Y	77.00	97.13	97.16
93.28	1.50	51.20	25.06	6.82		
NM-113	3938		EX 10Y	28.00	96.14	96.15
93.82	0.82	34.04	20.66	3.70		
NM-113	3938		EX 25Y	37.00	96.51	96.52
93.82	0.88	41.91	21.91	4.91		
NM-113	3938		EX 100Y	62.00	97.28	97.30
93.82	1.04	59.85	24.52	7.15		
NM-113	3938		ULT 10Y	38.00	96.46	96.47
93.82	0.93	40.85	21.75	4.50		
NM-113	3938		ULT 25Y	49.00	96.83	96.85
93.82	1.00	49.17	23.00	5.63		
NM-113	3938		ULT 100Y	77.00	97.59	97.61
93.82	1.14	67.55	26.28	7.93		
NM-113	4245		EX 10Y	15.00	96.26	96.27
94.10	0.81	18.60	14.95	3.89		
NM-113	4245		EX 25Y	20.00	96.62	96.63

NM113 OUTPUT REPORT.TXT						
94.10	0.82	24.32	17.10	5.14		
NM-113	4245		EX 100Y	36.00	97.39	97.40
94.10	0.90	40.02	22.39	7.51		
NM-113	4245		ULT 10Y	25.00	96.60	96.62
94.10	1.04	23.97	16.91	4.73		
NM-113	4245		ULT 25Y	32.00	96.97	96.98
94.10	1.04	30.79	20.30	5.91		
NM-113	4245		ULT 100Y	51.00	97.71	97.73
94.10	1.08	47.29	23.23	8.34		
NM-113	5178		EX 10Y	15.00	96.49	96.49
94.35	0.52	28.67	17.96	4.40		
NM-113	5178		EX 25Y	20.00	96.84	96.84
94.35	0.57	35.20	19.26	5.78		
NM-113	5178		EX 100Y	36.00	97.61	97.62
94.35	0.70	51.12	21.70	8.48		
NM-113	5178		ULT 10Y	25.00	96.92	96.93
94.35	0.68	36.78	19.53	5.38		
NM-113	5178		ULT 25Y	32.00	97.27	97.28
94.35	0.73	43.87	20.70	6.71		
NM-113	5178		ULT 100Y	51.00	97.99	98.00
94.35	0.86	59.53	22.76	9.48		
NM-113	6003		EX 10Y	3.00	96.56	96.56
94.44	0.14	20.90	17.76	4.87		
NM-113	6003		EX 25Y	4.00	96.91	96.91
94.44	0.14	27.61	20.95	6.37		
NM-113	6003		EX 100Y	7.00	97.68	97.68
94.44	0.15	46.49	27.00	9.41		
NM-113	6003		ULT 10Y	5.00	97.01	97.01
94.44	0.17	29.87	21.94	6.01		
NM-113	6003		ULT 25Y	6.00	97.36	97.36
94.44	0.16	38.05	25.06	7.48		
NM-113	6003		ULT 100Y	10.00	98.08	98.08
94.44	0.17	57.62	29.36	10.59		
NM-113	6838		EX 10Y	3.00	96.59	96.60
95.93	0.42	7.11	16.24	5.13		
NM-113	6838		EX 25Y	4.00	96.93	96.93

NM113 OUTPUT REPORT.TXT						
95.93	0.31	12.83	17.72	6.76		
NM-113	6838		EX 100Y	7.00	97.70	97.70
95.93	0.25	27.69	21.09	10.12		
NM-113	6838		ULT 10Y	5.00	97.04	97.04
95.93	0.34	14.82	18.21	6.44		
NM-113	6838		ULT 25Y	6.00	97.38	97.38
95.93	0.28	21.20	19.69	8.05		
NM-113	6838		ULT 100Y	10.00	98.09	98.09
95.93	0.27	36.38	22.83	11.49		
NM-113	7543		EX 10Y	3.00	101.16	101.25
100.84	2.35	1.28	63.37	5.22		
NM-113	7543		EX 25Y	4.00	101.20	101.30
100.84	2.51	1.59	66.85	6.91		
NM-113	7543		EX 100Y	7.00	101.30	101.42
100.84	2.85	2.46	77.67	10.44		
NM-113	7543		ULT 10Y	5.00	101.24	101.34
100.84	2.62	1.91	70.11	6.63		
NM-113	7543		ULT 25Y	6.00	101.27	101.38
100.84	2.66	2.25	73.83	8.31		
NM-113	7543		ULT 100Y	10.00	101.37	101.52
100.84	3.11	3.22	96.57	11.94		

APPENDIX D
HEC-RAS HYDRAULIC OUTPUT
NM-115 BASE CONDITION



HEC-RAS Plan: BASE River: N-NM-115 Reach: NM-115

Reach	River Sta	Profile	Q Total (cfs)	W.S. Elev (ft)	E.G. Elev (ft)	Min Ch El (ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Volume (acre-ft)
NM-115	514	EX 10Y	387.20	99.29	99.34	93.53	1.69	229.02	74.34	
NM-115	514	EX 25Y	491.10	99.81	99.86	93.53	1.83	268.16	77.09	
NM-115	514	EX 100Y	707.70	100.75	100.81	93.53	2.06	342.72	82.15	
NM-115	514	ULT 10Y	390.00	99.31	99.35	93.53	1.69	230.12	74.41	
NM-115	514	ULT 25Y	500.00	99.85	99.90	93.53	1.84	271.40	77.32	
NM-115	514	ULT 100Y	710.00	100.75	100.82	93.53	2.07	343.48	82.20	
NM-115	982	EX 10Y	387.20	99.56	99.61	92.91	1.66	233.65	73.17	2.49
NM-115	982	EX 25Y	491.10	100.09	100.14	92.91	1.80	273.31	78.03	2.91
NM-115	982	EX 100Y	707.70	101.02	101.09	92.91	2.03	349.08	83.49	3.72
NM-115	982	ULT 10Y	390.00	99.58	99.62	92.91	1.66	234.75	73.33	2.50
NM-115	982	ULT 25Y	500.00	100.13	100.18	92.91	1.81	276.59	78.28	2.94
NM-115	982	ULT 100Y	710.00	101.03	101.10	92.91	2.03	349.85	83.54	3.72
NM-115	1366	EX 10Y	355.50	99.71	99.74	92.77	1.39	256.16	55.13	4.64
NM-115	1366	EX 25Y	450.30	100.25	100.29	92.77	1.57	286.39	57.43	5.37
NM-115	1366	EX 100Y	646.90	101.21	101.26	92.77	1.88	343.79	63.29	6.76
NM-115	1366	ULT 10Y	360.00	99.73	99.76	92.77	1.40	257.04	55.19	4.66
NM-115	1366	ULT 25Y	460.00	100.29	100.33	92.77	1.59	288.87	57.61	5.43
NM-115	1366	ULT 100Y	650.00	101.22	101.27	92.77	1.89	344.39	63.37	6.78
NM-115	2077	EX 10Y	355.50	99.88	99.89	92.47	1.08	329.35	85.48	9.42
NM-115	2077	EX 25Y	450.30	100.44	100.46	92.47	1.19	378.96	91.21	10.81
NM-115	2077	EX 100Y	646.90	101.43	101.46	92.47	1.37	473.42	98.05	13.44
NM-115	2077	ULT 10Y	360.00	99.89	99.91	92.47	1.09	330.91	85.66	9.46
NM-115	2077	ULT 25Y	460.00	100.48	100.51	92.47	1.20	383.20	91.68	10.92
NM-115	2077	ULT 100Y	650.00	101.44	101.47	92.47	1.37	474.45	98.12	13.47
NM-115	2898	EX 10Y	355.50	100.06	100.08	92.86	1.28	276.95	80.86	15.13
NM-115	2898	EX 25Y	450.30	100.63	100.66	92.86	1.39	324.56	85.17	17.43
NM-115	2898	EX 100Y	646.90	101.64	101.68	92.86	1.55	416.22	95.24	21.81
NM-115	2898	ULT 10Y	360.00	100.08	100.11	92.86	1.29	278.59	81.03	15.20
NM-115	2898	ULT 25Y	460.00	100.68	100.71	92.86	1.40	328.67	85.48	17.62
NM-115	2898	ULT 100Y	650.00	101.65	101.69	92.86	1.56	417.27	95.31	21.86
NM-115	3315	EX 10Y	355.50	100.27	100.35	95.31	2.18	163.31	76.18	17.24
NM-115	3315	EX 25Y	450.30	100.83	100.91	95.31	2.16	208.19	83.51	19.98
NM-115	3315	EX 100Y	646.90	101.83	101.90	95.31	2.18	297.02	93.64	25.24
NM-115	3315	ULT 10Y	360.00	100.29	100.37	95.31	2.18	164.92	76.46	17.33
NM-115	3315	ULT 25Y	460.00	100.88	100.96	95.31	2.17	212.24	84.11	20.22
NM-115	3315	ULT 100Y	650.00	101.84	101.92	95.31	2.18	298.08	93.73	25.29
NM-115	3656	EX 10Y	355.50	100.58	100.62	93.18	1.44	247.23	82.82	18.85
NM-115	3656	EX 25Y	450.30	101.13	101.17	93.18	1.52	296.46	96.07	21.96
NM-115	3656	EX 100Y	646.90	102.08	102.12	93.18	1.63	396.06	108.50	27.95
NM-115	3656	ULT 10Y	360.00	100.61	100.64	93.18	1.45	249.08	83.31	18.95
NM-115	3656	ULT 25Y	460.00	101.18	101.21	93.18	1.53	300.98	96.64	22.23
NM-115	3656	ULT 100Y	650.00	102.09	102.13	93.18	1.64	397.28	108.57	28.02
NM-115	4037	EX 10Y	280.20	100.72	100.73	94.43	1.02	274.08	84.82	21.13
NM-115	4037	EX 25Y	355.10	101.27	101.29	94.43	1.10	321.38	87.16	24.66
NM-115	4037	EX 100Y	508.60	102.22	102.24	94.43	1.25	406.09	91.60	31.46
NM-115	4037	ULT 10Y	290.00	100.74	100.76	94.43	1.05	276.16	84.92	21.25
NM-115	4037	ULT 25Y	360.00	101.32	101.33	94.43	1.11	325.47	87.36	24.97
NM-115	4037	ULT 100Y	510.00	102.23	102.25	94.43	1.25	407.13	91.65	31.53
NM-115	4521	EX 10Y	280.20	100.80	100.81	94.42	0.89	316.59	86.85	24.41
NM-115	4521	EX 25Y	355.10	101.35	101.37	94.42	0.97	365.13	89.22	28.48
NM-115	4521	EX 100Y	508.60	102.31	102.33	94.42	1.13	452.06	93.40	36.23
NM-115	4521	ULT 10Y	290.00	100.83	100.84	94.42	0.91	319.06	86.98	24.55
NM-115	4521	ULT 25Y	360.00	101.40	101.41	94.42	0.97	369.24	89.41	28.83
NM-115	4521	ULT 100Y	510.00	102.32	102.34	94.42	1.13	453.10	93.46	36.31
NM-115	5052	EX 10Y	280.20	100.89	100.91	94.54	1.14	244.98	77.94	27.83
NM-115	5052	EX 25Y	355.10	101.45	101.47	94.54	1.22	290.39	87.15	32.46

HEC-RAS Plan: BASE River: N-NM-115 Reach: NM-115 (Continued)

Reach	River Sta	Profile	Q Total (cfs)	W.S. Elev (ft)	E.G. Elev (ft)	Min Ch El (ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Volume (acre-ft)
NM-115	5052	EX 100Y	508.60	102.40	102.43	94.54	1.35	377.74	95.10	41.27
NM-115	5052	ULT 10Y	290.00	100.92	100.95	94.54	1.17	247.51	78.21	28.00
NM-115	5052	ULT 25Y	360.00	101.49	101.52	94.54	1.22	294.35	87.59	32.86
NM-115	5052	ULT 100Y	510.00	102.41	102.44	94.54	1.35	378.79	95.17	41.37
NM-115	5322	EX 10Y	280.20	100.97	100.99	94.91	1.08	258.37	92.05	29.39
NM-115	5322	EX 25Y	355.10	101.52	101.54	94.91	1.14	310.37	95.22	34.33
NM-115	5322	EX 100Y	508.60	102.47	102.50	94.91	1.26	403.29	99.99	43.69
NM-115	5322	ULT 10Y	290.00	101.00	101.02	94.91	1.11	261.62	92.31	29.58
NM-115	5322	ULT 25Y	360.00	101.57	101.59	94.91	1.14	314.60	95.46	34.75
NM-115	5322	ULT 100Y	510.00	102.49	102.51	94.91	1.26	404.37	100.04	43.80
NM-115	5795	EX 10Y	280.20	101.12	101.15	95.41	1.25	224.97	86.00	32.01
NM-115	5795	EX 25Y	355.10	101.66	101.69	95.41	1.31	272.09	88.65	37.49
NM-115	5795	EX 100Y	508.60	102.60	102.63	95.41	1.42	357.31	93.15	47.82
NM-115	5795	ULT 10Y	290.00	101.16	101.19	95.41	1.27	228.37	86.22	32.24
NM-115	5795	ULT 25Y	360.00	101.70	101.73	95.41	1.31	275.85	88.85	37.96
NM-115	5795	ULT 100Y	510.00	102.61	102.64	95.41	1.42	358.28	93.20	47.94
NM-115	6348	EX 10Y	280.20	101.33	101.35	95.23	1.14	244.89	90.74	34.99
NM-115	6348	EX 25Y	355.10	101.85	101.87	95.23	1.21	293.63	95.70	41.08
NM-115	6348	EX 100Y	508.60	102.77	102.79	95.23	1.32	384.21	101.01	52.53
NM-115	6348	ULT 10Y	290.00	101.37	101.39	95.23	1.17	248.90	91.16	35.27
NM-115	6348	ULT 25Y	360.00	101.89	101.91	95.23	1.21	297.46	96.08	41.59
NM-115	6348	ULT 100Y	510.00	102.78	102.80	95.23	1.32	385.22	101.06	52.66
NM-115	6641	EX 10Y	280.20	101.40	101.42	94.56	1.27	221.06	49.05	36.56
NM-115	6641	EX 25Y	355.10	101.93	101.96	94.56	1.43	248.21	54.39	42.90
NM-115	6641	EX 100Y	508.60	102.84	102.89	94.56	1.69	301.80	61.90	54.84
NM-115	6641	ULT 10Y	290.00	101.44	101.47	94.56	1.30	223.34	49.30	36.86
NM-115	6641	ULT 25Y	360.00	101.96	102.00	94.56	1.44	250.39	54.84	43.44
NM-115	6641	ULT 100Y	510.00	102.85	102.90	94.56	1.69	302.41	61.98	54.97
NM-115	7179	EX 10Y	280.20	101.53	101.55	95.38	1.18	237.73	75.06	39.39
NM-115	7179	EX 25Y	355.10	102.08	102.11	95.38	1.27	280.39	79.96	46.17
NM-115	7179	EX 100Y	508.60	103.02	103.05	95.38	1.42	358.57	85.85	58.92
NM-115	7179	ULT 10Y	290.00	101.58	101.61	95.38	1.20	241.59	75.65	39.73
NM-115	7179	ULT 25Y	360.00	102.12	102.15	95.38	1.27	283.61	80.21	46.73
NM-115	7179	ULT 100Y	510.00	103.03	103.06	95.38	1.42	359.42	85.91	59.06
NM-115	7728	EX 10Y	280.20	101.74	101.78	95.02	1.67	167.44	57.09	41.95
NM-115	7728	EX 25Y	355.10	102.29	102.34	95.02	1.78	199.98	62.00	49.19
NM-115	7728	EX 100Y	508.60	103.24	103.29	95.02	1.88	270.62	82.09	62.88
NM-115	7728	ULT 10Y	290.00	101.80	101.84	95.02	1.70	170.64	57.59	42.32
NM-115	7728	ULT 25Y	360.00	102.33	102.38	95.02	1.78	202.40	62.35	49.80
NM-115	7728	ULT 100Y	510.00	103.25	103.30	95.02	1.88	271.40	82.18	63.04
NM-115	7926	EX 10Y	280.20	101.87	101.92	95.39	1.62	172.60	64.13	42.72
NM-115	7926	EX 25Y	355.10	102.42	102.46	95.39	1.70	209.28	70.46	50.12
NM-115	7926	EX 100Y	508.60	103.37	103.42	95.39	1.81	281.48	83.83	64.14
NM-115	7926	ULT 10Y	290.00	101.93	101.97	95.39	1.64	176.34	64.81	43.11
NM-115	7926	ULT 25Y	360.00	102.46	102.50	95.39	1.70	211.97	70.84	50.74
NM-115	7926	ULT 100Y	510.00	103.38	103.43	95.39	1.81	282.24	83.92	64.29
NM-115	8418	EX 10Y	280.20	102.11	102.13	95.62	1.21	231.51	74.82	45.00
NM-115	8418	EX 25Y	355.10	102.65	102.68	95.62	1.30	273.57	79.78	52.85
NM-115	8418	EX 100Y	508.60	103.60	103.63	95.62	1.44	352.60	87.35	67.72
NM-115	8418	ULT 10Y	290.00	102.17	102.19	95.62	1.23	236.14	75.59	45.44
NM-115	8418	ULT 25Y	360.00	102.69	102.71	95.62	1.30	276.51	80.04	53.50
NM-115	8418	ULT 100Y	510.00	103.61	103.64	95.62	1.44	353.37	87.42	67.88
NM-115	8949	EX 10Y	280.20	102.26	102.27	95.14	1.11	253.30	76.25	47.95
NM-115	8949	EX 25Y	355.10	102.80	102.82	95.14	1.20	296.88	82.28	56.32
NM-115	8949	EX 100Y	508.60	103.75	103.78	95.14	1.34	378.39	89.23	72.16
NM-115	8949	ULT 10Y	290.00	102.32	102.34	95.14	1.12	258.29	77.66	48.45

HEC-RAS Plan: BASE River: N-NM-115 Reach: NM-115 (Continued)

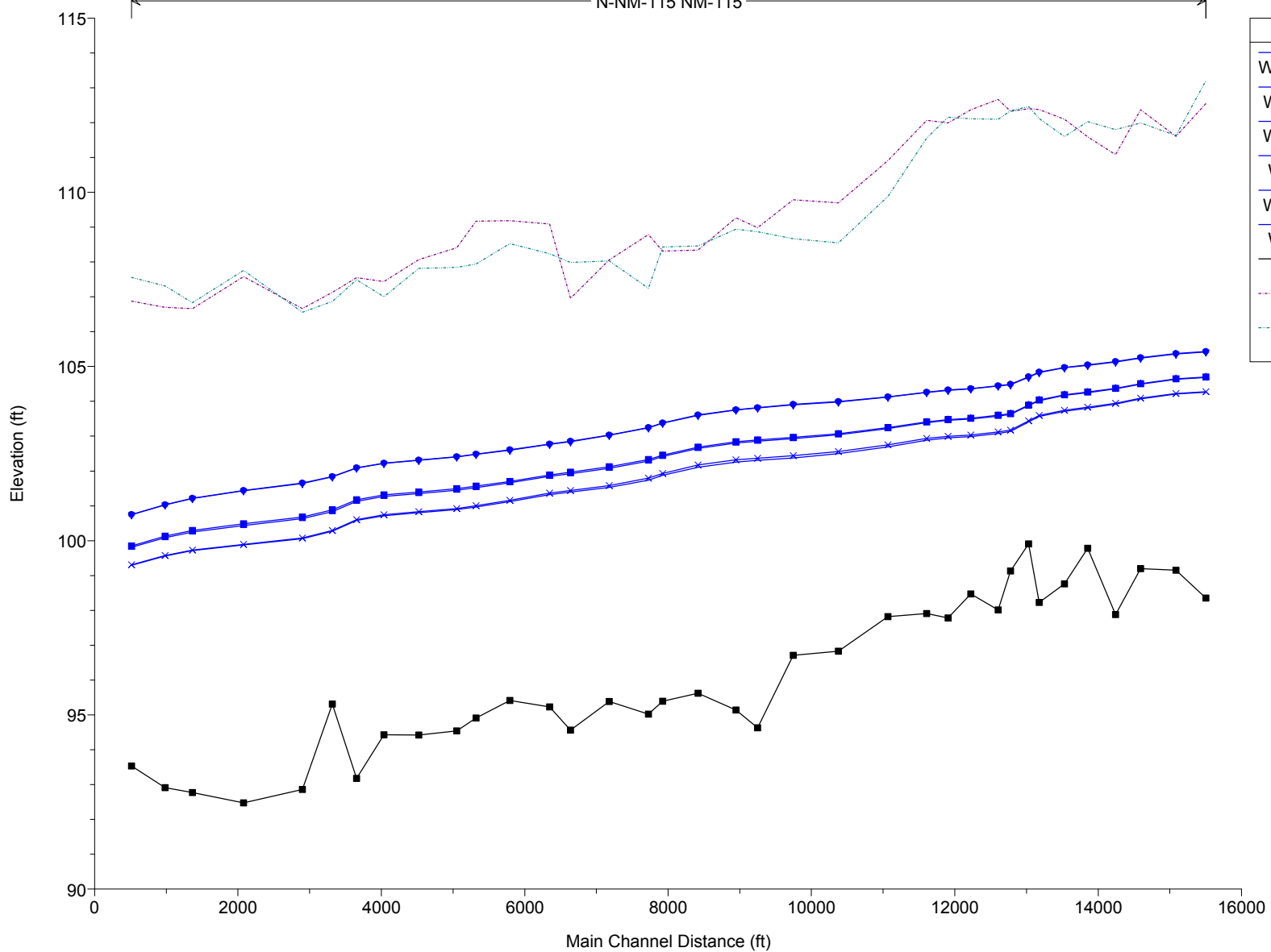
Reach	River Sta	Profile	Q Total (cfs)	W.S. Elev (ft)	E.G. Elev (ft)	Min Ch El (ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Volume (acre-ft)
NM-115	8949	ULT 25Y	360.00	102.84	102.86	95.14	1.20	299.88	82.56	57.00
NM-115	8949	ULT 100Y	510.00	103.76	103.79	95.14	1.35	379.16	89.28	72.34
NM-115	9251	EX 10Y	280.20	102.30	102.32	94.63	1.00	280.32	51.04	49.80
NM-115	9251	EX 25Y	355.10	102.85	102.88	94.63	1.15	308.87	52.72	58.42
NM-115	9251	EX 100Y	508.60	103.81	103.84	94.63	1.41	360.56	55.62	74.72
NM-115	9251	ULT 10Y	290.00	102.37	102.39	94.63	1.02	283.71	51.24	50.33
NM-115	9251	ULT 25Y	360.00	102.89	102.91	94.63	1.16	310.80	52.83	59.12
NM-115	9251	ULT 100Y	510.00	103.82	103.85	94.63	1.41	361.05	55.64	74.91
NM-115	9746	EX 10Y	148.70	102.37	102.38	96.71	0.71	210.60	90.64	52.60
NM-115	9746	EX 25Y	188.90	102.93	102.94	96.71	0.72	263.98	99.49	61.68
NM-115	9746	EX 100Y	268.00	103.90	103.91	96.71	0.74	363.96	106.47	78.85
NM-115	9746	ULT 10Y	150.00	102.44	102.45	96.71	0.69	216.74	91.55	53.18
NM-115	9746	ULT 25Y	190.00	102.97	102.98	96.71	0.71	267.64	99.81	62.41
NM-115	9746	ULT 100Y	270.00	103.91	103.92	96.71	0.74	364.92	106.53	79.04
NM-115	10378	EX 10Y	148.70	102.50	102.51	96.83	0.96	154.10	68.25	55.24
NM-115	10378	EX 25Y	188.90	103.04	103.05	96.83	0.97	195.05	78.30	65.01
NM-115	10378	EX 100Y	268.00	103.98	104.00	96.83	0.98	272.71	86.49	83.47
NM-115	10378	ULT 10Y	150.00	102.56	102.57	96.83	0.95	158.46	72.26	55.90
NM-115	10378	ULT 25Y	190.00	103.07	103.09	96.83	0.96	197.68	78.59	65.79
NM-115	10378	ULT 100Y	270.00	103.99	104.01	96.83	0.99	273.53	86.58	83.67
NM-115	11070	EX 10Y	148.70	102.70	102.71	97.82	0.95	156.27	67.18	57.71
NM-115	11070	EX 25Y	188.90	103.22	103.23	97.82	0.97	193.95	75.49	68.10
NM-115	11070	EX 100Y	268.00	104.12	104.14	97.82	1.01	264.82	81.66	87.74
NM-115	11070	ULT 10Y	150.00	102.75	102.77	97.82	0.94	160.19	68.37	58.43
NM-115	11070	ULT 25Y	190.00	103.25	103.26	97.82	0.97	196.16	75.78	68.92
NM-115	11070	ULT 100Y	270.00	104.13	104.15	97.82	1.02	265.66	81.73	87.95
NM-115	11608	EX 10Y	148.70	102.89	102.91	97.91	1.19	124.51	59.62	59.44
NM-115	11608	EX 25Y	188.90	103.39	103.41	97.91	1.22	155.45	63.76	70.26
NM-115	11608	EX 100Y	268.00	104.25	104.28	97.91	1.26	213.42	70.48	90.70
NM-115	11608	ULT 10Y	150.00	102.94	102.96	97.91	1.18	127.46	60.20	60.21
NM-115	11608	ULT 25Y	190.00	103.41	103.43	97.91	1.21	157.09	63.95	71.10
NM-115	11608	ULT 100Y	270.00	104.26	104.29	97.91	1.26	214.20	70.60	90.92
NM-115	11908	EX 10Y	148.70	102.95	102.96	97.78	0.72	207.54	54.28	60.59
NM-115	11908	EX 25Y	188.90	103.45	103.46	97.78	0.80	235.09	55.95	71.61
NM-115	11908	EX 100Y	268.00	104.32	104.33	97.78	0.94	284.69	58.85	92.41
NM-115	11908	ULT 10Y	150.00	103.00	103.01	97.78	0.71	210.12	54.43	61.37
NM-115	11908	ULT 25Y	190.00	103.48	103.49	97.78	0.80	236.49	56.03	72.46
NM-115	11908	ULT 100Y	270.00	104.33	104.34	97.78	0.95	285.36	58.89	92.64
NM-115	12224	EX 10Y	148.70	102.99	103.00	98.47	0.92	162.40	64.49	61.93
NM-115	12224	EX 25Y	188.90	103.49	103.51	98.47	0.97	195.56	67.63	73.17
NM-115	12224	EX 100Y	268.00	104.36	104.37	98.47	1.05	256.46	72.90	94.37
NM-115	12224	ULT 10Y	150.00	103.04	103.05	98.47	0.91	165.40	64.84	62.74
NM-115	12224	ULT 25Y	190.00	103.52	103.53	98.47	0.96	197.23	67.78	74.03
NM-115	12224	ULT 100Y	270.00	104.37	104.39	98.47	1.05	257.31	72.97	94.61
NM-115	12605	EX 10Y	148.70	103.08	103.09	98.01	0.97	153.09	59.08	63.31
NM-115	12605	EX 25Y	188.90	103.58	103.59	98.01	1.03	183.64	63.71	74.83
NM-115	12605	EX 100Y	268.00	104.44	104.46	98.01	1.11	241.24	72.20	96.55
NM-115	12605	ULT 10Y	150.00	103.12	103.14	98.01	0.96	155.67	59.49	64.14
NM-115	12605	ULT 25Y	190.00	103.60	103.62	98.01	1.03	185.14	63.86	75.70
NM-115	12605	ULT 100Y	270.00	104.45	104.47	98.01	1.12	242.11	72.40	96.79
NM-115	12775	EX 10Y	148.70	103.13	103.18	99.13	1.66	89.36	40.52	63.79
NM-115	12775	EX 25Y	188.90	103.63	103.67	99.13	1.71	110.20	44.10	75.40
NM-115	12775	EX 100Y	268.00	104.48	104.53	99.13	1.78	150.51	50.19	97.32
NM-115	12775	ULT 10Y	150.00	103.18	103.22	99.13	1.65	91.06	40.82	64.62
NM-115	12775	ULT 25Y	190.00	103.65	103.69	99.13	1.71	111.21	44.27	76.29
NM-115	12775	ULT 100Y	270.00	104.49	104.54	99.13	1.79	151.13	50.27	97.57

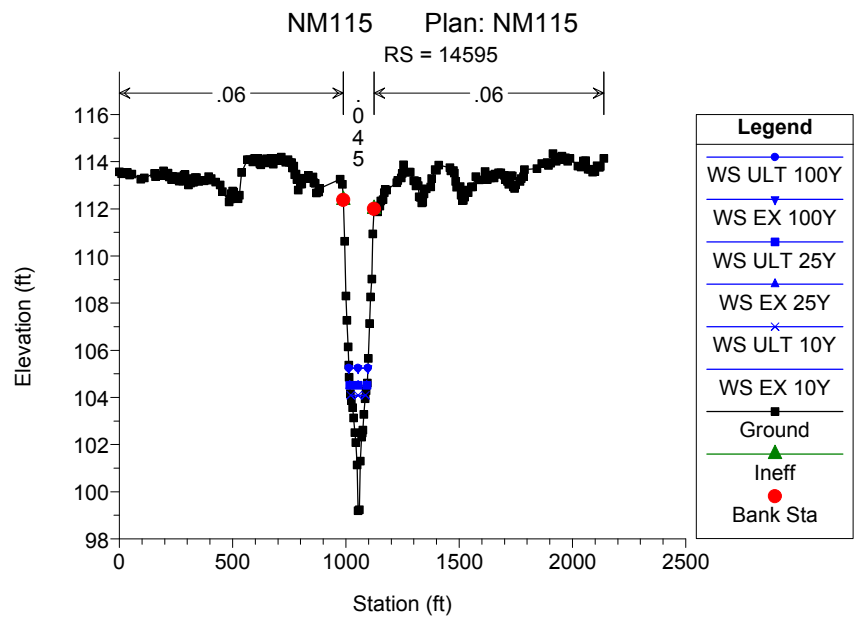
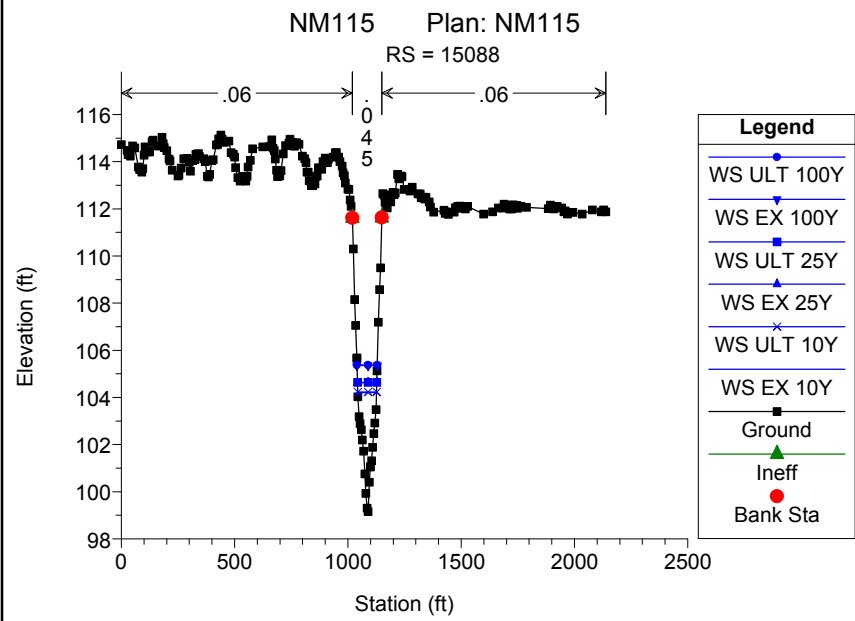
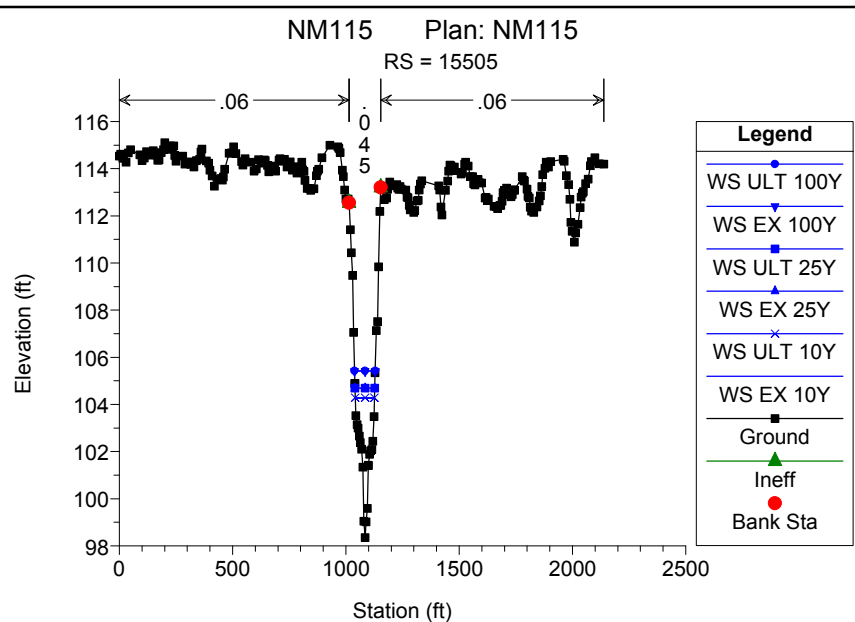
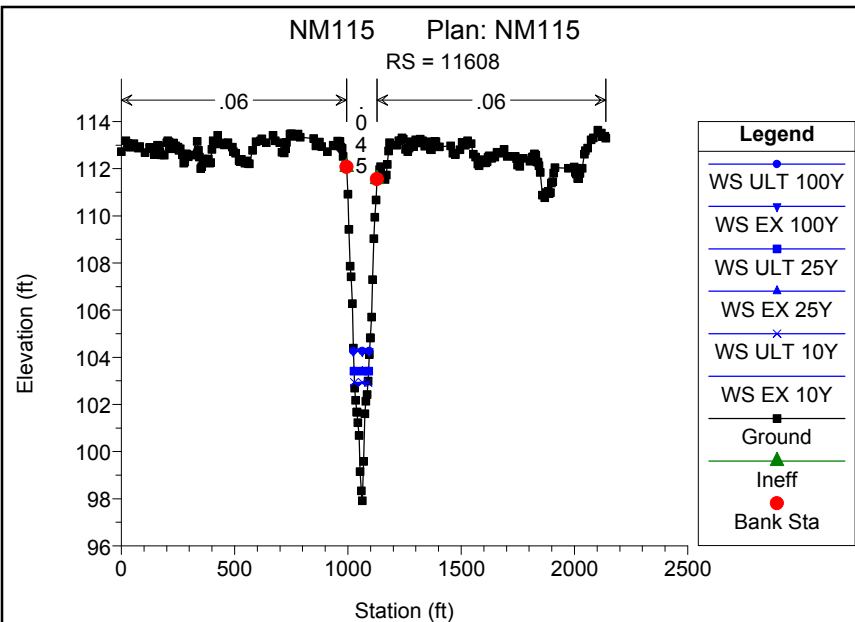
HEC-RAS Plan: BASE River: N-NM-115 Reach: NM-115 (Continued)

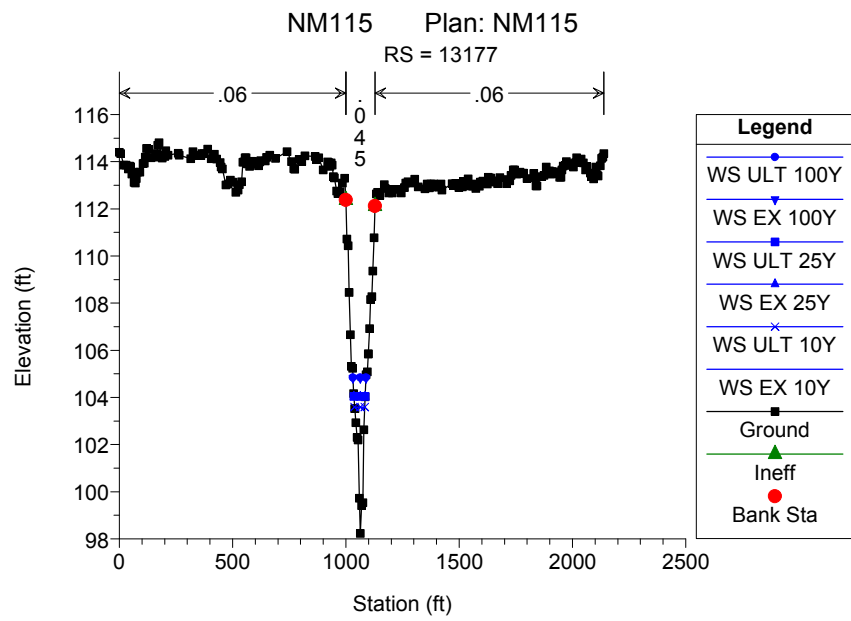
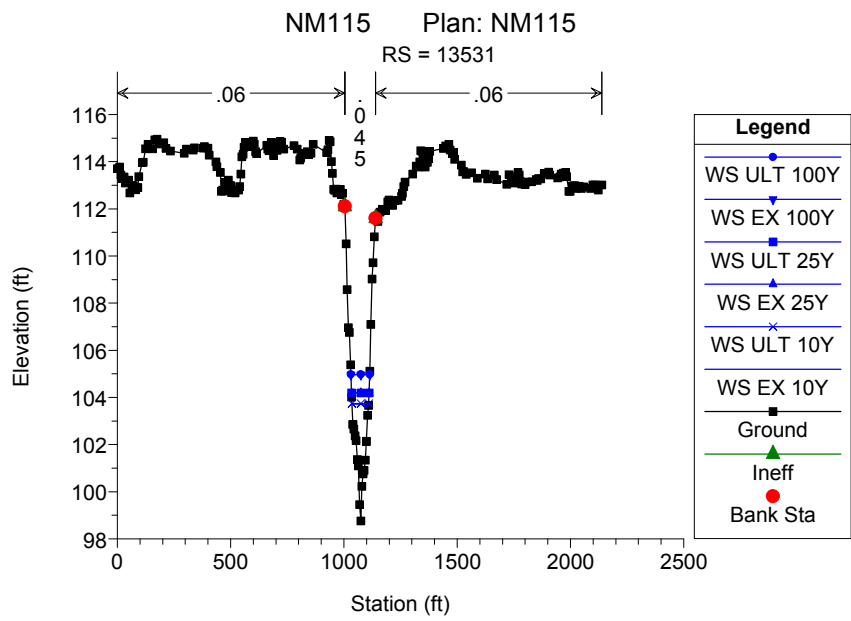
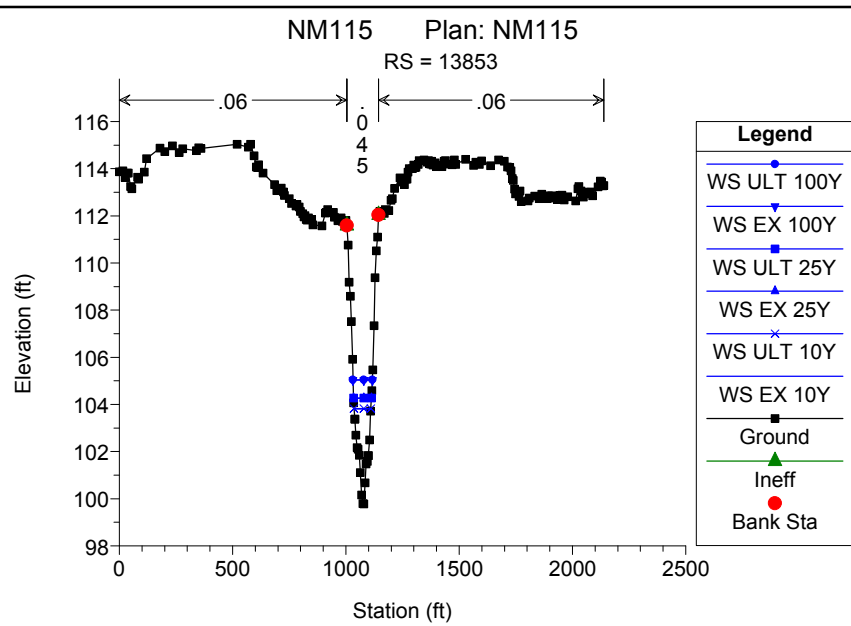
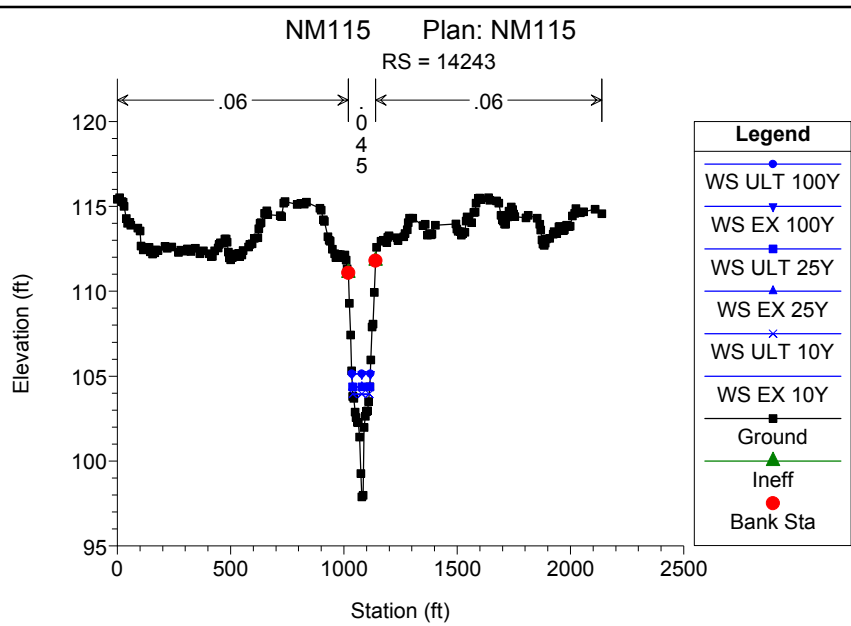
Reach	River Sta	Profile	Q Total (cfs)	W.S. Elev (ft)	E.G. Elev (ft)	Min Ch El (ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Volume (acre-ft)
NM-115	13028	EX 10Y	148.70	103.41	103.46	99.91	1.89	78.81	40.96	64.27
NM-115	13028	EX 25Y	188.90	103.87	103.93	99.91	1.91	99.06	46.62	76.01
NM-115	13028	EX 100Y	268.00	104.69	104.75	99.91	1.89	142.02	60.87	98.17
NM-115	13028	ULT 10Y	150.00	103.44	103.50	99.91	1.87	80.16	41.30	65.12
NM-115	13028	ULT 25Y	190.00	103.89	103.95	99.91	1.90	99.98	46.85	76.90
NM-115	13028	ULT 100Y	270.00	104.71	104.76	99.91	1.89	142.81	61.09	98.42
NM-115	13177	EX 10Y	148.70	103.56	103.59	98.23	1.39	107.03	43.67	64.59
NM-115	13177	EX 25Y	188.90	104.02	104.05	98.23	1.47	128.20	48.85	76.40
NM-115	13177	EX 100Y	268.00	104.82	104.86	98.23	1.57	170.94	57.26	98.70
NM-115	13177	ULT 10Y	150.00	103.59	103.62	98.23	1.38	108.33	44.00	65.44
NM-115	13177	ULT 25Y	190.00	104.04	104.07	98.23	1.47	129.10	49.07	77.29
NM-115	13177	ULT 100Y	270.00	104.84	104.88	98.23	1.57	171.70	57.39	98.95
NM-115	13531	EX 10Y	148.70	103.72	103.73	98.76	0.91	163.02	73.83	65.69
NM-115	13531	EX 25Y	188.90	104.17	104.18	98.76	0.96	197.33	77.25	77.72
NM-115	13531	EX 100Y	268.00	104.96	104.98	98.76	1.03	260.82	82.87	100.46
NM-115	13531	ULT 10Y	150.00	103.74	103.76	98.76	0.91	165.03	74.04	66.55
NM-115	13531	ULT 25Y	190.00	104.19	104.20	98.76	0.96	198.66	77.37	78.62
NM-115	13531	ULT 100Y	270.00	104.98	104.99	98.76	1.03	261.95	82.97	100.72
NM-115	13853	EX 10Y	148.70	103.80	103.82	99.78	0.93	160.59	73.52	66.88
NM-115	13853	EX 25Y	188.90	104.25	104.27	99.78	0.97	194.66	78.52	79.17
NM-115	13853	EX 100Y	268.00	105.03	105.05	99.78	1.04	258.71	85.14	102.38
NM-115	13853	ULT 10Y	150.00	103.83	103.84	99.78	0.92	162.48	73.86	67.76
NM-115	13853	ULT 25Y	190.00	104.27	104.28	99.78	0.97	195.96	78.66	80.08
NM-115	13853	ULT 100Y	270.00	105.05	105.06	99.78	1.04	259.89	85.25	102.65
NM-115	14243	EX 10Y	148.70	103.92	103.94	97.88	0.97	153.42	72.72	68.29
NM-115	14243	EX 25Y	188.90	104.36	104.38	97.88	1.02	186.07	76.69	80.87
NM-115	14243	EX 100Y	268.00	105.13	105.15	97.88	1.09	246.87	81.70	104.64
NM-115	14243	ULT 10Y	150.00	103.95	103.96	97.88	0.97	155.16	72.94	69.18
NM-115	14243	ULT 25Y	190.00	104.38	104.39	97.88	1.01	187.28	76.81	81.79
NM-115	14243	ULT 100Y	270.00	105.14	105.16	97.88	1.09	248.01	81.79	104.92
NM-115	14595	EX 10Y	148.70	104.07	104.09	99.20	1.21	123.17	65.22	69.40
NM-115	14595	EX 25Y	188.90	104.49	104.52	99.20	1.23	153.28	75.54	82.24
NM-115	14595	EX 100Y	268.00	105.24	105.26	99.20	1.26	213.33	84.43	106.49
NM-115	14595	ULT 10Y	150.00	104.09	104.11	99.20	1.20	124.61	65.92	70.31
NM-115	14595	ULT 25Y	190.00	104.51	104.53	99.20	1.23	154.39	75.87	83.17
NM-115	14595	ULT 100Y	270.00	105.25	105.28	99.20	1.26	214.50	84.55	106.78
NM-115	15088	EX 10Y	148.70	104.21	104.21	99.15	0.71	209.60	82.68	71.29
NM-115	15088	EX 25Y	188.90	104.63	104.64	99.15	0.77	245.14	85.27	84.50
NM-115	15088	EX 100Y	268.00	105.36	105.37	99.15	0.87	309.10	89.58	109.45
NM-115	15088	ULT 10Y	150.00	104.23	104.24	99.15	0.71	211.33	82.81	72.21
NM-115	15088	ULT 25Y	190.00	104.64	104.65	99.15	0.77	246.34	85.35	85.44
NM-115	15088	ULT 100Y	270.00	105.38	105.39	99.15	0.87	310.35	89.66	109.75
NM-115	15505	EX 10Y	148.70	104.26	104.27	98.35	0.67	222.56	84.72	73.35
NM-115	15505	EX 25Y	188.90	104.68	104.69	98.35	0.73	259.04	87.44	86.91
NM-115	15505	EX 100Y	268.00	105.42	105.43	98.35	0.83	324.51	91.39	112.48
NM-115	15505	ULT 10Y	150.00	104.28	104.29	98.35	0.67	224.30	84.86	74.30
NM-115	15505	ULT 25Y	190.00	104.70	104.71	98.35	0.73	260.25	87.53	87.86
NM-115	15505	ULT 100Y	270.00	105.43	105.44	98.35	0.83	325.80	91.46	112.80

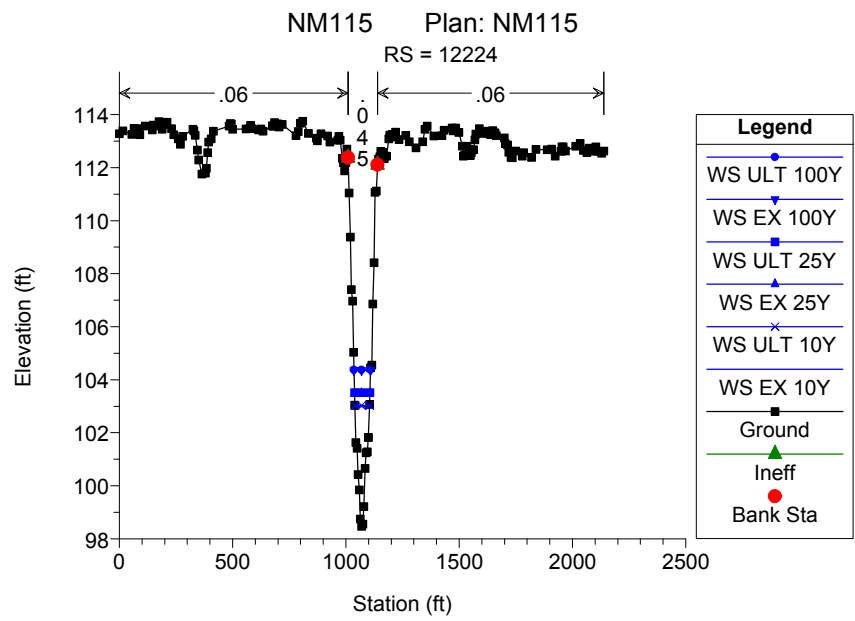
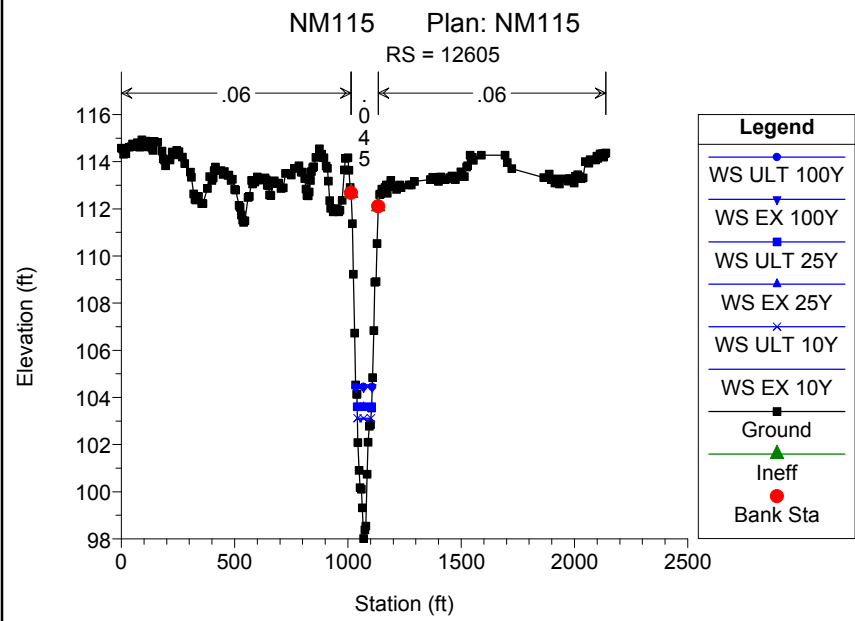
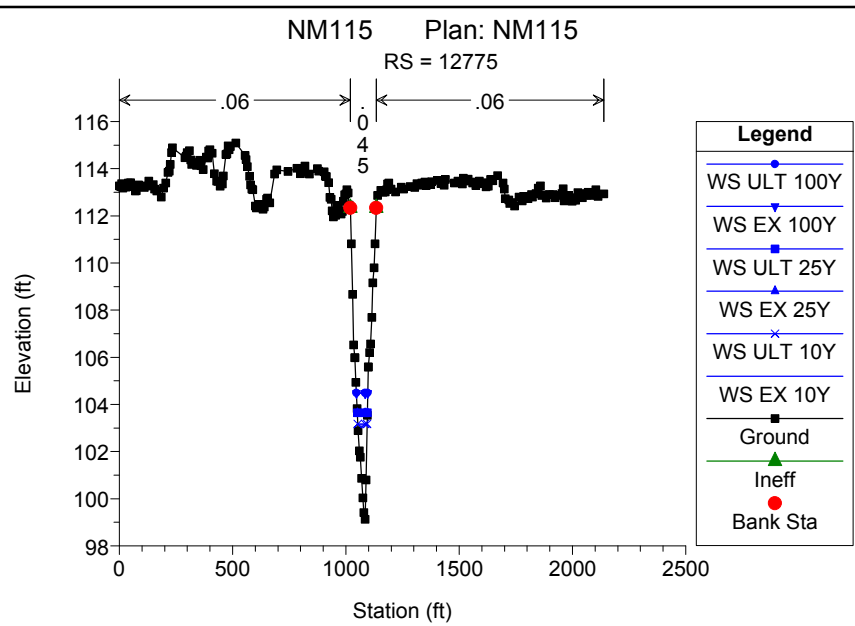
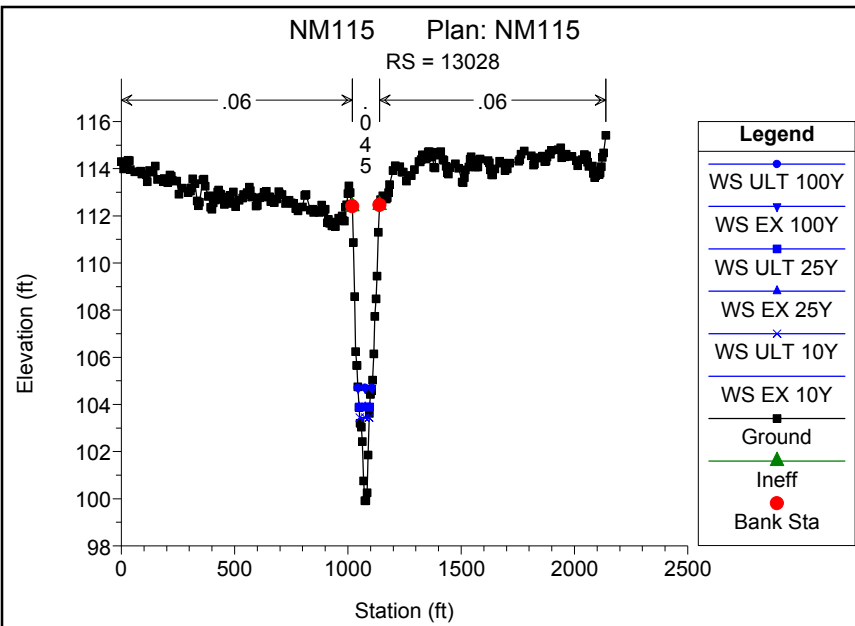
NM115 Plan: NM115

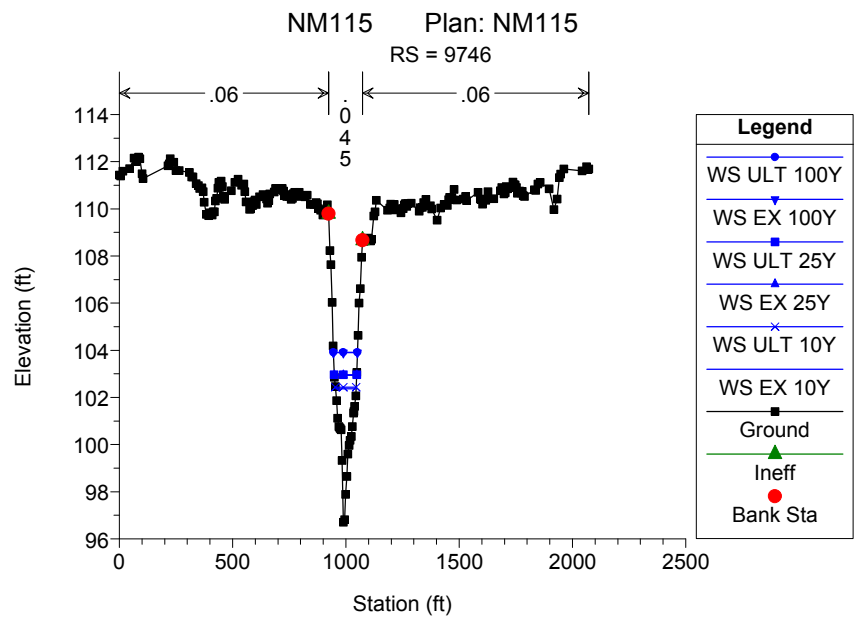
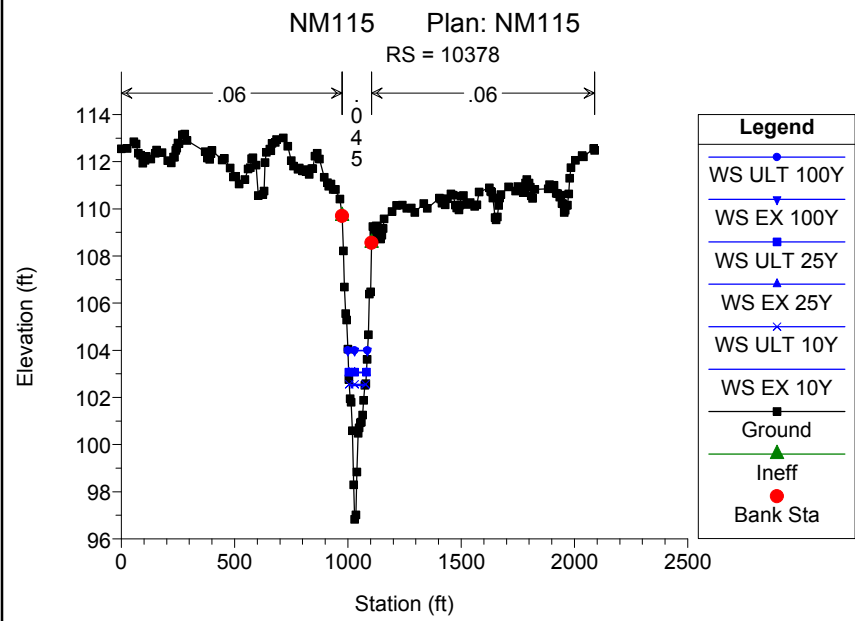
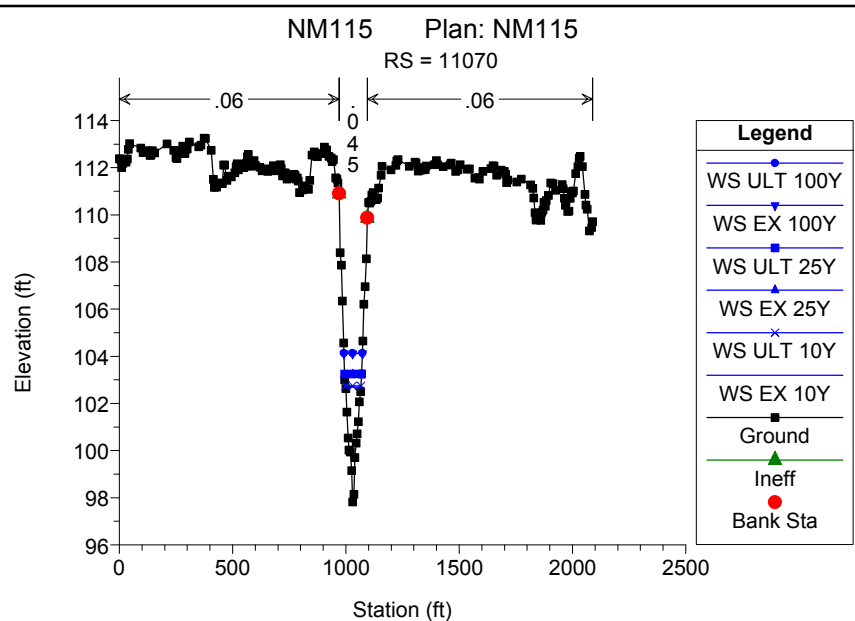
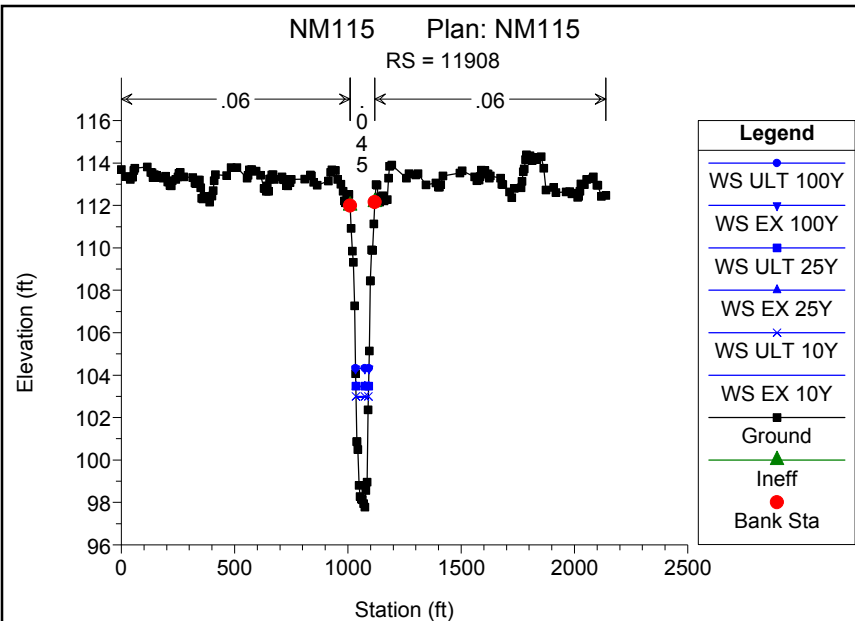
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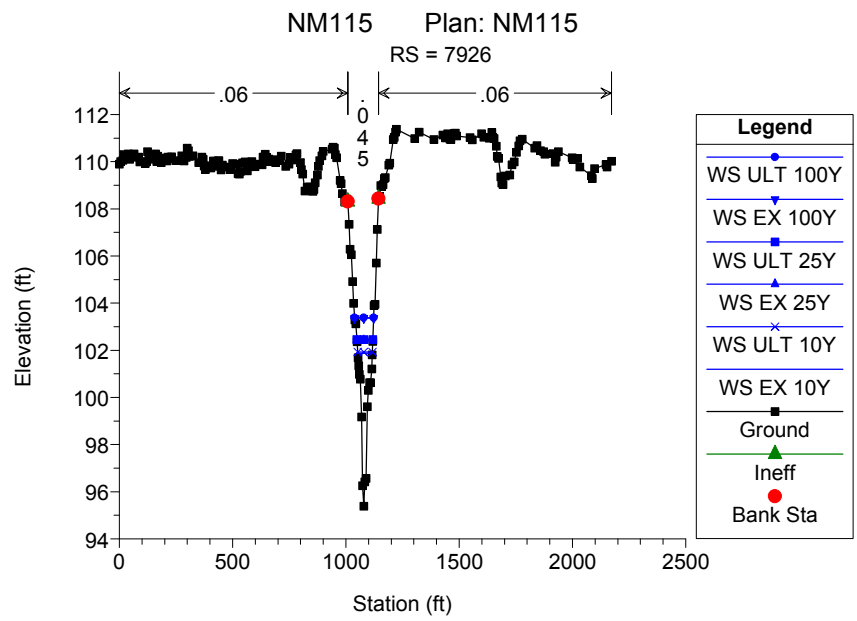
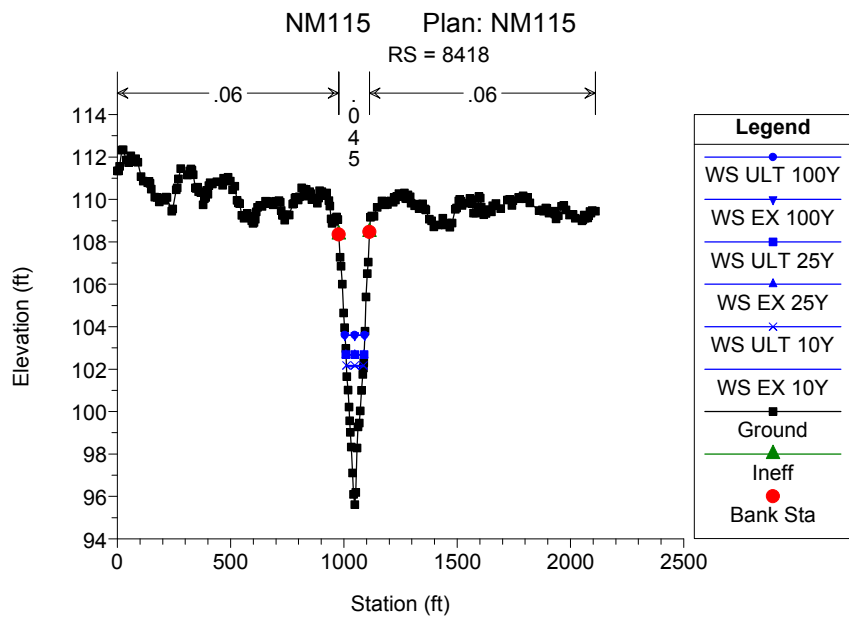
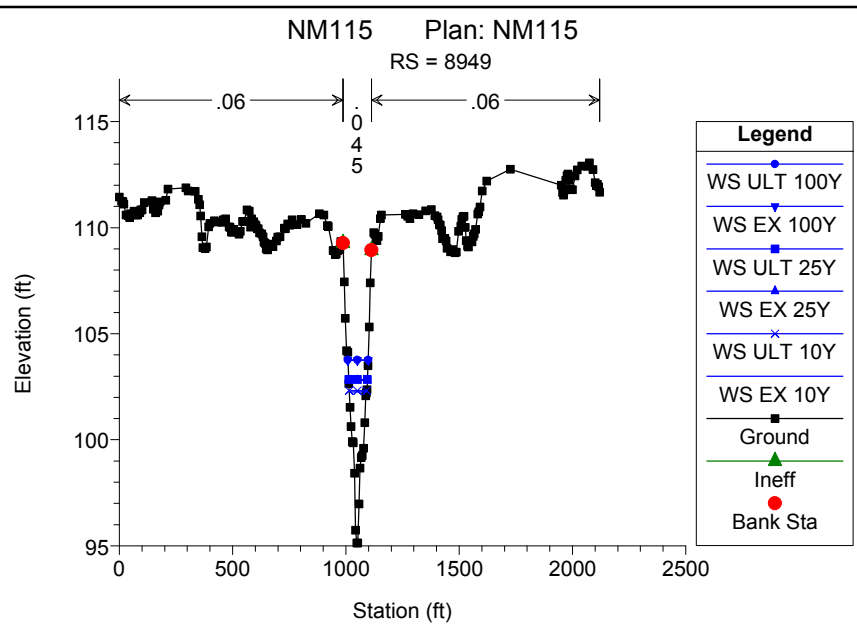
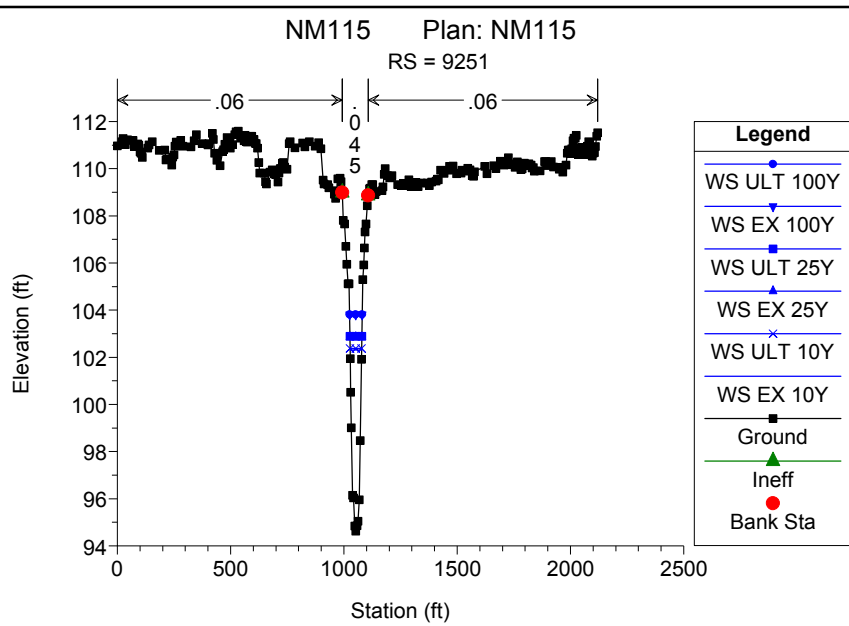


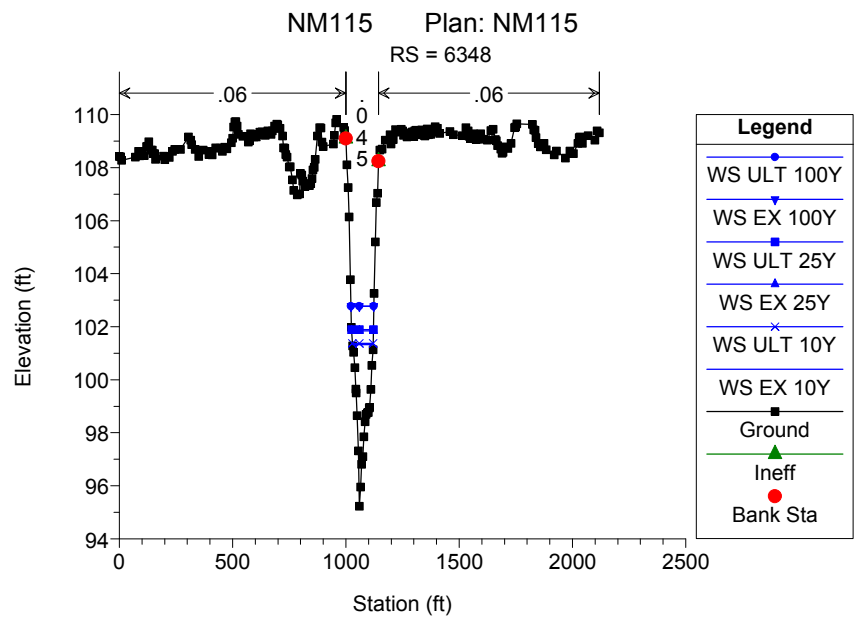
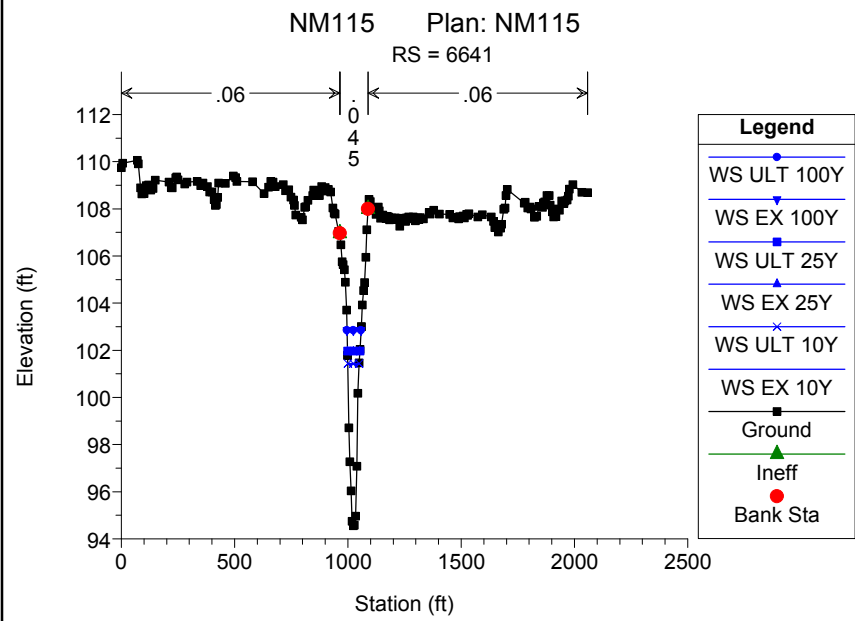
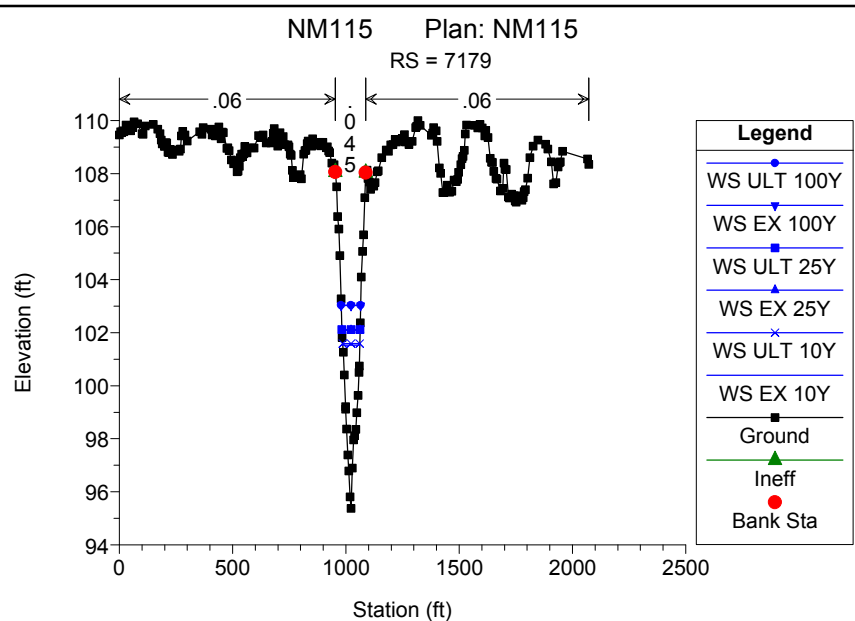
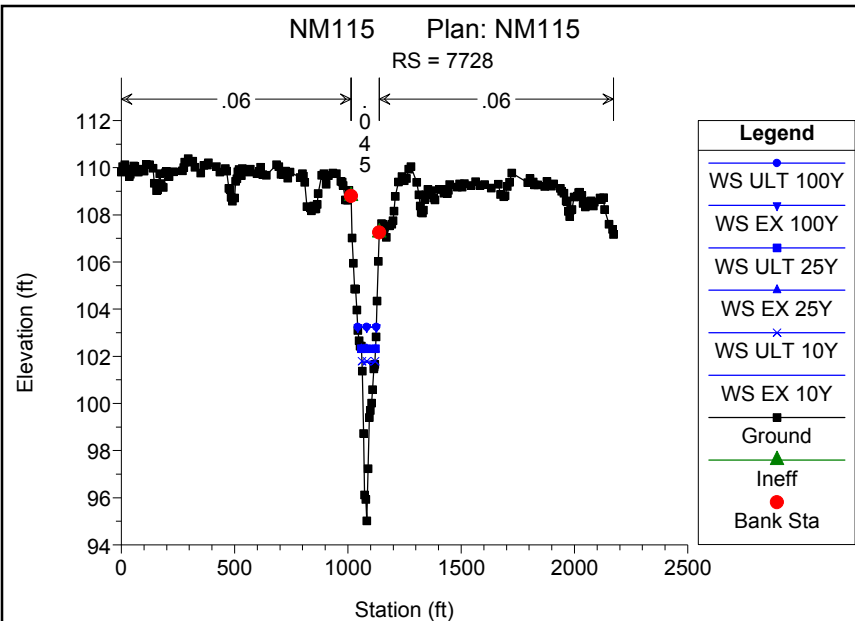


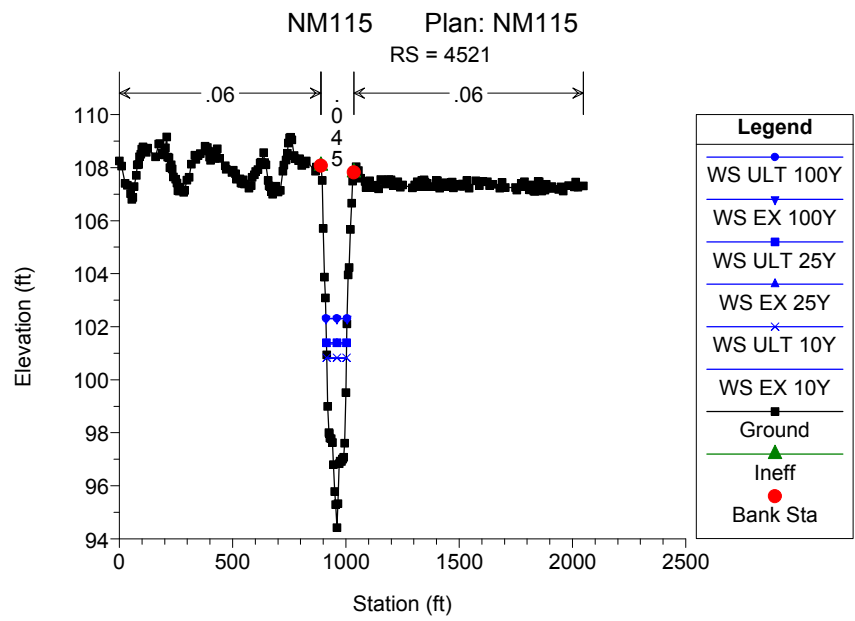
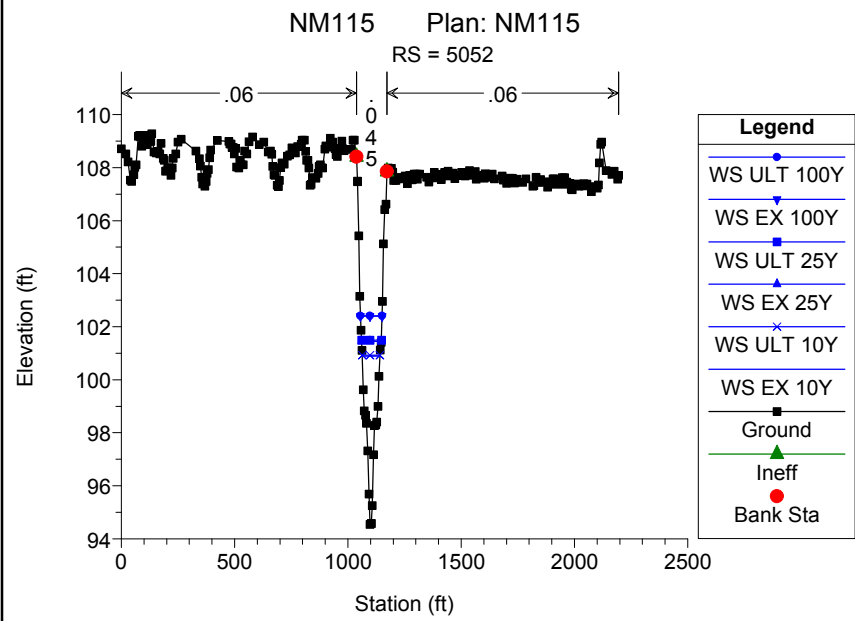
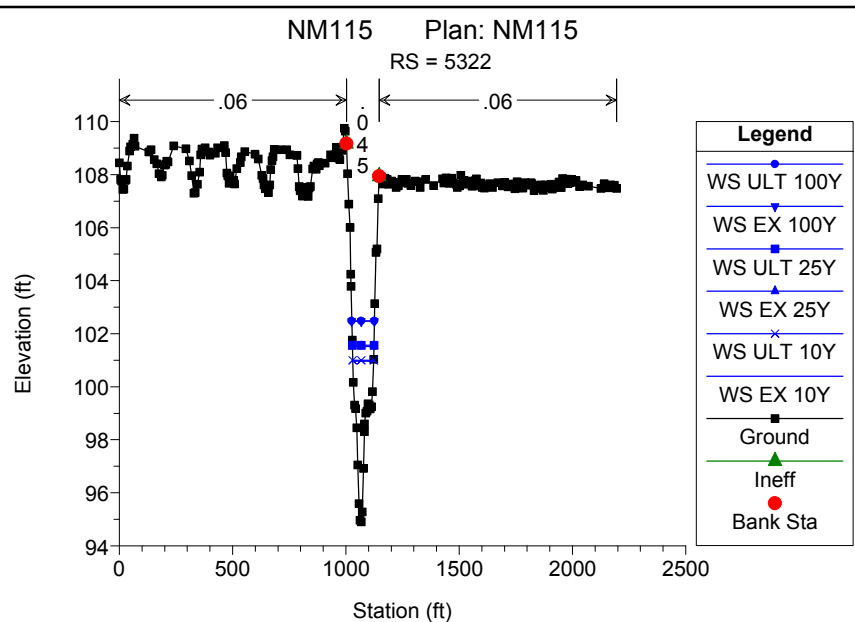
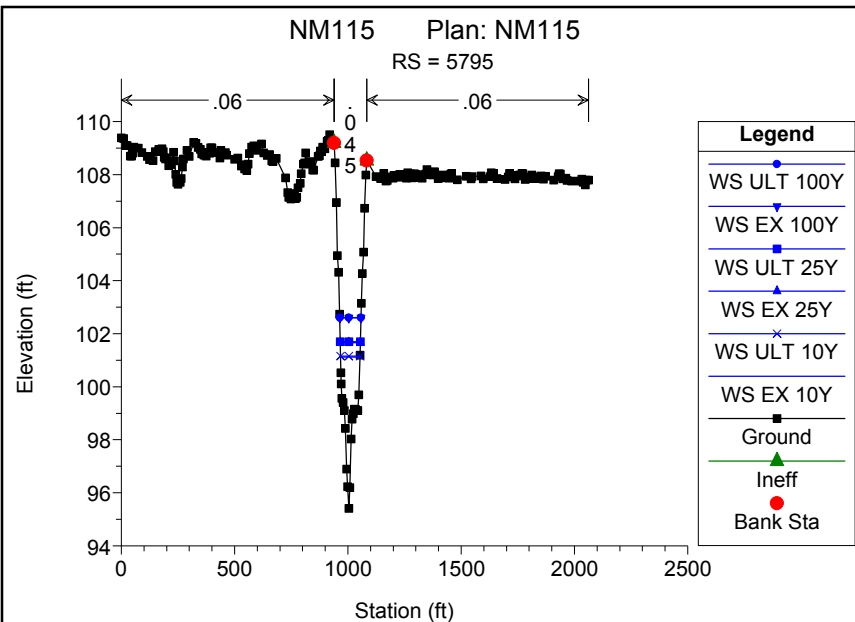


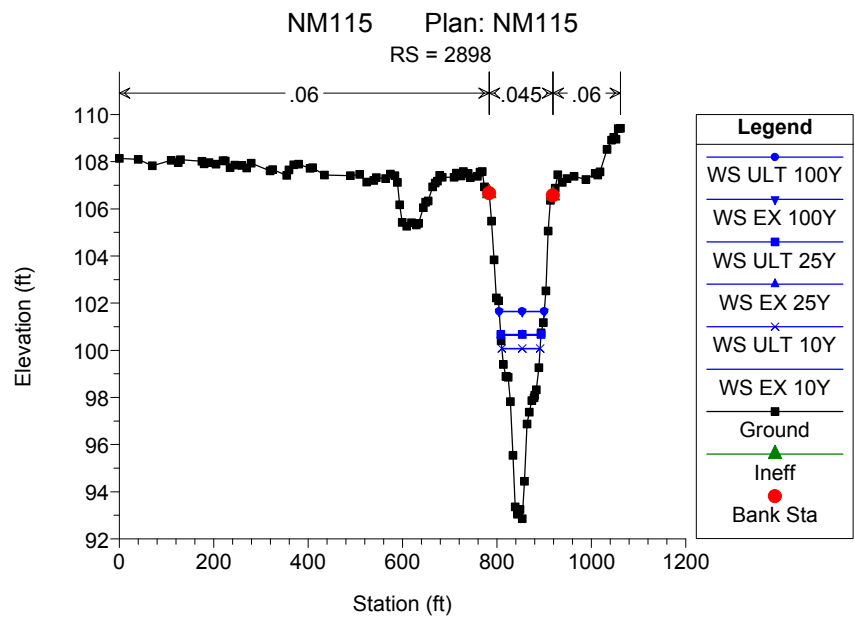
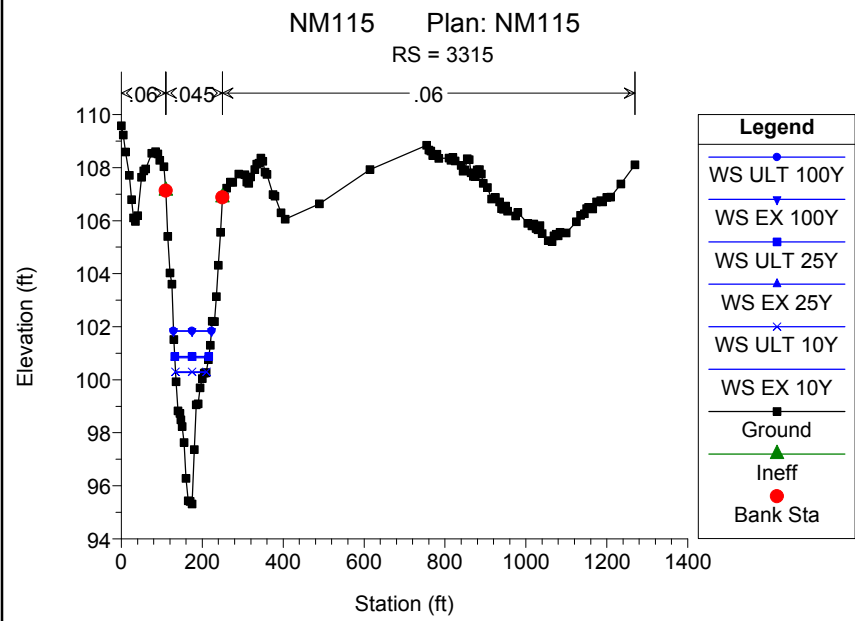
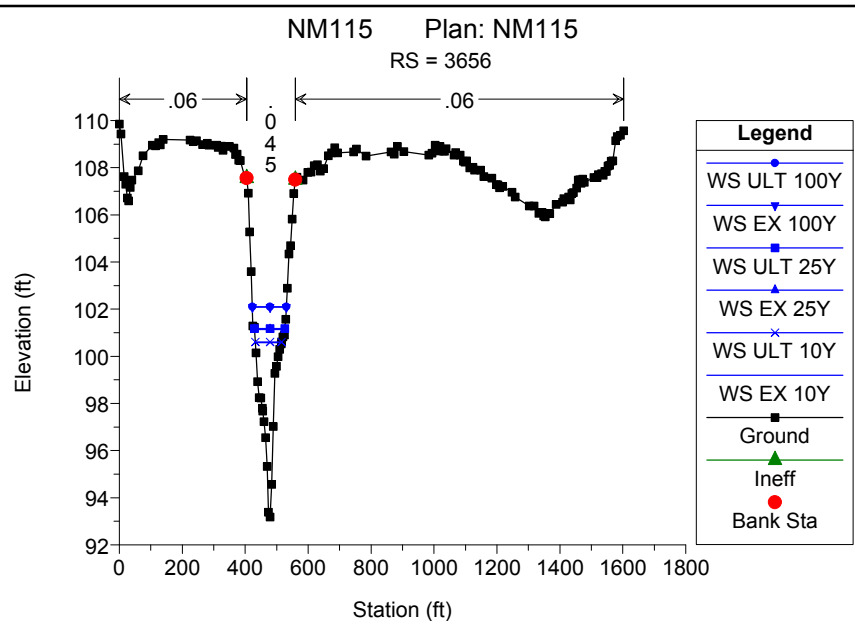
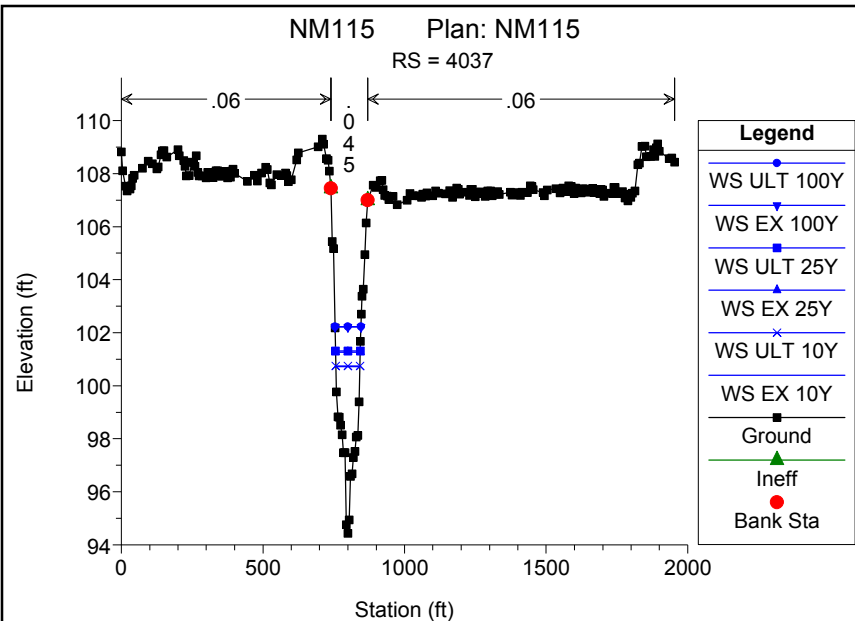


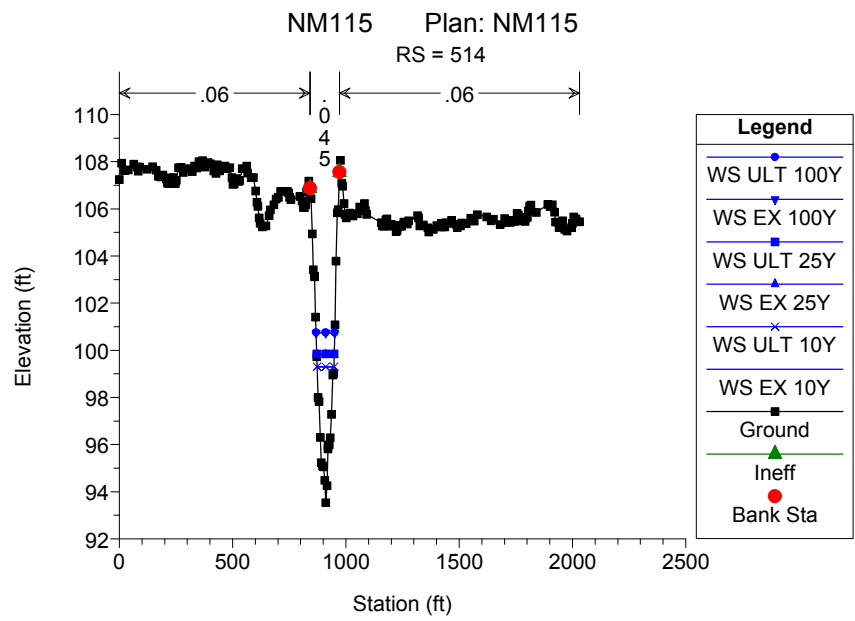
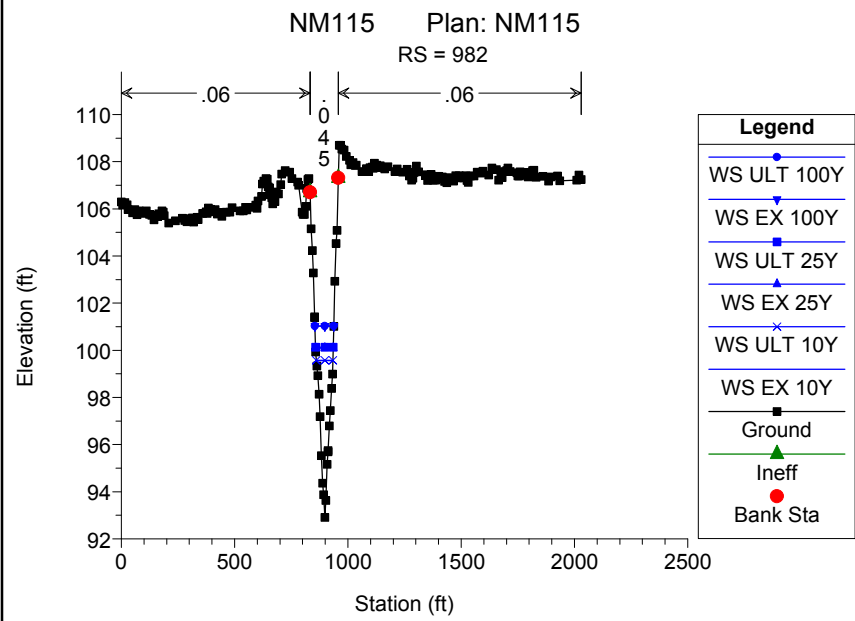
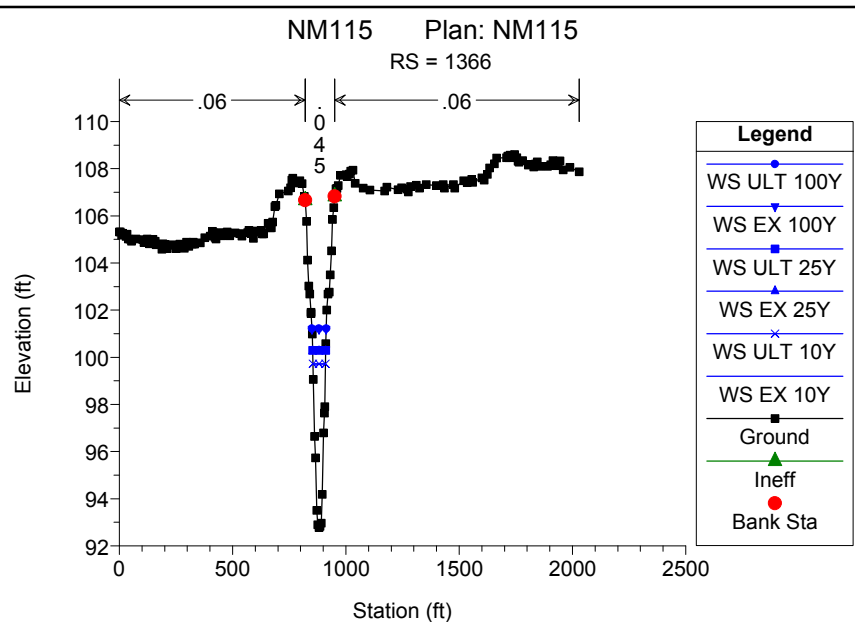
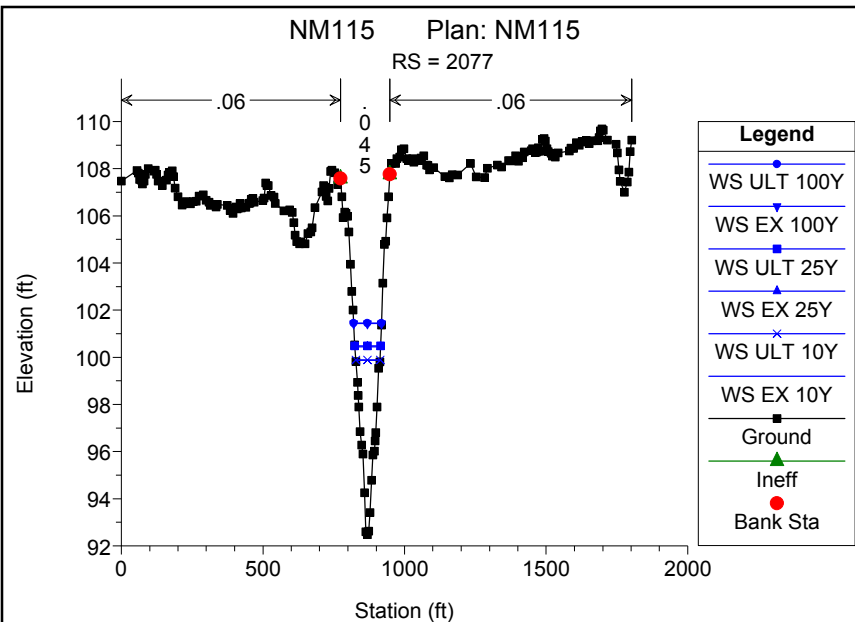












NM115 OUTPUT REPORT.TXT

HEC-RAS Version 4.1.0 Jan 2010
U.S. Army Corps of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

```

X      X  XXXXXXX  XXXX      XXXX      XX      XXXX
X      X  X        X      X      X  X  X  X  X
X      X  X        X      X      X  X  X  X  X
XXXXXXXX XXXX      X      XXX XXXX  XXXXXXX  XXXX
X      X  X        X      X      X  X  X  X  X
X      X  X        X      X      X  X  X  X  X
X      X  XXXXXXX  XXXX      X      X  X  X  XXXXX

```

PROJECT DATA

Project Title: NM115
Project File : NM115.prj

Project in English units

PLAN DATA

Plan Title: NM115
Plan File : K:\2014PROJECTS\COE_MDP_TEDSI\MODEL\APPENDIX C -
HYDRAULICS\NM115\NM115.p01

Geometry Title: NM115
Geometry File : K:\2014PROJECTS\COE_MDP_TEDSI\MODEL\APPENDIX C -
HYDRAULICS\NM115\NM115.g01

Flow Title : NM115 FLOW
Flow File : K:\2014PROJECTS\COE_MDP_TEDSI\MODEL\APPENDIX C -
HYDRAULICS\NM115\NM115.f01

Plan Summary Information:

Number of: Cross Sections	=	36	Multiple Openings	=	0
Culverts	=	0	Inline Structures	=	0
Bridges	=	0	Lateral Structures	=	0

Computational Information

Water surface calculation tolerance	=	0.01
Critical depth calculation tolerance	=	0.01
Maximum number of iterations	=	20
Maximum difference tolerance	=	0.3
Flow tolerance factor	=	0.001

Computation Options

Critical depth computed only where necessary	
Conveyance Calculation Method:	At breaks in n values only
Friction Slope Method:	Average Conveyance
Computational Flow Regime:	Subcritical Flow

NM115 OUTPUT REPORT.TXT

FLOW DATA

Flow Title: NM115 FLOW
 Flow File : K:\2014PROJECTS\COE_MDP_TEDSI\MODEL\APPENDIX C -
 HYDRAULICS\NM115\NM115.f01

Flow Data (cfs)

River EX 100Y	Reach ULT 10Y	RS ULT 25Y	EX 10Y ULT 100Y	EX 25Y
N-NM-115 268	NM-115 150	15505 190	148.7 270	188.9
N-NM-115 508.6	NM-115 290	9251 360	280.2 510	355.1
N-NM-115 646.9	NM-115 360	3656 460	355.5 650	450.3
N-NM-115 707.7	NM-115 390	982 500	387.2 710	491.1

Boundary Conditions

River Downstream	Reach	Profile	Upstream
N-NM-115 Normal S = 0.0006	NM-115	EX 10Y	
N-NM-115 Normal S = 0.0006	NM-115	EX 25Y	
N-NM-115 Normal S = 0.0006	NM-115	EX 100Y	
N-NM-115 Normal S = 0.0006	NM-115	ULT 10Y	

GEOMETRY DATA

Geometry Title: NM115
 Geometry File : K:\2014PROJECTS\COE_MDP_TEDSI\MODEL\APPENDIX C -
 HYDRAULICS\NM115\NM115.g01

CROSS SECTION

RIVER: N-NM-115
 REACH: NM-115 RS: 15505

INPUT

Description:

Station	Elevation	Data	num=	233	Sta	Elev	Sta	Elev	Sta	Elev
0	114.53	5	114.62	14.99	114.44	29.98	114.27	39.97	114.67	
49.97	114.8	89.94	114.59	99.93	114.34	109.92	114.45	119.92	114.72	
139.9	114.57	144.9	114.61	149.9	114.76	164.89	114.58	169.88	114.36	
174.88	114.37	184.87	114.68	194.87	114.8	199.86	115.1	209.85	114.82	
219.85	114.87	224.84	114.97	234.84	114.92	239.83	114.97	244.83	114.56	

NM115 OUTPUT REPORT.TXT

249.83	114.31	279.81	114.53	289.8	114.19	304.79	114.29	314.78	114.18
319.78	114.25	329.77	114.07	339.76	114.34	354.75	114.4	359.75	114.71
364.75	114.83	384.73	114.33	394.73	114.23	399.72	113.93	409.72	113.69
419.71	113.26	434.7	113.55	449.69	113.58	454.69	113.52	459.68	113.65
464.68	113.98	484.66	114.65	494.66	114.67	504.65	114.93	514.64	114.64
539.63	114.3	544.62	114.15	554.62	114.42	579.6	114.27	594.59	113.9
604.58	113.99	614.58	114.38	629.56	114.24	639.56	114.37	644.55	114.35
654.55	114.14	659.54	113.87	669.54	114.11	684.53	114.09	689.52	113.89
704.51	114.36	709.51	114.42	714.51	114.32	729.5	114.4	739.49	114.07
754.48	114.29	764.47	113.93	774.46	114.08	784.46	113.81	799.45	113.87
804.44	114.27	809.44	113.95	814.44	113.88	819.43	113.5	829.43	113.16
839.42	113.16	844.42	113.08	859.41	113.15	869.4	113.71	874.4	113.9
879.39	113.98	894.38	114.47	929.36	114.99	964.33	114.93	969.33	114.86
974.33	114.68	984.32	113.93	989.32	113.66	994.31	113.09	999.31	112.71
1004.31	112.62	1009.3	112.71	1014.3	112.55	1019.3	111.41	1024.29	110.43
1029.29	109.47	1034.29	107.05	1039.25	104.89	1039.28	104.88	1044.28	103.53
1049.27	103.14	1054.27	103	1059.27	102.65	1064.26	102.38	1069.26	102.1
1074.26	101.34	1079.25	99.05	1084.25	98.35	1089.25	99.02	1094.24	99.59
1099.24	101.41	1099.26	101.42	1104.24	101.88	1109.23	102.03	1114.23	102.08
1119.23	102.44	1124.22	103.49	1129.22	105.34	1134.22	107.13	1139.21	107.52
1144.21	109.84	1149.2	112.18	1154.2	113.21	1159.2	113.23	1169.19	112.69
1179.18	112.76	1184.18	113.12	1194.17	113.43	1219.16	113.27	1224.15	113.32
1229.15	113.17	1234.15	113.12	1239.14	113.25	1244.14	113.13	1264.12	113.1
1269.12	112.8	1274.12	112.77	1279.11	112.44	1284.11	112.25	1299.1	112.15
1304.1	112.22	1314.09	112.63	1319.09	112.66	1324.08	113.1	1329.08	113.35
1334.08	113.49	1409.02	113.27	1414.02	113.09	1419.02	112.38	1424.01	112.04
1439	113.08	1449	113.47	1453.99	113.9	1458.99	114.15	1463.98	114.13
1468.98	113.97	1473.98	113.92	1478.97	114.07	1508.95	113.78	1513.95	113.84
1523.94	114.2	1528.94	114.27	1538.93	114.11	1548.93	113.67	1558.92	113.66
1563.92	113.37	1568.91	113.31	1583.9	113.54	1588.9	113.41	1598.89	113.39
1613.88	112.75	1618.88	112.78	1623.87	112.65	1628.87	112.72	1653.85	112.4
1663.85	112.39	1668.84	112.31	1678.84	112.45	1683.83	112.44	1688.83	112.62
1693.82	112.99	1698.82	113.08	1703.82	113.06	1708.81	113.18	1713.81	112.9
1728.8	112.81	1733.8	112.91	1738.79	113.11	1743.79	113.08	1778.77	113.67
1783.76	113.52	1788.76	113.48	1798.75	113.13	1803.75	112.83	1808.74	112.76
1813.74	112.36	1818.74	112.2	1828.73	112.14	1843.72	112.38	1853.71	112.63
1858.71	112.85	1863.71	113.24	1868.7	113.74	1878.7	114.02	1883.69	114.28
1893.69	114.07	1903.68	114.3	1958.64	114.4	1963.64	114.32	1973.63	113.7
1983.62	113.33	1988.62	112.7	1993.62	111.73	1998.61	111.34	2008.61	110.88
2013.6	111.27	2023.6	111.64	2033.59	112.35	2038.58	112.79	2043.58	112.96
2048.58	113.03	2058.57	113.37	2068.56	113.55	2078.56	114.12	2083.55	114.3
2098.54	114.47	2118.53	114.21	2138.51	114.19				

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 1014.3 .045 1154.2 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 1014.3 1154.2 417 417 417 .1 .3
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 1014.3 112.55 F
 1154.2 2138.51 113.21 F

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft) 104.27 Element Left OB Channel
 Right OB
 Vel Head (ft) 0.01 wt. n-val. 0.045
 W.S. Elev (ft) 104.26 Reach Len. (ft) 417.00 417.00
 417.00

NM115 OUTPUT REPORT.TXT				
Crit w.s. (ft)	100.32	Flow Area (sq ft)		222.56
E.G. Slope (ft/ft)	0.000116	Area (sq ft)		222.56
Q Total (cfs)	148.70	Flow (cfs)		148.70
Top width (ft)	84.72	Top width (ft)		84.72
Vel Total (ft/s)	0.67	Avg. Vel. (ft/s)		0.67
Max Chl Dpth (ft)	5.91	Hydr. Depth (ft)		2.63
Conv. Total (cfs)	13835.6	Conv. (cfs)		13835.6
Length wtd. (ft)	417.00	wetted Per. (ft)		86.16
Min Ch El (ft)	98.35	Shear (lb/sq ft)		0.02
Alpha	1.00	Stream Power (lb/ft s)	2138.51	0.00
0.00				
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)		73.35
C & E Loss (ft)	0.00	Cum SA (acres)		24.87

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	104.69	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	104.68	Reach Len. (ft)	417.00	417.00
417.00				
Crit w.s. (ft)	100.55	Flow Area (sq ft)		259.04
E.G. Slope (ft/ft)	0.000117	Area (sq ft)		259.04
Q Total (cfs)	188.90	Flow (cfs)		188.90
Top width (ft)	87.44	Top width (ft)		87.44
Vel Total (ft/s)	0.73	Avg. Vel. (ft/s)		0.73
Max Chl Dpth (ft)	6.33	Hydr. Depth (ft)		2.96
Conv. Total (cfs)	17435.9	Conv. (cfs)		17435.9
Length wtd. (ft)	417.00	wetted Per. (ft)		89.00
Min Ch El (ft)	98.35	Shear (lb/sq ft)		0.02
Alpha	1.00	Stream Power (lb/ft s)	2138.51	0.00
0.00				
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)		86.91
C & E Loss (ft)	0.00	Cum SA (acres)		26.68

NM115 OUTPUT REPORT.TXT

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	105.43	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	105.42	Reach Len. (ft)	417.00	417.00
417.00 Crit w.s. (ft)	100.94	Flow Area (sq ft)		324.51
E.G. Slope (ft/ft)	0.000119	Area (sq ft)		324.51
Q Total (cfs)	268.00	Flow (cfs)		268.00
Top width (ft)	91.39	Top width (ft)		91.39
Vel Total (ft/s)	0.83	Avg. Vel. (ft/s)		0.83
Max Chl Dpth (ft)	7.07	Hydr. Depth (ft)		3.55
Conv. Total (cfs)	24612.7	Conv. (cfs)		24612.7
Length wtd. (ft)	417.00	wetted Per. (ft)		93.22
Min Ch El (ft)	98.35	Shear (lb/sq ft)		0.03
Alpha	1.00	Stream Power (lb/ft s)	2138.51	0.00
0.00 Frctn Loss (ft)	0.05	Cum Volume (acre-ft)		112.48
C & E Loss (ft)	0.00	Cum SA (acres)		29.12

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	104.29	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	104.28	Reach Len. (ft)	417.00	417.00
417.00 Crit w.s. (ft)	100.33	Flow Area (sq ft)		224.30
E.G. Slope (ft/ft)	0.000115	Area (sq ft)		224.30
Q Total (cfs)	150.00	Flow (cfs)		150.00
Top width (ft)	84.86	Top width (ft)		84.86
Vel Total (ft/s)	0.67	Avg. Vel. (ft/s)		0.67

NM115 OUTPUT REPORT.TXT

Max Chl Dpth (ft)	5.93	Hydr. Depth (ft)	2.64
Conv. Total (cfs)	14001.4	Conv. (cfs)	14001.4
Length wtd. (ft)	417.00	wetted Per. (ft)	86.29
Min Ch El (ft)	98.35	Shear (lb/sq ft)	0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	2138.51
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	74.30
C & E Loss (ft)	0.00	Cum SA (acres)	25.07

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	104.71	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	104.70	Reach Len. (ft)	417.00	417.00
417.00 Crit w.s. (ft)	100.56	Flow Area (sq ft)		260.25
E.G. Slope (ft/ft)	0.000117	Area (sq ft)		260.25
Q Total (cfs)	190.00	Flow (cfs)		190.00
Top width (ft)	87.53	Top width (ft)		87.53
Vel Total (ft/s)	0.73	Avg. Vel. (ft/s)		0.73
Max Chl Dpth (ft)	6.35	Hydr. Depth (ft)		2.97
Conv. Total (cfs)	17560.4	Conv. (cfs)		17560.4
Length wtd. (ft)	417.00	wetted Per. (ft)		89.10
Min Ch El (ft)	98.35	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	2138.51	0.00
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)		87.86
C & E Loss (ft)	0.00	Cum SA (acres)		26.77

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

NM115 OUTPUT REPORT.TXT

	105.44	Element	Left OB	Channel
E.G. Elev (ft)				
Right OB				
Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	105.43	Reach Len. (ft)	417.00	417.00
417.00				
Crit w.s. (ft)	100.95	Flow Area (sq ft)		325.80
E.G. slope (ft/ft)	0.000119	Area (sq ft)		325.80
Q Total (cfs)	270.00	Flow (cfs)		270.00
Top width (ft)	91.46	Top width (ft)		91.46
Vel Total (ft/s)	0.83	Avg. Vel. (ft/s)		0.83
Max Chl Dpth (ft)	7.08	Hydr. Depth (ft)		3.56
Conv. Total (cfs)	24762.8	Conv. (cfs)		24762.8
Length wtd. (ft)	417.00	Wetted Per. (ft)		93.29
Min Ch El (ft)	98.35	Shear (lb/sq ft)		0.03
Alpha	1.00	Stream Power (lb/ft s)	2138.51	0.00
0.00				
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)		112.80
C & E Loss (ft)	0.00	Cum SA (acres)		29.15

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-115
 REACH: NM-115 RS: 15088

INPUT
 Description:

Station Elevation Data		num= 211	
Sta	Elev	Sta	Elev
0	114.73	24.98	114.48
59.96	114.59	74.95	113.78
94.93	113.71	99.93	114.28
124.91	114.41	134.91	114.85
179.88	115.03	184.87	114.76
214.85	114.03	224.84	113.64
274.81	114.12	289.8	114.14
324.78	114.08	329.77	114.31
369.74	114	379.74	113.38
404.72	114.09	419.71	114.71
444.69	114.96	454.69	114.82
499.65	114.2	504.65	113.74
549.62	113.18	554.62	113.38
624.57	114.63	654.55	114.64
679.53	114.11	684.53	113.64
714.51	114.33	724.5	114.68
754.48	114.82	759.47	114.79

NM115 OUTPUT REPORT.TXT

799.45	114.23	809.44	114.12	814.44	113.96	819.43	113.56	824.43	113.56
829.43	113.19	834.42	113.17	839.42	112.99	844.42	112.99	849.41	113.09
854.41	113.06	859.41	113.37	864.4	113.39	869.4	113.75	884.39	113.68
889.39	114.01	899.38	114.15	909.37	113.96	914.37	114.11	934.35	114.19
944.35	114.39	949.34	114.38	959.34	114.19	964.33	114.01	974.33	113.82
979.32	113.53	984.32	113.41	989.32	113.1	999.31	112.84	1004.31	112.82
1009.3	112.37	1014.3	112.11	1019.3	111.61	1024.29	110.3	1029.29	108.16
1034.29	107.06	1039.25	105.67	1039.28	105.67	1044.28	104.03	1049.27	103.18
1054.27	102.89	1059.27	102.63	1064.26	102.19	1069.26	101.72	1074.26	100.75
1079.25	99.93	1084.25	99.3	1089.25	99.15	1094.24	100.4	1099.24	101.06
1099.26	101.06	1104.24	101.31	1109.23	101.88	1114.23	102.47	1119.23	102.91
1124.22	103.49	1129.22	105.12	1134.22	107.19	1139.21	108.57	1144.21	109.5
1149.2	111.63	1154.2	112.65	1159.2	112.58	1164.19	112.28	1174.19	112.04
1189.18	112.3	1194.17	112.61	1199.17	112.7	1204.17	112.6	1209.16	112.68
1219.16	113.46	1224.15	113.27	1229.15	113.28	1234.15	113.4	1239.14	113.37
1249.13	112.83	1274.12	112.75	1284.11	112.92	1309.09	112.64	1319.09	112.63
1324.08	112.47	1334.08	112.5	1339.07	112.41	1344.07	112.49	1359.06	112.29
1364.05	112.08	1379.04	111.86	1424.01	111.94	1429.01	111.8	1434.01	111.87
1444	111.76	1468.98	111.86	1473.98	112.05	1483.97	112.11	1488.97	112.02
1493.96	112.12	1518.95	111.99	1528.94	112.11	1598.89	111.78	1638.86	111.87
1663.85	112.03	1683.83	112.03	1688.83	112.2	1708.81	112.14	1713.81	112
1723.8	111.99	1728.8	112.17	1743.79	112.14	1748.79	112.02	1763.78	112.11
1788.76	112.07	1883.69	112.01	1893.69	112.16	1903.68	112.11	1908.67	112
1923.66	112.11	1943.65	112.03	1953.64	111.88	1958.64	111.92	1968.63	111.78
1993.62	111.84	2033.59	111.78	2078.56	111.96	2118.53	111.87	2128.52	111.96
2138.51	111.87								

Manning's n Values num= 3
 Sta n Val Sta n Val
 0 .06 1019.3 .045 1149.2 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 1019.3 1149.2 493 493 493 .1 .3
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 1019.3 111.61 F
 1149.2 2138.51 111.63 F

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	104.21	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.045
w.s. Elev (ft)	104.21	Reach Len. (ft)	493.00	493.00
493.00 Crit w.s. (ft)	100.97	Flow Area (sq ft)		209.60
E.G. Slope (ft/ft)	0.000135	Area (sq ft)		209.60
Q Total (cfs)	148.70	Flow (cfs)		148.70
Top width (ft)	82.68	Top width (ft)		82.68
Vel Total (ft/s)	0.71	Avg. Vel. (ft/s)		0.71
Max chl Dpth (ft)	5.06	Hydr. Depth (ft)		2.54
Conv. Total (cfs)	12785.7	Conv. (cfs)		12785.7
Length wtd. (ft)	493.00	wetted Per. (ft)		83.47

NM115 OUTPUT REPORT.TXT				
Min Ch El (ft)	99.15	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	2138.51	0.00
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)		71.29
C & E Loss (ft)	0.00	Cum SA (acres)		24.07

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	104.64	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-val.		0.045
W.S. Elev (ft)	104.63	Reach Len. (ft)	493.00	493.00
493.00 Crit w.s. (ft)	101.19	Flow Area (sq ft)		245.14
E.G. Slope (ft/ft)	0.000135	Area (sq ft)		245.14
Q Total (cfs)	188.90	Flow (cfs)		188.90
Top width (ft)	85.27	Top width (ft)		85.27
Vel Total (ft/s)	0.77	Avg. Vel. (ft/s)		0.77
Max Chl Dpth (ft)	5.48	Hydr. Depth (ft)		2.87
Conv. Total (cfs)	16248.0	Conv. (cfs)		16248.0
Length wtd. (ft)	493.00	wetted Per. (ft)		86.20
Min Ch El (ft)	99.15	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	2138.51	0.00
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)		84.50
C & E Loss (ft)	0.00	Cum SA (acres)		25.85

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	105.37	Element	Left OB	Channel
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NM115 OUTPUT REPORT.TXT

Right OB				
Vel Head (ft)	0.01	Wt. n-Val.		0.045
W.S. Elev (ft)	105.36	Reach Len. (ft)	493.00	493.00
493.00				
Crit W.S. (ft)	101.52	Flow Area (sq ft)		309.10
E.G. Slope (ft/ft)	0.000135	Area (sq ft)		309.10
Q Total (cfs)	268.00	Flow (cfs)		268.00
Top width (ft)	89.58	Top width (ft)		89.58
Vel Total (ft/s)	0.87	Avg. Vel. (ft/s)		0.87
Max Chl Dpth (ft)	6.21	Hydr. Depth (ft)		3.45
Conv. Total (cfs)	23104.3	Conv. (cfs)		23104.3
Length wtd. (ft)	493.00	wetted Per. (ft)		90.76
Min ch El (ft)	99.15	Shear (lb/sq ft)		0.03
Alpha	1.00	Stream Power (lb/ft s)	2138.51	0.00
0.00				
Frctn Loss (ft)	0.11	Cum Volume (acre-ft)		109.45
C & E Loss (ft)	0.00	Cum SA (acres)		28.26

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	104.24	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	Wt. n-Val.		0.045
W.S. Elev (ft)	104.23	Reach Len. (ft)	493.00	493.00
493.00				
Crit W.S. (ft)	100.98	Flow Area (sq ft)		211.33
E.G. Slope (ft/ft)	0.000134	Area (sq ft)		211.33
Q Total (cfs)	150.00	Flow (cfs)		150.00
Top width (ft)	82.81	Top width (ft)		82.81
Vel Total (ft/s)	0.71	Avg. Vel. (ft/s)		0.71
Max Chl Dpth (ft)	5.08	Hydr. Depth (ft)		2.55
Conv. Total (cfs)	12948.1	Conv. (cfs)		12948.1
Length wtd. (ft)	493.00	wetted Per. (ft)		83.61

NM115 OUTPUT REPORT.TXT				
Min Ch El (ft)	99.15	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	2138.51	0.00
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)		72.21
C & E Loss (ft)	0.00	Cum SA (acres)		24.26

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	104.65	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-val.		0.045
W.S. Elev (ft)	104.64	Reach Len. (ft)	493.00	493.00
493.00 Crit w.s. (ft)	101.20	Flow Area (sq ft)		246.34
E.G. Slope (ft/ft)	0.000135	Area (sq ft)		246.34
Q Total (cfs)	190.00	Flow (cfs)		190.00
Top width (ft)	85.35	Top width (ft)		85.35
Vel Total (ft/s)	0.77	Avg. Vel. (ft/s)		0.77
Max Chl Dpth (ft)	5.49	Hydr. Depth (ft)		2.89
Conv. Total (cfs)	16369.6	Conv. (cfs)		16369.6
Length wtd. (ft)	493.00	wetted Per. (ft)		86.29
Min Ch El (ft)	99.15	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	2138.51	0.00
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)		85.44
C & E Loss (ft)	0.00	Cum SA (acres)		25.95

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	105.39	Element	Left OB	Channel
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NM115 OUTPUT REPORT.TXT

Right OB				
Vel Head (ft)	0.01	wt. n-val.		0.045
W.S. Elev (ft)	105.38	Reach Len. (ft)	493.00	493.00
493.00				
Crit w.s. (ft)	101.53	Flow Area (sq ft)		310.35
E.G. slope (ft/ft)	0.000135	Area (sq ft)		310.35
Q Total (cfs)	270.00	Flow (cfs)		270.00
Top width (ft)	89.66	Top width (ft)		89.66
Vel Total (ft/s)	0.87	Avg. Vel. (ft/s)		0.87
Max chl Dpth (ft)	6.23	Hydr. Depth (ft)		3.46
Conv. Total (cfs)	23247.0	Conv. (cfs)		23247.0
Length wtd. (ft)	493.00	wetted Per. (ft)		90.84
Min ch El (ft)	99.15	shear (lb/sq ft)		0.03
Alpha	1.00	Stream Power (lb/ft s)	2138.51	0.00
0.00				
Frctn Loss (ft)	0.11	Cum Volume (acre-ft)		109.75
C & E Loss (ft)	0.00	Cum SA (acres)		28.28

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-115
 REACH: NM-115

RS: 14595

INPUT

Description:

Station	Elevation	Data	num=	219
Sta	Elev	Sta	Elev	Sta
0	113.57	9.99	113.49	34.98
94.93	113.26	109.92	113.31	154.89
184.87	113.41	194.87	113.61	214.85
234.84	113.38	254.82	113.3	259.82
284.8	113.42	289.8	113.46	294.8
319.78	113.28	324.78	113.13	329.77
349.76	113.16	359.75	113.21	374.74
404.72	113.28	424.71	113.13	444.69
489.66	112.42	494.66	112.65	499.65
524.64	112.43	529.63	112.58	539.63
589.59	113.99	594.59	114.12	599.59
614.58	114.08	619.57	113.92	624.57
649.55	114.12	664.54	114.08	669.54
689.52	114.14	704.51	114.04	714.51
749.48	113.98	759.47	113.96	764.47
				114.2
				734.49
				113.98
				774.49
				113.81
				774.46
				113.45

NM115 OUTPUT REPORT.TXT

779.46	113.47	784.46	113.24	789.45	112.8	799.45	113.06	804.44	113.05
809.44	113.3	834.42	113.42	839.42	113.28	854.41	113.35	859.41	113.11
864.4	113.08	869.4	112.68	879.39	112.71	884.39	112.87	974.33	113.26
984.32	113.04	989.32	112.37	994.31	110.62	999.31	108.3	1004.31	107.27
1009.3	106.14	1012.32	105.37	1014.3	104.86	1019.3	104.16	1024.29	103.87
1029.29	103.57	1034.29	103.13	1039.28	102.51	1044.28	102.09	1049.27	101.13
1054.27	99.2	1059.27	99.23	1064.26	101.3	1069.26	102.31	1072.33	102.5
1074.26	102.61	1079.25	103.28	1084.25	103.94	1089.25	104.29	1094.24	104.61
1099.24	105.65	1104.24	107.14	1109.23	108.26	1114.23	109.02	1119.23	110.94
1124.22	111.99	1129.22	112.07	1139.21	111.87	1149.2	112.12	1154.2	112.34
1164.19	112.39	1169.19	112.69	1174.19	112.82	1179.18	112.79	1224.15	113.11
1229.15	113.21	1244.14	113.31	1249.13	113.5	1254.13	113.87	1279.11	113.55
1284.11	113.55	1299.1	113.19	1304.1	113.19	1309.09	112.97	1314.09	113.16
1319.09	112.98	1324.08	112.51	1329.08	112.48	1334.08	112.25	1339.07	112.28
1344.07	112.63	1354.06	112.85	1374.05	112.93	1379.04	113.29	1394.03	113.67
1399.03	113.64	1409.02	113.86	1458.99	113.74	1463.98	113.61	1473.98	113.62
1478.97	113.52	1483.97	113.16	1488.97	112.92	1503.96	112.94	1508.95	112.58
1513.95	112.35	1518.95	112.36	1523.94	112.5	1528.94	112.76	1533.94	112.8
1538.93	112.69	1553.92	112.93	1558.92	112.93	1573.91	113.37	1588.9	113.23
1613.88	113.58	1623.87	113.25	1638.86	113.31	1643.86	113.43	1653.85	113.31
1658.85	113.48	1673.84	113.53	1678.84	113.46	1683.83	113.53	1698.82	113.42
1703.82	113.24	1713.81	113.16	1718.81	113.04	1723.8	113.11	1728.8	113.41
1733.8	113.39	1738.79	112.93	1743.79	112.87	1748.79	113.02	1768.77	113.16
1773.77	113.29	1783.76	113.36	1788.76	113.66	1843.72	113.7	1863.71	113.92
1888.69	113.96	1893.69	113.84	1903.68	113.93	1913.67	114.35	1923.66	114.2
1928.66	114.02	1948.65	114.09	1953.64	114.23	1963.64	114.12	1968.63	114.17
1978.63	114.02	1988.62	114.14	2023.6	113.82	2038.58	113.78	2048.58	114.03
2058.57	114.04	2068.56	113.68	2078.56	113.68	2088.55	113.56	2098.54	113.59
2108.54	113.83	2118.53	113.76	2123.53	113.8	2138.51	114.14		

Manning's n Values num= 3
 Sta n Val Sta n Val
 0 .06 989.32 .045 1124.22 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 989.32 1124.22 351 351 351 .1 .3
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 989.32 112.37 F
 1124.22 2138.51 111.99 F

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	104.09	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	wt. n-Val.		0.045
w.s. Elev (ft)	104.07	Reach Len. (ft)	351.00	351.00
351.00				
Crit w.s. (ft)	101.37	Flow Area (sq ft)		123.17
E.G. Slope (ft/ft)	0.000586	Area (sq ft)		123.17
Q Total (cfs)	148.70	Flow (cfs)		148.70
Top width (ft)	65.22	Top width (ft)		65.22
Vel Total (ft/s)	1.21	Avg. Vel. (ft/s)		1.21
Max chl Dpth (ft)	4.87	Hydr. Depth (ft)		1.89
Conv. Total (cfs)	6141.1	Conv. (cfs)		6141.1

NM115 OUTPUT REPORT.TXT

Length Wtd. (ft)	351.00	Wetted Per. (ft)	66.38
Min Ch El (ft)	99.20	Shear (lb/sq ft)	0.07
Alpha 0.00	1.00	Stream Power (lb/ft s)	2138.51
Frctn Loss (ft)	0.15	Cum Volume (acre-ft)	69.40
C & E Loss (ft)	0.00	Cum SA (acres)	23.23

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	104.52	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-Val.		0.045
W.S. Elev (ft)	104.49	Reach Len. (ft)	351.00	351.00
351.00 Crit w.s. (ft)	101.67	Flow Area (sq ft)		153.28
E.G. Slope (ft/ft)	0.000554	Area (sq ft)		153.28
Q Total (cfs)	188.90	Flow (cfs)		188.90
Top width (ft)	75.54	Top width (ft)		75.54
Vel Total (ft/s)	1.23	Avg. Vel. (ft/s)		1.23
Max Chl Dpth (ft)	5.29	Hydr. Depth (ft)		2.03
Conv. Total (cfs)	8027.4	Conv. (cfs)		8027.4
Length Wtd. (ft)	351.00	Wetted Per. (ft)		76.73
Min Ch El (ft)	99.20	Shear (lb/sq ft)		0.07
Alpha 0.00	1.00	Stream Power (lb/ft s)	2138.51	0.00
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)		82.24
C & E Loss (ft)	0.00	Cum SA (acres)		24.94

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	105.26	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-Val.		0.045

NM115 OUTPUT REPORT.TXT				
W.S. Elev (ft)	105.24	Reach Len. (ft)	351.00	351.00
351.00 Crit W.S. (ft)	102.13	Flow Area (sq ft)		213.33
E.G. Slope (ft/ft)	0.000429	Area (sq ft)		213.33
Q Total (cfs)	268.00	Flow (cfs)		268.00
Top width (ft)	84.43	Top width (ft)		84.43
Vel Total (ft/s)	1.26	Avg. Vel. (ft/s)		1.26
Max Chl Dpth (ft)	6.04	Hydr. Depth (ft)		2.53
Conv. Total (cfs)	12932.0	Conv. (cfs)		12932.0
Length wtd. (ft)	351.00	wetted Per. (ft)		85.77
Min ch El (ft)	99.20	Shear (lb/sq ft)		0.07
Alpha 0.00	1.00	Stream Power (lb/ft s)	2138.51	0.00
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)		106.49
C & E Loss (ft)	0.00	Cum SA (acres)		27.27

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

Profile #ULT 10Y				
E.G. Elev (ft)	104.11	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-Val.		0.045
W.S. Elev (ft)	104.09	Reach Len. (ft)	351.00	351.00
351.00 Crit W.S. (ft)	101.38	Flow Area (sq ft)		124.61
E.G. Slope (ft/ft)	0.000582	Area (sq ft)		124.61
Q Total (cfs)	150.00	Flow (cfs)		150.00
Top width (ft)	65.92	Top width (ft)		65.92
Vel Total (ft/s)	1.20	Avg. Vel. (ft/s)		1.20
Max Chl Dpth (ft)	4.89	Hydr. Depth (ft)		1.89
Conv. Total (cfs)	6218.1	Conv. (cfs)		6218.1
Length wtd. (ft)	351.00	wetted Per. (ft)		67.07
Min ch El (ft)	99.20	Shear (lb/sq ft)		0.07
Alpha 0.00	1.00	Stream Power (lb/ft s)	2138.51	0.00
Frctn Loss (ft)	0.15	Cum Volume (acre-ft)		70.31

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Vel Total (ft/s)	1.26	Avg. Vel. (ft/s)	1.26
Max Chl Dpth (ft)	6.05	Hydr. Depth (ft)	2.54
Conv. Total (cfs)	13038.1	Conv. (cfs)	13038.1
Length Wtd. (ft)	351.00	Wetted Per. (ft)	85.89
Min ch El (ft)	99.20	Shear (lb/sq ft)	0.07
Alpha 0.00	1.00	Stream Power (lb/ft s)	2138.51 0.00
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)	106.78
C & E Loss (ft)	0.00	Cum SA (acres)	27.30

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-115
REACH: NM-115

RS: 14243

INPUT

Description:

Station	Elevation	Data	num=	197							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	115.42	9.99	115.52	19.99	115.28	24.98	115.24	29.98	115		
39.97	114.29	44.97	114.01	54.96	114.07	59.96	113.9	89.94	113.72		
99.93	113.56	104.93	112.66	114.92	112.44	134.91	112.47	139.9	112.59		
144.9	112.32	154.89	112.2	164.89	112.27	169.88	112.44	179.88	112.41		
209.85	112.65	219.85	112.54	239.83	112.61	269.81	112.29	279.81	112.42		
299.79	112.37	309.79	112.49	324.78	112.34	344.76	112.54	364.75	112.21		
379.74	112.38	404.72	112.22	414.71	112.05	419.71	112.07	429.7	112.38		
444.69	112.56	449.69	112.76	454.69	112.86	464.68	112.83	474.67	113.09		
479.67	113.09	484.66	112.9	489.66	112.3	494.66	111.97	499.65	111.85		
504.65	111.98	509.65	112	514.64	112.2	534.63	112.24	539.63	112.05		
549.62	112.14	554.62	112.4	579.6	112.61	584.6	112.76	594.59	112.79		
604.58	113.12	619.57	113.16	624.57	113.68	629.56	114.01	634.56	114.05		
649.55	114.58	654.55	114.59	659.54	114.74	664.54	114.51	719.5	114.46		
724.5	114.4	734.49	115.2	739.49	115.29	794.45	115.12	809.44	115.17		
824.43	115.14	834.42	115.24	894.38	114.9	899.38	114.78	909.37	114.21		
914.37	114.12	929.36	113.21	934.35	113.01	939.35	112.94	949.34	112.47		
959.34	112.22	964.33	111.99	974.33	112.18	984.32	112.16	989.32	111.98		
1004.31	112.13	1009.3	111.84	1014.3	111.32	1019.3	111.08	1024.29	109.3		
1029.29	107.42	1034.29	105.32	1039.28	103.82	1040.24	103.79	1044.28	103.69		
1049.27	102.88	1054.27	102.56	1059.27	102.27	1064.26	102.25	1069.26	101.41		
1074.26	99.26	1079.25	97.88	1084.25	97.97	1089.25	101.98	1094.24	102.64		
1099.24	102.91	1100.25	102.92	1104.24	102.96	1109.23	103.5	1114.23	104.37		
1119.23	105.95	1124.22	107.89	1129.22	108.06	1134.22	109.93	1139.21	111.8		
1144.21	112.59	1164.19	112.94	1174.19	113	1189.18	112.87	1194.17	113.17		
1199.17	113.27	1234.15	113.16	1239.14	112.99	1264.12	113.22	1269.12	113.41		
1279.11	113.63	1284.11	114.04	1289.11	114.3	1304.1	114.3	1349.07	113.88		
1359.06	113.94	1369.05	113.3	1379.04	113.4	1384.04	113.32	1389.04	113.36		
1404.03	113.9	1493.96	113.96	1498.96	113.66	1503.96	113.54	1513.95	113.51		
1518.95	113.3	1523.94	113.41	1533.94	113.47	1538.93	114.13	1543.93	114.39		
1548.93	114.17	1563.92	114.05	1573.91	114.65	1578.9	114.67	1583.9	115.2		

NM115 OUTPUT REPORT.TXT

1593.89	115.48	1598.89	115.5	1603.89	115.4	1638.86	115.52	1643.86	115.37
1673.84	115.32	1683.83	115.19	1693.82	114.47	1698.82	114.21	1703.82	114.14
1708.81	113.97	1713.81	113.94	1723.8	114.38	1728.8	114.72	1738.79	114.97
1743.79	114.82	1748.79	114.55	1753.78	114.4	1803.75	114.32	1813.74	114.48
1853.71	114.31	1863.71	113.94	1868.7	113.6	1873.7	113.02	1878.7	112.78
1883.69	112.7	1888.69	112.84	1893.69	113.08	1908.67	113.11	1923.66	113.36
1928.66	113.52	1938.65	113.4	1948.65	113.8	1953.64	113.82	1968.63	113.58
1973.63	113.62	1978.63	113.83	1983.62	113.9	1993.62	113.81	1998.61	113.84
2008.61	114.43	2018.6	114.58	2023.6	114.87	2043.58	114.63	2058.57	114.69
2108.54	114.83	2138.51	114.57						

Manning's n Values	num=	3
Sta n Val	Sta n Val	Sta n Val
0 .06 1019.3	.045 1139.21	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.	Expan.
1019.3	1139.21	390	390	390	.1	.3	
Ineffective Flow	num=	2					
Sta L Sta R Elev	Permanent						
0 1019.3 111.08	F						
1139.21 2138.51 111.8	F						

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	103.94	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	wt. n-val.		0.045
w.s. Elev (ft)	103.92	Reach Len. (ft)	390.00	390.00
390.00				
Crit w.s. (ft)	100.05	Flow Area (sq ft)		153.42
E.G. slope (ft/ft)	0.000332	Area (sq ft)		153.42
Q Total (cfs)	148.70	Flow (cfs)		148.70
Top width (ft)	72.72	Top width (ft)		72.72
Vel Total (ft/s)	0.97	Avg. vel. (ft/s)		0.97
Max Chl Dpth (ft)	6.04	Hydr. Depth (ft)		2.11
Conv. Total (cfs)	8160.3	Conv. (cfs)		8160.3
Length wtd. (ft)	390.00	wetted Per. (ft)		75.05
Min Ch El (ft)	97.88	Shear (lb/sq ft)		0.04
Alpha	1.00	Stream Power (lb/ft s)	2138.51	0.00
0.00				
Frctn Loss (ft)	0.12	Cum volume (acre-ft)		68.29
C & E Loss (ft)	0.00	Cum SA (acres)		22.68

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

NM115 OUTPUT REPORT.TXT

E.G. Elev (ft)	104.38	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-val.		0.045
W.S. Elev (ft)	104.36	Reach Len. (ft)	390.00	390.00
390.00 Crit w.s. (ft)	100.34	Flow Area (sq ft)		186.07
E.G. slope (ft/ft)	0.000302	Area (sq ft)		186.07
Q Total (cfs)	188.90	Flow (cfs)		188.90
Top width (ft)	76.69	Top width (ft)		76.69
Vel Total (ft/s)	1.02	Avg. vel. (ft/s)		1.02
Max Chl Dpth (ft)	6.48	Hydr. Depth (ft)		2.43
Conv. Total (cfs)	10866.2	Conv. (cfs)		10866.2
Length wtd. (ft)	390.00	wetted Per. (ft)		79.12
Min Ch El (ft)	97.88	Shear (lb/sq ft)		0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	2138.51	0.00
Frctn Loss (ft)	0.11	Cum volume (acre-ft)		80.87
C & E Loss (ft)	0.00	Cum SA (acres)		24.33

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	105.15	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-val.		0.045
W.S. Elev (ft)	105.13	Reach Len. (ft)	390.00	390.00
390.00 Crit w.s. (ft)	100.82	Flow Area (sq ft)		246.87
E.G. slope (ft/ft)	0.000258	Area (sq ft)		246.87
Q Total (cfs)	268.00	Flow (cfs)		268.00
Top width (ft)	81.70	Top width (ft)		81.70
Vel Total (ft/s)	1.09	Avg. vel. (ft/s)		1.09
Max Chl Dpth (ft)	7.25	Hydr. Depth (ft)		3.02
Conv. Total (cfs)	16678.5	Conv. (cfs)		16678.5
Length wtd. (ft)	390.00	wetted Per. (ft)		84.36
Min Ch El (ft)	97.88	Shear (lb/sq ft)		0.05

NM115 OUTPUT REPORT.TXT

Alpha 0.00	1.00	Stream Power (lb/ft s)	2138.51	0.00
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)		104.64
C & E Loss (ft)	0.00	Cum SA (acres)		26.60

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	103.96	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-val.		0.045
W.S. Elev (ft)	103.95	Reach Len. (ft)	390.00	390.00
390.00 Crit w.s. (ft)	100.06	Flow Area (sq ft)		155.16
E.G. slope (ft/ft)	0.000327	Area (sq ft)		155.16
Q Total (cfs)	150.00	Flow (cfs)		150.00
Top width (ft)	72.94	Top width (ft)		72.94
vel Total (ft/s)	0.97	Avg. vel. (ft/s)		0.97
Max Chl Dpth (ft)	6.07	Hydr. Depth (ft)		2.13
Conv. Total (cfs)	8298.4	Conv. (cfs)		8298.4
Length wtd. (ft)	390.00	wetted Per. (ft)		75.27
Min Ch El (ft)	97.88	Shear (lb/sq ft)		0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	2138.51	0.00
Frctn Loss (ft)	0.12	Cum volume (acre-ft)		69.18
C & E Loss (ft)	0.00	Cum SA (acres)		22.86

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	104.39	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-val.		0.045
W.S. Elev (ft)	104.38	Reach Len. (ft)	390.00	390.00
390.00 Crit w.s. (ft)	100.35	Flow Area (sq ft)		187.28

NM115 OUTPUT REPORT.TXT			
E.G. Slope (ft/ft)	0.000300	Area (sq ft)	187.28
Q Total (cfs)	190.00	Flow (cfs)	190.00
Top Width (ft)	76.81	Top Width (ft)	76.81
Vel Total (ft/s)	1.01	Avg. Vel. (ft/s)	1.01
Max Chl Dpth (ft)	6.50	Hydr. Depth (ft)	2.44
Conv. Total (cfs)	10971.4	Conv. (cfs)	10971.4
Length wtd. (ft)	390.00	wetted Per. (ft)	79.25
Min Ch El (ft)	97.88	Shear (lb/sq ft)	0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	2138.51
Frctn Loss (ft)	0.11	Cum Volume (acre-ft)	81.79
C & E Loss (ft)	0.00	Cum SA (acres)	24.42

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	105.16	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-val.		0.045
W.S. Elev (ft)	105.14	Reach Len. (ft)	390.00	390.00
390.00 Crit w.s. (ft)	100.84	Flow Area (sq ft)		248.01
E.G. slope (ft/ft)	0.000258	Area (sq ft)		248.01
Q Total (cfs)	270.00	Flow (cfs)		270.00
Top Width (ft)	81.79	Top Width (ft)		81.79
Vel Total (ft/s)	1.09	Avg. Vel. (ft/s)		1.09
Max Chl Dpth (ft)	7.26	Hydr. Depth (ft)		3.03
Conv. Total (cfs)	16793.9	Conv. (cfs)		16793.9
Length wtd. (ft)	390.00	wetted Per. (ft)		84.45
Min Ch El (ft)	97.88	Shear (lb/sq ft)		0.05
Alpha 0.00	1.00	Stream Power (lb/ft s)	2138.51	0.00
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)		104.92
C & E Loss (ft)	0.00	Cum SA (acres)		26.63

NM115 OUTPUT REPORT.TXT

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-115
 REACH: NM-115

RS: 13853

INPUT

Description:

Station Elevation Data		num= 176	
Sta	Elev	Sta	Elev
0	113.87	14.99	113.91
49.97	113.24	54.96	113.15
119.92	114.43	179.88	114.87
279.81	114.85	339.76	114.77
569.61	114.91	579.6	115.04
614.58	114.17	634.56	113.81
724.5	113.02	729.5	112.86
784.46	112.49	794.45	112.38
819.43	112.01	824.43	111.84
854.41	111.62	894.38	111.58
934.35	112.15	944.35	112.14
984.32	111.76	999.31	111.81
1019.3	108.59	1024.29	107.52
1039.28	103.38	1044.28	102.7
1064.26	101.11	1069.26	100.16
1089.25	101.48	1094.24	101.58
1109.23	103.72	1114.23	104.58
1134.22	110.51	1139.21	111.1
1169.19	112.11	1174.19	112.27
1214.16	113.16	1239.14	113.61
1264.12	113.55	1269.12	113.56
1299.1	114.15	1304.1	114.05
1344.07	114.37	1359.06	114.27
1379.04	114.32	1384.04	114.16
1424.01	114.08	1434.01	114.32
1478.97	114.37	1483.97	114.18
1588.9	114.18	1598.89	114.33
1713.81	114.07	1723.8	114.06
1743.79	113.14	1748.79	112.93
1803.75	112.64	1808.74	112.76
1888.69	112.73	1893.69	112.85
1933.66	112.69	1938.65	112.7
1978.63	112.81	2013.6	112.63
2043.58	112.86	2048.58	112.8
2088.55	112.85	2113.53	113.23
2138.51	113.28		

Manning's n Values		num= 3	
Sta	n Val	Sta	n Val
0	.06	1004.31	.045
		1144.21	.06

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	1004.31	1144.21		322	322	322		.1	.3
Ineffective Flow			num=	2					
	Sta L	Sta R	Elev	Permanent					
	0	1004.31	111.59	F					
	1144.21	2138.51	112.03	F					

CROSS SECTION OUTPUT Profile #EX 10Y

NM115 OUTPUT REPORT.TXT

E.G. Elev (ft)	103.82	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-val.		0.045
W.S. Elev (ft)	103.80	Reach Len. (ft)	322.00	322.00
322.00 Crit W.S. (ft)	101.38	Flow Area (sq ft)		160.59
E.G. Slope (ft/ft)	0.000281	Area (sq ft)		160.59
Q Total (cfs)	148.70	Flow (cfs)		148.70
Top width (ft)	73.52	Top width (ft)		73.52
Vel Total (ft/s)	0.93	Avg. Vel. (ft/s)		0.93
Max Chl Dpth (ft)	4.02	Hydr. Depth (ft)		2.18
Conv. Total (cfs)	8877.2	Conv. (cfs)		8877.2
Length wtd. (ft)	322.00	wetted Per. (ft)		74.14
Min ch El (ft)	99.78	Shear (lb/sq ft)		0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	2138.51	0.00
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)		66.88
C & E Loss (ft)	0.00	Cum SA (acres)		22.02

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	104.27	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-val.		0.045
W.S. Elev (ft)	104.25	Reach Len. (ft)	322.00	322.00
322.00 Crit W.S. (ft)	101.64	Flow Area (sq ft)		194.66
E.G. Slope (ft/ft)	0.000261	Area (sq ft)		194.66
Q Total (cfs)	188.90	Flow (cfs)		188.90
Top width (ft)	78.52	Top width (ft)		78.52
Vel Total (ft/s)	0.97	Avg. Vel. (ft/s)		0.97
Max Chl Dpth (ft)	4.47	Hydr. Depth (ft)		2.48
Conv. Total (cfs)	11703.6	Conv. (cfs)		11703.6
Length wtd. (ft)	322.00	wetted Per. (ft)		79.23

NM115 OUTPUT REPORT.TXT				
Min Ch El (ft)	99.78	Shear (lb/sq ft)		0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	2138.51	0.00
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)		79.17
C & E Loss (ft)	0.00	Cum SA (acres)		23.64

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	105.05	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-Val.		0.045
W.S. Elev (ft)	105.03	Reach Len. (ft)	322.00	322.00
322.00 Crit w.s. (ft)	101.94	Flow Area (sq ft)		258.71
E.G. Slope (ft/ft)	0.000227	Area (sq ft)		258.71
Q Total (cfs)	268.00	Flow (cfs)		268.00
Top width (ft)	85.14	Top width (ft)		85.14
Vel Total (ft/s)	1.04	Avg. Vel. (ft/s)		1.04
Max Chl Dpth (ft)	5.25	Hydr. Depth (ft)		3.04
Conv. Total (cfs)	17795.5	Conv. (cfs)		17795.5
Length wtd. (ft)	322.00	wetted Per. (ft)		86.05
Min Ch El (ft)	99.78	Shear (lb/sq ft)		0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	2138.51	0.00
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)		102.38
C & E Loss (ft)	0.00	Cum SA (acres)		25.86

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	103.84	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	103.83	Reach Len. (ft)	322.00	322.00
322.00 Crit w.s. (ft)	101.38	Flow Area (sq ft)		162.48

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E.G. Slope (ft/ft)	0.000276	Area (sq ft)	162.48
Q Total (cfs)	150.00	Flow (cfs)	150.00
Top width (ft)	73.86	Top width (ft)	73.86
Vel Total (ft/s)	0.92	Avg. Vel. (ft/s)	0.92
Max Chl Dpth (ft)	4.05	Hydr. Depth (ft)	2.20
Conv. Total (cfs)	9024.9	Conv. (cfs)	9024.9
Length wtd. (ft)	322.00	wetted Per. (ft)	74.48
Min Ch El (ft)	99.78	Shear (lb/sq ft)	0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	2138.51
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)	67.76
C & E Loss (ft)	0.00	Cum SA (acres)	22.20

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	104.28	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.045
w.s. Elev (ft)	104.27	Reach Len. (ft)	322.00	322.00
322.00 Crit w.s. (ft)	101.64	Flow Area (sq ft)		195.96
E.G. Slope (ft/ft)	0.000258	Area (sq ft)		195.96
Q Total (cfs)	190.00	Flow (cfs)		190.00
Top width (ft)	78.66	Top width (ft)		78.66
Vel Total (ft/s)	0.97	Avg. Vel. (ft/s)		0.97
Max Chl Dpth (ft)	4.49	Hydr. Depth (ft)		2.49
Conv. Total (cfs)	11819.9	Conv. (cfs)		11819.9
Length wtd. (ft)	322.00	wetted Per. (ft)		79.37
Min Ch El (ft)	99.78	Shear (lb/sq ft)		0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	2138.51	0.00
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)		80.08
C & E Loss (ft)	0.00	Cum SA (acres)		23.72

NM115 OUTPUT REPORT.TXT

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	105.06	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	wt. n-val.		0.045
W.S. Elev (ft)	105.05	Reach Len. (ft)	322.00	322.00
322.00				
Crit w.s. (ft)	101.95	Flow Area (sq ft)		259.89
E.G. Slope (ft/ft)	0.000227	Area (sq ft)		259.89
Q Total (cfs)	270.00	Flow (cfs)		270.00
Top width (ft)	85.25	Top width (ft)		85.25
Vel Total (ft/s)	1.04	Avg. Vel. (ft/s)		1.04
Max chl Dpth (ft)	5.27	Hydr. Depth (ft)		3.05
Conv. Total (cfs)	17913.5	Conv. (cfs)		17913.5
Length wtd. (ft)	322.00	wetted Per. (ft)		86.17
Min ch El (ft)	99.78	shear (lb/sq ft)		0.04
Alpha	1.00	Stream Power (lb/ft s)	2138.51	0.00
0.00				
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)		102.65
C & E Loss (ft)	0.00	Cum SA (acres)		25.88

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-115
 REACH: NM-115

RS: 13531

INPUT

Description:

Station	Elevation	Data	num=	205						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	
0	113.7	9.99	113.77	14.99	113.44	19.99	113.29	29.98	113.35	
34.98	113.09	49.97	113.22	54.96	112.68	64.96	112.99	69.95	112.99	
79.94	112.81	84.94	112.91	89.94	112.9	94.93	113.37	109.92	113.96	
114.92	113.98	124.91	114.55	134.91	114.74	154.89	114.55	164.89	114.93	
174.88	114.96	184.87	114.75	204.86	114.8	214.85	114.56	234.84	114.45	
294.8	114.36	304.79	114.53	334.77	114.5	339.76	114.59	379.74	114.57	
384.73	114.64	399.72	114.58	404.72	114.27	434.7	113.99	439.7	113.79	
454.69	113.54	459.68	112.74	464.68	112.8	469.68	112.76	474.67	113.12	
484.66	113.12	489.66	113.22	494.66	113	499.65	112.99	504.65	112.69	

NM115 OUTPUT REPORT.TXT

519.64	112.67	534.63	112.79	539.63	112.94	544.62	113.47	549.62	114.21
554.62	114.32	559.61	114.62	564.61	114.82	594.59	114.64	599.59	114.88
604.58	114.74	609.58	114.43	614.58	114.34	659.54	114.7	664.54	114.53
669.54	114.47	679.53	114.82	689.52	114.26	704.51	114.48	714.51	114.8
719.5	114.86	724.5	114.82	734.49	114.54	779.46	114.69	794.45	114.53
804.44	114.07	809.44	114.15	814.44	114.36	839.42	114.43	844.42	114.3
854.41	114.36	864.4	114.74	924.36	114.38	929.36	114.51	934.35	114.9
939.35	114.84	944.35	114.01	949.34	113.5	954.34	112.83	959.34	112.78
964.33	112.84	969.33	112.67	984.32	112.82	989.32	112.61	994.31	112.66
999.31	112.2	1004.31	112.1	1009.3	110.52	1014.3	108.57	1019.3	106.96
1024.29	106.76	1029.29	105.39	1034.29	104.02	1039.25	102.86	1039.28	102.85
1044.28	102.66	1049.27	102.37	1054.27	102.17	1059.27	101.36	1064.26	101.1
1069.26	99.45	1074.26	98.76	1079.25	100.22	1084.25	100.76	1089.25	100.9
1094.24	101.34	1099.24	102.13	1099.26	102.14	1104.24	103.24	1109.23	103.66
1114.23	105.11	1119.23	107.09	1124.22	109.02	1129.22	109.72	1134.22	110.82
1139.21	111.6	1149.2	111.47	1159.2	111.86	1169.19	111.98	1184.18	111.93
1194.17	112.3	1199.17	112.37	1214.16	112.14	1224.15	112.35	1239.14	112.36
1254.13	112.53	1259.13	112.66	1264.12	112.95	1269.12	113.14	1304.1	113.47
1319.09	113.81	1329.08	113.77	1334.08	113.99	1339.07	114.47	1344.07	114.44
1349.07	114.26	1354.06	113.92	1359.06	113.77	1364.05	113.98	1369.05	113.98
1374.05	114.12	1379.04	114.44	1439	114.56	1449	114.67	1458.99	114.64
1463.98	114.74	1468.98	114.49	1478.97	114.34	1483.97	114.4	1488.97	114.1
1518.95	113.86	1523.94	113.57	1528.94	113.59	1538.93	113.46	1563.92	113.53
1588.9	113.3	1623.87	113.48	1633.87	113.27	1663.85	113.44	1673.84	113.25
1718.81	113.04	1728.8	113.45	1738.79	113.37	1748.79	113.1	1758.78	113.18
1768.77	113.54	1773.77	113.43	1778.77	113.16	1783.76	113.06	1793.76	113.09
1798.75	113.03	1803.75	113.13	1828.73	113.15	1848.72	113.24	1853.71	113.2
1858.71	113.28	1868.7	113.27	1883.69	113.5	1903.68	113.55	1908.67	113.43
1943.65	113.31	1953.64	113.35	1958.64	113.48	1963.64	113.36	1968.63	113.51
1978.63	113.54	1983.62	113.37	1993.62	112.74	1998.61	112.74	2008.61	112.97
2018.6	112.98	2023.6	112.86	2038.58	112.96	2048.58	112.86	2058.57	112.93
2088.55	112.86	2098.54	113.01	2108.54	113.02	2123.53	112.8	2138.51	113.01

Manning's n values num= 3
 Sta n Val Sta n Val
 0 .06 1004.31 .045 1139.21 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 1004.31 1139.21 354 354 354 .1 .3
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 1004.31 112.1 F
 1139.21 2138.51 111.6 F

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	103.73	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.045
w.s. Elev (ft)	103.72	Reach Len. (ft)	354.00	354.00
354.00 Crit w.s. (ft)	101.09	Flow Area (sq ft)		163.02
E.G. slope (ft/ft)	0.000270	Area (sq ft)		163.02
Q Total (cfs)	148.70	Flow (cfs)		148.70
Top width (ft)	73.83	Top width (ft)		73.83
Vel Total (ft/s)	0.91	Avg. Vel. (ft/s)		0.91

NM115 OUTPUT REPORT.TXT				
Max Chl Dpth (ft)	4.96	Hydr. Depth (ft)		2.21
Conv. Total (cfs)	9048.2	Conv. (cfs)		9048.2
Length Wtd. (ft)	354.00	Wetted Per. (ft)		74.80
Min Ch El (ft)	98.76	Shear (lb/sq ft)		0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	2138.51	0.00
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)		65.69
C & E Loss (ft)	0.00	Cum SA (acres)		21.48

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	104.18	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.045
w.s. Elev (ft)	104.17	Reach Len. (ft)	354.00	354.00
354.00 Crit w.s. (ft)	101.32	Flow Area (sq ft)		197.33
E.G. Slope (ft/ft)	0.000245	Area (sq ft)		197.33
Q Total (cfs)	188.90	Flow (cfs)		188.90
Top width (ft)	77.25	Top width (ft)		77.25
Vel Total (ft/s)	0.96	Avg. Vel. (ft/s)		0.96
Max Chl Dpth (ft)	5.41	Hydr. Depth (ft)		2.55
Conv. Total (cfs)	12063.0	Conv. (cfs)		12063.0
Length Wtd. (ft)	354.00	Wetted Per. (ft)		78.34
Min Ch El (ft)	98.76	Shear (lb/sq ft)		0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	2138.51	0.00
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)		77.72
C & E Loss (ft)	0.00	Cum SA (acres)		23.06

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth

with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	104.98	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	Wt. n-Val.		0.045
W.S. Elev (ft)	104.96	Reach Len. (ft)	354.00	354.00
354.00 Crit w.s. (ft)	101.61	Flow Area (sq ft)		260.82
E.G. Slope (ft/ft)	0.000214	Area (sq ft)		260.82
Q Total (cfs)	268.00	Flow (cfs)		268.00
Top width (ft)	82.87	Top width (ft)		82.87
Vel Total (ft/s)	1.03	Avg. Vel. (ft/s)		1.03
Max chl Dpth (ft)	6.20	Hydr. Depth (ft)		3.15
Conv. Total (cfs)	18303.2	Conv. (cfs)		18303.2
Length wtd. (ft)	354.00	wetted Per. (ft)		84.18
Min Ch El (ft)	98.76	Shear (lb/sq ft)		0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	2138.51	0.00
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)		100.46
C & E Loss (ft)	0.00	Cum SA (acres)		25.23

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	103.76	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.		0.045
W.S. Elev (ft)	103.74	Reach Len. (ft)	354.00	354.00
354.00 Crit w.s. (ft)	101.10	Flow Area (sq ft)		165.03
E.G. Slope (ft/ft)	0.000265	Area (sq ft)		165.03
Q Total (cfs)	150.00	Flow (cfs)		150.00
Top width (ft)	74.04	Top width (ft)		74.04
Vel Total (ft/s)	0.91	Avg. Vel. (ft/s)		0.91

NM115 OUTPUT REPORT.TXT				
Max Chl Dpth (ft)	4.98	Hydr. Depth (ft)		2.23
Conv. Total (cfs)	9217.5	Conv. (cfs)		9217.5
Length Wtd. (ft)	354.00	Wetted Per. (ft)		75.02
Min Ch El (ft)	98.76	Shear (lb/sq ft)		0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	2138.51	0.00
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)		66.55
C & E Loss (ft)	0.00	Cum SA (acres)		21.66

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	104.20	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	104.19	Reach Len. (ft)	354.00	354.00
354.00 Crit w.s. (ft)	101.32	Flow Area (sq ft)		198.66
E.G. Slope (ft/ft)	0.000243	Area (sq ft)		198.66
Q Total (cfs)	190.00	Flow (cfs)		190.00
Top width (ft)	77.37	Top width (ft)		77.37
Vel Total (ft/s)	0.96	Avg. Vel. (ft/s)		0.96
Max Chl Dpth (ft)	5.43	Hydr. Depth (ft)		2.57
Conv. Total (cfs)	12186.0	Conv. (cfs)		12186.0
Length Wtd. (ft)	354.00	Wetted Per. (ft)		78.46
Min Ch El (ft)	98.76	Shear (lb/sq ft)		0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	2138.51	0.00
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)		78.62
C & E Loss (ft)	0.00	Cum SA (acres)		23.15

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth

with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	104.99	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-Val.		0.045
W.S. Elev (ft)	104.98	Reach Len. (ft)	354.00	354.00
354.00 Crit w.s. (ft)	101.62	Flow Area (sq ft)		261.95
E.G. slope (ft/ft)	0.000215	Area (sq ft)		261.95
Q Total (cfs)	270.00	Flow (cfs)		270.00
Top width (ft)	82.97	Top width (ft)		82.97
Vel Total (ft/s)	1.03	Avg. Vel. (ft/s)		1.03
Max chl Dpth (ft)	6.22	Hydr. Depth (ft)		3.16
Conv. Total (cfs)	18420.9	Conv. (cfs)		18420.9
Length wtd. (ft)	354.00	wetted Per. (ft)		84.28
Min ch El (ft)	98.76	shear (lb/sq ft)		0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	2138.51	0.00
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)		100.72
C & E Loss (ft)	0.00	Cum SA (acres)		25.26

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-115

REACH: NM-115

RS: 13177

INPUT

Description:

Station	Elevation	Data	num=	224	Station	Elevation	Station	Elevation	Station	Elevation
0	114.4	5	114.35	19.99	113.86	29.98	113.86	39.97	113.69	
44.97	113.81	49.97	113.79	54.96	113.47	64.96	113.12	69.95	113.1	
74.95	113.28	79.94	113.56	89.94	113.56	104.93	113.92	109.92	113.94	
114.92	114.19	119.92	114.56	129.91	114.52	139.9	114.17	159.89	114.2	
164.89	114.35	169.88	114.7	174.88	114.8	184.87	114.27	189.87	114.15	
199.86	114.22	204.86	114.46	214.85	114.28	259.82	114.36	264.82	114.27	
314.78	114.12	324.78	114.43	344.76	114.26	359.75	114.26	364.75	114.35	
374.74	114.34	389.73	114.54	404.72	114.13	419.71	114.32	429.7	114.11	
444.69	113.97	449.69	113.78	454.69	113.69	469.68	113.02	479.67	113.05	

NM115 OUTPUT REPORT.TXT

489.66	113.22	499.65	113.14	514.64	112.7	524.64	112.8	529.63	113.03
539.63	113.15	544.62	113.98	549.62	113.99	554.62	114.17	559.61	114.17
564.61	113.91	569.61	113.91	574.6	113.8	584.6	114.02	589.59	113.95
594.59	113.99	599.59	113.89	609.58	114.01	614.58	113.83	619.57	113.99
624.57	114.05	644.55	114.03	649.55	114.18	664.54	114.28	689.52	114.14
739.49	114.42	759.47	114.01	769.47	113.71	774.46	113.68	794.45	114.1
804.44	114.01	819.43	114.25	864.4	114.22	869.4	114.09	879.39	114.17
899.38	113.65	919.36	113.99	924.36	113.96	929.36	113.8	934.35	113.95
939.35	113.86	944.35	113.37	949.34	113.31	959.34	112.76	964.33	112.65
974.33	112.73	984.32	113.09	994.31	113.3	999.31	112.38	1004.31	110.72
1009.3	110.44	1014.3	108.45	1019.3	106.66	1024.29	105.32	1029.29	105.24
1034.29	104.16	1039.25	103.52	1039.28	103.52	1044.28	102.93	1049.27	102.3
1054.27	102.2	1059.27	99.72	1064.26	98.23	1069.26	99.41	1074.26	99.53
1079.25	102.63	1084.25	104.03	1089.25	104.97	1094.24	105.08	1099.24	105.84
1099.26	105.85	1104.24	106.92	1109.23	108.15	1114.23	108.27	1119.23	109.36
1124.22	110.78	1129.22	112.12	1134.22	112.64	1139.21	112.7	1149.2	112.56
1169.19	113.03	1174.19	112.86	1189.18	112.68	1199.17	112.83	1204.17	112.67
1219.16	112.83	1244.14	112.68	1259.13	112.91	1264.12	113.1	1274.12	113.15
1284.11	113.1	1304.1	113.26	1319.09	112.93	1349.07	112.85	1359.06	113.05
1369.05	112.89	1374.05	113.06	1379.04	112.93	1389.04	113.05	1409.02	112.92
1419.02	113.06	1424.01	112.8	1468.98	113.07	1473.98	112.98	1483.97	113.08
1498.96	112.91	1503.96	113.05	1513.95	112.93	1518.95	113.16	1523.94	113.03
1528.94	113.14	1533.94	113.14	1538.93	113.27	1548.93	112.97	1558.92	112.96
1563.92	113.05	1568.91	113.03	1573.91	112.87	1588.9	112.96	1593.89	113.13
1598.89	113.1	1603.89	113.18	1623.87	113.06	1628.87	113.34	1638.86	113.31
1643.86	113.13	1653.85	113.19	1668.84	113.07	1678.84	113.32	1708.81	113.07
1713.81	113.24	1723.8	113.19	1728.8	113.42	1738.79	113.65	1743.79	113.65
1753.78	113.47	1768.77	113.55	1773.77	113.49	1783.76	113.51	1798.75	113.28
1828.73	113.5	1833.73	113.33	1838.72	112.97	1843.72	112.97	1863.71	113.37
1873.7	113.42	1883.69	113.77	1898.68	113.61	1903.68	113.47	1908.67	113.58
1913.67	113.49	1923.66	113.56	1933.66	113.57	1943.65	113.34	1948.65	113.34
1953.64	113.65	1958.64	113.81	1968.63	113.84	1973.63	114	1988.62	113.88
1993.62	113.92	2003.61	113.77	2013.6	113.96	2018.6	114.17	2028.59	113.99
2038.58	114.11	2048.58	113.95	2058.57	113.65	2063.57	113.8	2078.56	113.52
2083.55	113.36	2093.55	113.27	2103.54	113.78	2108.54	113.45	2113.53	113.39
2123.53	113.83	2128.52	114.14	2133.52	114.19	2138.51	114.34		

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 999.31 .045 1129.22 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 999.31 1129.22 148 148 148 .1 .3
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 999.31 112.38 F
 1129.22 2138.51 112.12 F

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	103.59	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.03	wt. n-val.		0.045
W.S. Elev (ft)	103.56	Reach Len. (ft)	148.00	148.00
148.00				
Crit w.s. (ft)	100.54	Flow Area (sq ft)		107.03
E.G. slope (ft/ft)	0.000569	Area (sq ft)		107.03
Q Total (cfs)	148.70	Flow (cfs)		148.70

NM115 OUTPUT REPORT.TXT				
Top width (ft)	43.67	Top width (ft)		43.67
Vel Total (ft/s)	1.39	Avg. Vel. (ft/s)		1.39
Max Chl Dpth (ft)	5.33	Hydr. Depth (ft)		2.45
Conv. Total (cfs)	6233.1	Conv. (cfs)		6233.1
Length wtd. (ft)	148.00	Wetted Per. (ft)		45.69
Min Ch El (ft)	98.23	Shear (lb/sq ft)		0.08
Alpha 0.00	1.00	Stream Power (lb/ft s)	2138.51	0.00
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)		64.59
C & E Loss (ft)	0.00	Cum SA (acres)		21.00

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	104.05	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	wt. n-val.		0.045
W.S. Elev (ft)	104.02	Reach Len. (ft)	148.00	148.00
148.00 Crit w.s. (ft)	100.78	Flow Area (sq ft)		128.20
E.G. Slope (ft/ft)	0.000582	Area (sq ft)		128.20
Q Total (cfs)	188.90	Flow (cfs)		188.90
Top width (ft)	48.85	Top width (ft)		48.85
Vel Total (ft/s)	1.47	Avg. Vel. (ft/s)		1.47
Max Chl Dpth (ft)	5.79	Hydr. Depth (ft)		2.62
Conv. Total (cfs)	7829.7	Conv. (cfs)		7829.7
Length wtd. (ft)	148.00	wetted Per. (ft)		50.97
Min Ch El (ft)	98.23	Shear (lb/sq ft)		0.09
Alpha 0.00	1.00	Stream Power (lb/ft s)	2138.51	0.00
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)		76.40
C & E Loss (ft)	0.00	Cum SA (acres)		22.55

NM115 OUTPUT REPORT.TXT

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	104.86	Element	Left OB	Channel
Right OB Vel Head (ft)	0.04	wt. n-val.		0.045
W.S. Elev (ft)	104.82	Reach Len. (ft)	148.00	148.00
148.00 Crit w.s. (ft)	101.19	Flow Area (sq ft)		170.94
E.G. Slope (ft/ft)	0.000552	Area (sq ft)		170.94
Q Total (cfs)	268.00	Flow (cfs)		268.00
Top width (ft)	57.26	Top width (ft)		57.26
Vel Total (ft/s)	1.57	Avg. Vel. (ft/s)		1.57
Max Chl Dpth (ft)	6.59	Hydr. Depth (ft)		2.99
Conv. Total (cfs)	11403.3	Conv. (cfs)		11403.3
Length wtd. (ft)	148.00	wetted Per. (ft)		59.53
Min Ch El (ft)	98.23	Shear (lb/sq ft)		0.10
Alpha 0.00	1.00	Stream Power (lb/ft s)	2138.51	0.00
Frctn Loss (ft)	0.11	Cum Volume (acre-ft)		98.70
C & E Loss (ft)	0.00	Cum SA (acres)		24.67

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	103.62	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	wt. n-val.		0.045
W.S. Elev (ft)	103.59	Reach Len. (ft)	148.00	148.00
148.00 Crit w.s. (ft)	100.54	Flow Area (sq ft)		108.33
E.G. Slope (ft/ft)	0.000562	Area (sq ft)		108.33
Q Total (cfs)	150.00	Flow (cfs)		150.00
Top width (ft)	44.00	Top width (ft)		44.00
Vel Total (ft/s)	1.38	Avg. Vel. (ft/s)		1.38

NM115 OUTPUT REPORT.TXT

Max Chl Dpth (ft)	5.36	Hydr. Depth (ft)	2.46
Conv. Total (cfs)	6328.1	Conv. (cfs)	6328.1
Length wtd. (ft)	148.00	Wetted Per. (ft)	46.04
Min Ch El (ft)	98.23	Shear (lb/sq ft)	0.08
Alpha 0.00	1.00	Stream Power (lb/ft s)	2138.51
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)	65.44
C & E Loss (ft)	0.00	Cum SA (acres)	21.18

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	104.07	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	wt. n-Val.		0.045
W.S. Elev (ft)	104.04	Reach Len. (ft)	148.00	148.00
148.00 Crit w.s. (ft)	100.78	Flow Area (sq ft)		129.10
E.G. Slope (ft/ft)	0.000579	Area (sq ft)		129.10
Q Total (cfs)	190.00	Flow (cfs)		190.00
Top width (ft)	49.07	Top width (ft)		49.07
Vel Total (ft/s)	1.47	Avg. Vel. (ft/s)		1.47
Max Chl Dpth (ft)	5.81	Hydr. Depth (ft)		2.63
Conv. Total (cfs)	7897.6	Conv. (cfs)		7897.6
Length wtd. (ft)	148.00	wetted Per. (ft)		51.19
Min Ch El (ft)	98.23	Shear (lb/sq ft)		0.09
Alpha 0.00	1.00	Stream Power (lb/ft s)	2138.51	0.00
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)		77.29
C & E Loss (ft)	0.00	Cum SA (acres)		22.63

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

NM115 OUTPUT REPORT.TXT

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	104.88	Element	Left OB	Channel
Right OB Vel Head (ft)	0.04	Wt. n-Val.		0.045
W.S. Elev (ft)	104.84	Reach Len. (ft)	148.00	148.00
148.00 Crit w.s. (ft)	101.19	Flow Area (sq ft)		171.70
E.G. Slope (ft/ft)	0.000554	Area (sq ft)		171.70
Q Total (cfs)	270.00	Flow (cfs)		270.00
Top width (ft)	57.39	Top width (ft)		57.39
Vel Total (ft/s)	1.57	Avg. Vel. (ft/s)		1.57
Max Chl Dpth (ft)	6.61	Hydr. Depth (ft)		2.99
Conv. Total (cfs)	11470.4	Conv. (cfs)		11470.4
Length wtd. (ft)	148.00	wetted Per. (ft)		59.67
Min Ch El (ft)	98.23	Shear (lb/sq ft)		0.10
Alpha 0.00	1.00	Stream Power (lb/ft s)	2138.51	0.00
Frctn Loss (ft)	0.11	Cum Volume (acre-ft)		98.95
C & E Loss (ft)	0.00	Cum SA (acres)		24.69

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-115
REACH: NM-115 RS: 13028

INPUT

Description:

Station Elevation Data		num= 238									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	114.3	9.99	113.99	19.99	114.16	24.98	114.17	29.98	114.36		
34.98	114.35	39.97	113.97	59.96	113.87	84.94	113.9	89.94	113.78		
109.92	113.74	114.92	113.45	124.91	113.92	139.9	113.85	149.9	114.11		
159.89	113.54	184.87	113.45	189.87	113.58	204.86	113.41	209.85	113.48		
214.85	113.73	219.85	113.68	224.84	113.51	244.83	113.47	254.82	112.92		
269.81	113.18	294.8	112.99	304.79	113.06	309.79	113.19	314.78	113.57		
324.78	113.36	334.77	112.64	339.76	112.43	344.76	112.58	359.75	113.53		
364.75	113.56	369.74	113.26	384.73	112.82	389.73	112.85	394.73	112.36		
399.72	112.28	404.72	112.55	414.71	112.67	424.71	113.01	429.7	113.09		
434.7	112.93	439.7	112.9	444.69	112.71	449.69	112.79	454.69	112.49		
474.67	112.52	479.67	112.86	494.66	113.02	499.65	112.55	504.65	112.39		

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519.64	112.66	534.63	112.75	539.63	112.9	554.62	112.99	564.61	113.22
569.61	113.07	574.6	112.79	594.59	112.42	599.59	112.44	609.58	112.77
624.57	112.8	629.56	113	639.56	113.04	654.55	112.81	659.54	112.61
674.53	112.56	684.53	112.71	694.52	113.03	699.52	112.93	709.51	112.91
724.5	112.53	739.49	112.66	749.48	112.55	759.47	112.52	769.47	112.31
774.46	112.32	779.46	112.21	799.45	112.38	809.44	112.87	814.44	112.91
834.42	112.24	844.42	112.28	849.41	112.15	859.41	112.23	874.4	112.14
884.39	112.46	894.38	112.18	899.38	112.28	909.37	111.71	914.37	111.84
919.36	111.69	924.36	111.74	929.36	111.57	934.35	111.65	944.35	111.55
959.34	111.9	974.33	111.99	979.32	111.81	984.32	111.78	989.32	112.36
994.31	112.47	999.31	112.95	1004.31	113.27	1009.3	112.98	1014.3	112.5
1019.3	112.4	1024.29	110.87	1029.29	108.58	1034.29	106.24	1039.25	105.65
1039.28	105.65	1044.28	104.74	1049.27	103.86	1054.27	103.2	1059.27	103.03
1064.26	102.42	1069.26	100.75	1074.26	99.91	1079.25	99.91	1084.25	100.26
1089.25	101.86	1094.24	103.62	1099.24	104.43	1099.26	104.43	1104.24	104.59
1109.23	105.03	1114.23	106.15	1119.23	107.73	1124.22	108.48	1129.22	109.45
1134.22	111.3	1139.21	112.46	1144.21	112.69	1154.2	112.85	1169.19	112.71
1174.19	112.77	1179.18	112.99	1184.18	113.32	1199.17	113.92	1209.16	114.12
1229.15	114.08	1239.14	113.85	1244.14	113.86	1259.13	113.48	1269.12	113.71
1279.11	113.71	1294.1	113.97	1314.09	114.3	1319.09	114.29	1324.08	114.38
1329.08	114.59	1339.07	114.58	1344.07	114.41	1349.07	114.48	1354.06	114.71
1359.06	114.72	1369.05	114.5	1374.05	114.6	1379.04	114.06	1384.04	114.03
1389.04	114.57	1394.03	114.7	1409.02	114.73	1419.02	114.38	1424.01	114.36
1434.01	114.1	1439	113.83	1444	113.78	1449	114.05	1473.98	114.21
1488.97	114.02	1503.96	113.43	1508.95	113.41	1513.95	113.63	1518.95	113.95
1533.94	114.07	1538.93	114.4	1543.93	114.51	1558.92	114.37	1563.92	114.07
1573.91	114.07	1583.9	114.41	1618.88	114.35	1623.87	114.25	1628.87	113.95
1633.87	113.75	1638.86	113.73	1648.86	113.99	1668.84	114.31	1683.83	114.23
1693.82	113.92	1703.82	113.99	1713.81	114.23	1753.78	114.31	1758.78	114.38
1763.78	114.62	1778.77	114.75	1808.74	114.55	1818.74	114.15	1823.73	114.21
1828.73	114.46	1843.72	114.45	1858.71	114.53	1868.7	114.3	1873.7	114.31
1878.7	114.5	1888.69	114.63	1893.69	114.61	1898.68	114.78	1928.66	114.8
1938.65	114.89	1943.65	114.46	1958.64	114.51	1963.64	114.61	1988.62	114.52
2008.61	114.35	2013.6	114.13	2033.59	114.38	2043.58	114.6	2053.57	114.55
2058.57	114.27	2063.57	114.1	2078.56	114.11	2083.55	113.8	2088.55	113.62
2093.55	113.71	2098.54	113.91	2108.54	113.74	2113.53	113.82	2118.53	114.09
2123.53	114.48	2128.52	114.67	2138.51	115.41				

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 1019.3 .045 1139.21 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 1019.3 1139.21 253 253 253 .1 .3
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 1019.3 112.4 F
 1139.21 2138.51 112.46 F

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	103.46	Element	Left OB	Channel
Right OB Vel Head (ft)	0.06	wt. n-val.		0.045
w.s. Elev (ft)	103.41	Reach Len. (ft)	253.00	253.00
253.00 Crit w.s. (ft)	101.51	Flow Area (sq ft)		78.81
E.G. slope (ft/ft)	0.001405	Area (sq ft)		78.81
Q Total (cfs)	148.70	Flow (cfs)		148.70

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Top width (ft)	40.96	Top width (ft)	40.96
Vel Total (ft/s)	1.89	Avg. Vel. (ft/s)	1.89
Max Chl Dpth (ft)	3.50	Hydr. Depth (ft)	1.92
Conv. Total (cfs)	3966.4	Conv. (cfs)	3966.4
Length wtd. (ft)	253.00	wetted Per. (ft)	41.88
Min Ch El (ft)	99.91	Shear (lb/sq ft)	0.17
Alpha 0.00	1.00	Stream Power (lb/ft s)	2138.51
Frctn Loss (ft)	0.28	Cum volume (acre-ft)	64.27
C & E Loss (ft)	0.00	Cum SA (acres)	20.86

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	103.93	Element	Left OB	Channel
Right OB Vel Head (ft)	0.06	wt. n-val.		0.045
W.S. Elev (ft)	103.87	Reach Len. (ft)	253.00	253.00
253.00 Crit w.s. (ft)	101.73	Flow Area (sq ft)		99.06
E.G. slope (ft/ft)	0.001256	Area (sq ft)		99.06
Q Total (cfs)	188.90	Flow (cfs)		188.90
Top width (ft)	46.62	Top width (ft)		46.62
Vel Total (ft/s)	1.91	Avg. Vel. (ft/s)		1.91
Max Chl Dpth (ft)	3.96	Hydr. Depth (ft)		2.13
Conv. Total (cfs)	5330.0	Conv. (cfs)		5330.0
Length wtd. (ft)	253.00	wetted Per. (ft)		47.63
Min Ch El (ft)	99.91	Shear (lb/sq ft)		0.16
Alpha 0.00	1.00	Stream Power (lb/ft s)	2138.51	0.00
Frctn Loss (ft)	0.26	Cum volume (acre-ft)		76.01
C & E Loss (ft)	0.00	Cum SA (acres)		22.39

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

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CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	104.75	Element	Left OB	Channel
Right OB Vel Head (ft)	0.06	wt. n-val.		0.045
W.S. Elev (ft)	104.69	Reach Len. (ft)	253.00	253.00
253.00 Crit w.s. (ft)	102.11	Flow Area (sq ft)		142.02
E.G. slope (ft/ft)	0.001082	Area (sq ft)		142.02
Q Total (cfs)	268.00	Flow (cfs)		268.00
Top width (ft)	60.87	Top width (ft)		60.87
vel Total (ft/s)	1.89	Avg. vel. (ft/s)		1.89
Max Chl Dpth (ft)	4.78	Hydr. Depth (ft)		2.33
Conv. Total (cfs)	8148.5	Conv. (cfs)		8148.5
Length wtd. (ft)	253.00	wetted Per. (ft)		62.01
Min Ch El (ft)	99.91	Shear (lb/sq ft)		0.15
Alpha	1.00	Stream Power (lb/ft s)	2138.51	0.00
0.00 Frctn Loss (ft)	0.22	Cum volume (acre-ft)		98.17
C & E Loss (ft)	0.00	Cum SA (acres)		24.46

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	103.50	Element	Left OB	Channel
Right OB Vel Head (ft)	0.05	wt. n-val.		0.045
W.S. Elev (ft)	103.44	Reach Len. (ft)	253.00	253.00
253.00 Crit w.s. (ft)	101.52	Flow Area (sq ft)		80.16
E.G. slope (ft/ft)	0.001367	Area (sq ft)		80.16
Q Total (cfs)	150.00	Flow (cfs)		150.00
Top width (ft)	41.30	Top width (ft)		41.30
vel Total (ft/s)	1.87	Avg. vel. (ft/s)		1.87
Max Chl Dpth (ft)	3.53	Hydr. Depth (ft)		1.94
Conv. Total (cfs)	4057.4	Conv. (cfs)		4057.4

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Length wtd. (ft)	253.00	Wetted Per. (ft)		42.23
Min Ch El (ft)	99.91	Shear (lb/sq ft)		0.16
Alpha 0.00	1.00	Stream Power (lb/ft s)	2138.51	0.00
Frctn Loss (ft)	0.28	Cum Volume (acre-ft)		65.12
C & E Loss (ft)	0.00	Cum SA (acres)		21.03

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

CROSS SECTION OUTPUT Profile #ULT 25Y				
E.G. Elev (ft)	103.95	Element	Left OB	Channel
Right OB Vel Head (ft)	0.06	wt. n-val.		0.045
W.S. Elev (ft)	103.89	Reach Len. (ft)	253.00	253.00
253.00 Crit w.s. (ft)	101.74	Flow Area (sq ft)		99.98
E.G. slope (ft/ft)	0.001241	Area (sq ft)		99.98
Q Total (cfs)	190.00	Flow (cfs)		190.00
Top width (ft)	46.85	Top width (ft)		46.85
vel Total (ft/s)	1.90	Avg. vel. (ft/s)		1.90
Max Chl Dpth (ft)	3.98	Hydr. Depth (ft)		2.13
Conv. Total (cfs)	5394.5	Conv. (cfs)		5394.5
Length wtd. (ft)	253.00	Wetted Per. (ft)		47.86
Min Ch El (ft)	99.91	Shear (lb/sq ft)		0.16
Alpha 0.00	1.00	Stream Power (lb/ft s)	2138.51	0.00
Frctn Loss (ft)	0.25	Cum volume (acre-ft)		76.90
C & E Loss (ft)	0.00	Cum SA (acres)		22.47

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	104.76	Element	Left OB	Channel
Right OB Vel Head (ft)	0.06	wt. n-val.		0.045
W.S. Elev (ft)	104.71	Reach Len. (ft)	253.00	253.00

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253.00					
Crit w.s. (ft)	102.11	Flow Area (sq ft)		142.81	
E.G. slope (ft/ft)	0.001083	Area (sq ft)		142.81	
Q Total (cfs)	270.00	Flow (cfs)		270.00	
Top width (ft)	61.09	Top width (ft)		61.09	
Vel Total (ft/s)	1.89	Avg. Vel. (ft/s)		1.89	
Max Ch1 Dpth (ft)	4.80	Hydr. Depth (ft)		2.34	
Conv. Total (cfs)	8204.7	Conv. (cfs)		8204.7	
Length wtd. (ft)	253.00	wetted Per. (ft)		62.23	
Min ch El (ft)	99.91	shear (lb/sq ft)		0.16	
Alpha	1.00	Stream Power (lb/ft s)	2138.51	0.00	
0.00					
Frctn Loss (ft)	0.22	cum volume (acre-ft)		98.42	
C & E Loss (ft)	0.00	cum SA (acres)		24.49	

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-115
 REACH: NM-115

RS: 12775

INPUT

Description:

Station	Elevation	Data	num=	213							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	113.27	5	113.25	9.99	113.36	14.99	113.18	29.98	113.22		
39.97	113.39	49.97	113.41	54.96	113.25	69.95	113.06	74.95	113.07		
84.94	113.31	109.92	113.2	119.92	113.27	129.91	113.48	139.9	113.27		
149.9	113.32	154.89	113.14	164.89	113.06	184.87	112.8	194.87	113.17		
204.86	113.39	214.85	113.84	219.85	113.89	224.84	114.18	229.84	114.69		
234.84	114.89	289.8	114.47	294.8	114.53	299.79	114.69	309.79	114.76		
314.78	114.37	319.78	114.18	339.76	114.14	344.76	114.26	349.76	114.25		
354.75	114.36	359.75	114.13	369.74	113.96	384.73	114.5	389.73	114.45		
394.73	114.75	399.72	114.81	409.72	114.65	419.71	113.79	429.7	113.47		
434.7	113.46	444.69	113.26	454.69	113.35	459.68	113.69	469.68	114.6		
474.67	114.63	479.67	114.97	484.66	114.81	489.66	114.94	514.64	115.09		
554.62	114.56	559.61	114.38	564.61	114.09	574.6	113.68	579.6	113.31		
584.6	113.14	589.59	113.11	599.59	112.41	604.58	112.33	614.58	112.48		
634.56	112.28	639.56	112.37	649.55	112.7	654.55	112.75	664.54	112.55		
684.53	113.78	694.52	113.95	744.49	113.88	784.46	114.02	799.45	113.79		
809.44	113.85	819.43	114.11	839.42	113.78	874.4	114	879.39	113.9		
904.37	113.87	909.37	113.68	914.37	113.66	924.36	113.41	929.36	112.78		
934.35	112.7	939.35	112.21	944.35	111.95	954.34	112.02	959.34	112.41		
964.33	112.45	969.33	112.19	979.32	112.08	984.32	112.19	989.32	112.62		
994.31	112.89	999.31	112.93	1004.31	113.11	1009.3	112.97	1014.3	112.46		
1019.3	112.33	1024.29	110.82	1029.29	108.67	1034.29	106.53	1039.25	105.98		
1039.28	105.98	1044.28	104.94	1049.27	103.83	1054.27	102.89	1059.27	102.03		

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1064.26	101.76	1069.26	100.86	1074.26	100.04	1079.25	99.41	1084.25	99.13
1089.25	100.8	1094.24	103.54	1099.24	105.59	1099.26	105.59	1104.24	106.2
1109.23	106.57	1114.23	107.69	1119.23	109.16	1124.22	109.8	1129.22	110.82
1134.22	112.34	1139.21	112.87	1154.2	113.08	1164.19	113	1169.19	113.07
1174.19	113.02	1179.18	113.11	1184.18	113.35	1189.18	113.39	1199.17	113.14
1219.16	113.01	1244.14	113.22	1254.13	113.13	1284.11	113.24	1304.1	113.2
1314.09	113.36	1334.08	113.4	1339.07	113.3	1349.07	113.43	1354.06	113.29
1369.05	113.38	1374.05	113.33	1379.04	113.45	1404.03	113.5	1419.02	113.36
1424.01	113.47	1429.01	113.47	1434.01	113.3	1439	113.54	1478.97	113.39
1493.96	113.48	1513.95	113.35	1518.95	113.6	1533.94	113.48	1538.93	113.56
1558.92	113.39	1563.92	113.43	1573.91	113.28	1583.9	113.36	1588.9	113.48
1603.89	113.41	1618.88	113.23	1628.87	113.26	1638.86	113.54	1648.86	113.49
1668.84	113.7	1693.82	113.39	1698.82	113.13	1703.82	112.73	1718.81	112.67
1723.8	112.52	1733.8	112.57	1743.79	112.41	1763.78	112.8	1778.77	112.63
1783.76	112.83	1803.75	112.73	1818.74	112.91	1823.73	112.8	1838.72	112.94
1848.72	113.18	1858.71	113.27	1863.71	112.87	1878.7	112.89	1883.69	112.76
1898.68	112.91	1913.67	112.91	1923.66	112.77	1948.65	112.86	1953.64	112.95
1958.64	113.15	1963.64	112.63	1968.63	112.81	1983.62	112.86	1993.62	112.76
1998.61	112.62	2003.61	112.77	2013.6	112.66	2023.6	112.99	2033.59	112.94
2043.58	112.77	2058.57	112.92	2063.57	112.88	2068.56	113	2078.56	112.86
2103.54	113.11	2113.53	112.82	2138.51	112.93				

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 1019.3 .045 1134.22 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 1019.3 1134.22 171 171 171 .1 .3
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 1019.3 112.33 F
 1134.22 2138.51 112.34 F

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	103.18	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.04	wt. n-val.		0.045
W.S. Elev (ft)	103.13	Reach Len. (ft)	171.00	171.00
171.00				
Crit w.s. (ft)	101.07	Flow Area (sq ft)		89.36
E.G. Slope (ft/ft)	0.000919	Area (sq ft)		89.36
Q Total (cfs)	148.70	Flow (cfs)		148.70
Top width (ft)	40.52	Top width (ft)		40.52
Vel Total (ft/s)	1.66	Avg. vel. (ft/s)		1.66
Max Chl Dpth (ft)	4.00	Hydr. Depth (ft)		2.21
Conv. Total (cfs)	4905.3	Conv. (cfs)		4905.3
Length wtd. (ft)	171.00	wetted Per. (ft)		41.69
Min Ch El (ft)	99.13	Shear (lb/sq ft)		0.12
Alpha	1.00	Stream Power (lb/ft s)	2138.51	0.00
0.00				
Frctn Loss (ft)	0.07	Cum volume (acre-ft)		63.79

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C & E Loss (ft) 0.01 Cum SA (acres) 20.62

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	103.67	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.05	wt. n-Val.		0.045
W.S. Elev (ft)	103.63	Reach Len. (ft)	171.00	171.00
171.00				
Crit w.s. (ft)	101.29	Flow Area (sq ft)		110.20
E.G. Slope (ft/ft)	0.000827	Area (sq ft)		110.20
Q Total (cfs)	188.90	Flow (cfs)		188.90
Top width (ft)	44.10	Top width (ft)		44.10
Vel Total (ft/s)	1.71	Avg. Vel. (ft/s)		1.71
Max Chl Dpth (ft)	4.50	Hydr. Depth (ft)		2.50
Conv. Total (cfs)	6569.5	Conv. (cfs)		6569.5
Length wtd. (ft)	171.00	wetted Per. (ft)		45.43
Min Ch El (ft)	99.13	Shear (lb/sq ft)		0.13
Alpha	1.00	Stream Power (lb/ft s)	2138.51	0.00
0.00				
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)		75.40
C & E Loss (ft)	0.01	Cum SA (acres)		22.12

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	104.53	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.05	wt. n-Val.		0.045
W.S. Elev (ft)	104.48	Reach Len. (ft)	171.00	171.00
171.00				

NM115 OUTPUT REPORT.TXT				
Crit w.s. (ft)	101.67	Flow Area (sq ft)		150.51
E.G. Slope (ft/ft)	0.000701	Area (sq ft)		150.51
Q Total (cfs)	268.00	Flow (cfs)		268.00
Top width (ft)	50.19	Top width (ft)		50.19
Vel Total (ft/s)	1.78	Avg. Vel. (ft/s)		1.78
Max Chl Dpth (ft)	5.35	Hydr. Depth (ft)		3.00
Conv. Total (cfs)	10122.4	Conv. (cfs)		10122.4
Length wtd. (ft)	171.00	wetted Per. (ft)		51.78
Min Ch El (ft)	99.13	Shear (lb/sq ft)		0.13
Alpha	1.00	Stream Power (lb/ft s)	2138.51	0.00
0.00				
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)		97.32
C & E Loss (ft)	0.01	Cum SA (acres)		24.14

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	103.22	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.04	wt. n-val.		0.045
W.S. Elev (ft)	103.18	Reach Len. (ft)	171.00	171.00
171.00				
Crit w.s. (ft)	101.08	Flow Area (sq ft)		91.06
E.G. Slope (ft/ft)	0.000887	Area (sq ft)		91.06
Q Total (cfs)	150.00	Flow (cfs)		150.00
Top width (ft)	40.82	Top width (ft)		40.82
Vel Total (ft/s)	1.65	Avg. Vel. (ft/s)		1.65
Max Chl Dpth (ft)	4.05	Hydr. Depth (ft)		2.23
Conv. Total (cfs)	5036.2	Conv. (cfs)		5036.2
Length wtd. (ft)	171.00	wetted Per. (ft)		42.00
Min Ch El (ft)	99.13	Shear (lb/sq ft)		0.12
Alpha	1.00	Stream Power (lb/ft s)	2138.51	0.00
0.00				
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)		64.62

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C & E Loss (ft) 0.01 Cum SA (acres) 20.80

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	103.69	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.05	wt. n-val.		0.045
W.S. Elev (ft)	103.65	Reach Len. (ft)	171.00	171.00
171.00				
Crit w.s. (ft)	101.30	Flow Area (sq ft)		111.21
E.G. Slope (ft/ft)	0.000816	Area (sq ft)		111.21
Q Total (cfs)	190.00	Flow (cfs)		190.00
Top width (ft)	44.27	Top width (ft)		44.27
Vel Total (ft/s)	1.71	Avg. Vel. (ft/s)		1.71
Max Chl Dpth (ft)	4.52	Hydr. Depth (ft)		2.51
Conv. Total (cfs)	6652.0	Conv. (cfs)		6652.0
Length wtd. (ft)	171.00	wetted Per. (ft)		45.61
Min Ch El (ft)	99.13	Shear (lb/sq ft)		0.12
Alpha	1.00	Stream Power (lb/ft s)	2138.51	0.00
0.00				
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)		76.29
C & E Loss (ft)	0.01	Cum SA (acres)		22.20

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	104.54	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.05	wt. n-val.		0.045
W.S. Elev (ft)	104.49	Reach Len. (ft)	171.00	171.00
171.00				

NM115 OUTPUT REPORT.TXT

Crit w.s. (ft)	101.68	Flow Area (sq ft)	151.13
E.G. slope (ft/ft)	0.000703	Area (sq ft)	151.13
Q Total (cfs)	270.00	Flow (cfs)	270.00
Top width (ft)	50.27	Top width (ft)	50.27
Vel Total (ft/s)	1.79	Avg. Vel. (ft/s)	1.79
Max Chl Dpth (ft)	5.36	Hydr. Depth (ft)	3.01
Conv. Total (cfs)	10180.3	Conv. (cfs)	10180.3
Length wtd. (ft)	171.00	Wetted Per. (ft)	51.87
Min Ch El (ft)	99.13	Shear (lb/sq ft)	0.13
Alpha 0.00	1.00	Stream Power (lb/ft s)	2138.51
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)	97.57
C & E Loss (ft)	0.01	Cum SA (acres)	24.16

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-115
REACH: NM-115

RS: 12605

INPUT

Description:

Station Elevation Data		num= 211									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	114.57	5	114.53	9.99	114.32	19.99	114.35	34.98	114.61		
44.97	114.64	49.97	114.75	59.96	114.66	69.95	114.8	79.94	114.62		
84.94	114.67	89.94	114.93	94.93	114.75	104.93	114.74	109.92	114.88		
114.92	114.63	134.91	114.57	139.9	114.48	144.9	114.86	159.89	114.82		
179.88	114.45	184.87	114.12	189.87	114.07	194.87	113.83	214.85	114.07		
224.84	114.41	234.84	114.29	244.83	114.48	254.82	114.42	269.81	114.2		
279.81	113.92	304.79	113.55	309.79	113.34	319.78	112.63	324.78	112.4		
329.77	112.37	334.77	112.52	339.76	112.53	354.75	112.23	359.75	112.22		
379.74	112.87	389.73	113.37	399.72	113.2	404.72	113.31	409.72	113.62		
414.71	113.77	439.7	113.62	449.69	113.46	454.69	113.58	469.68	113.42		
474.67	113.44	484.66	113.21	489.66	113.26	499.65	112.83	504.65	112.8		
519.64	112.14	524.64	112.06	529.63	111.74	534.63	111.52	539.63	111.43		
544.62	111.5	559.61	112.48	564.61	112.52	574.6	113.21	579.6	113.06		
589.59	113.13	599.59	113.35	604.58	113.22	634.56	113.31	639.56	113.23		
644.55	113	649.55	112.99	654.55	112.59	659.54	112.57	669.54	113.16		
674.53	113.19	679.53	113.07	694.52	113.1	704.51	112.87	714.51	112.89		
724.5	113.5	749.48	113.43	764.47	113.72	779.46	113.72	784.46	113.83		
794.45	113.55	799.45	113.55	809.44	113.29	814.44	112.84	819.43	112.57		
824.43	112.55	829.43	112.71	834.42	113.2	839.42	113.58	844.42	113.75		
849.41	113.79	859.41	114.18	874.4	114.55	884.39	114.32	894.38	114.17		

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904.37	113.81	909.37	113.72	914.37	113.17	919.36	112.35	924.36	112.02
934.35	111.87	949.34	112.01	959.34	111.87	964.33	111.94	974.33	112.36
984.32	113.65	989.32	114.14	999.31	114.17	1004.31	113.64	1009.3	112.91
1014.3	112.67	1019.3	111.37	1024.29	109.22	1029.29	106.73	1034.29	104.53
1039.25	104.14	1039.28	104.13	1044.28	102.09	1049.27	100.9	1054.27	100.17
1059.27	100.11	1064.26	99.32	1069.26	98.01	1074.26	98.38	1079.25	98.54
1084.25	100.74	1089.25	102.1	1094.24	102.78	1099.24	102.84	1099.26	102.84
1104.24	103.55	1109.23	104.84	1114.23	106.84	1119.23	108.89	1124.22	108.92
1129.22	110.53	1134.22	112.1	1139.21	112.6	1144.21	112.63	1149.2	112.84
1164.19	112.9	1169.19	113.01	1174.19	112.66	1179.18	112.94	1184.18	113.01
1189.18	113.21	1209.16	112.97	1214.16	112.83	1229.15	113.01	1234.15	112.9
1269.12	113.02	1279.11	113.02	1294.1	113.16	1364.05	113.24	1374.05	113.34
1399.03	113.16	1409.02	113.35	1429.01	113.24	1449	113.32	1453.99	113.27
1458.99	113.39	1473.98	113.25	1493.96	113.38	1498.96	113.57	1503.96	113.39
1513.95	113.36	1523.94	113.78	1528.94	113.83	1538.93	114.27	1543.93	114.15
1548.93	114.18	1553.92	114.06	1588.9	114.27	1693.82	114.27	1703.82	113.96
1723.8	113.71	1863.71	113.32	1888.69	113.47	1898.68	113.25	1913.67	113.09
1918.67	113.24	1923.66	113.27	1933.66	113.06	1958.64	113.27	1973.63	113.17
1978.63	113.29	1983.62	113.19	1993.62	113.27	1998.61	113.1	2003.61	113.38
2013.6	113.45	2018.6	113.33	2023.6	113.37	2028.59	113.28	2038.58	113.31
2048.58	114.01	2063.57	113.94	2068.56	114.09	2093.55	114.07	2098.54	114.23
2103.54	114.14	2113.53	114.33	2123.53	114.34	2128.52	114.19	2133.52	114.35
2138.51	114.37								

Manning's n Values num= 3
 Sta n Val Sta n Val
 0 .06 1014.3 .045 1134.22 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 1014.3 1134.22 381 381 381 .1 .3
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 1014.3 112.67 F
 1134.22 2138.51 112.1 F

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	103.09	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	wt. n-Val.		0.045
w.s. Elev (ft)	103.08	Reach Len. (ft)	381.00	381.00
381.00				
Crit w.s. (ft)	99.88	Flow Area (sq ft)		153.09
E.G. Slope (ft/ft)	0.000251	Area (sq ft)		153.09
Q Total (cfs)	148.70	Flow (cfs)		148.70
Top width (ft)	59.08	Top width (ft)		59.08
Vel Total (ft/s)	0.97	Avg. Vel. (ft/s)		0.97
Max Chl Dpth (ft)	5.07	Hydr. Depth (ft)		2.59
Conv. Total (cfs)	9394.4	Conv. (cfs)		9394.4
Length wtd. (ft)	381.00	wetted Per. (ft)		60.43
Min ch El (ft)	98.01	Shear (lb/sq ft)		0.04
Alpha	1.00	Stream Power (lb/ft s)	2138.51	0.00

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0.00			
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)	63.31
C & E Loss (ft)	0.00	Cum SA (acres)	20.42

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	103.59	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-Val.		0.045
w.s. Elev (ft)	103.58	Reach Len. (ft)	381.00	381.00
381.00 Crit w.s. (ft)	100.18	Flow Area (sq ft)		183.64
E.G. Slope (ft/ft)	0.000244	Area (sq ft)		183.64
Q Total (cfs)	188.90	Flow (cfs)		188.90
Top width (ft)	63.71	Top width (ft)		63.71
Vel Total (ft/s)	1.03	Avg. Vel. (ft/s)		1.03
Max Chl Dpth (ft)	5.57	Hydr. Depth (ft)		2.88
Conv. Total (cfs)	12095.9	Conv. (cfs)		12095.9
Length wtd. (ft)	381.00	wetted Per. (ft)		65.18
Min Ch El (ft)	98.01	Shear (lb/sq ft)		0.04
Alpha	1.00	Stream Power (lb/ft s)	2138.51	0.00
0.00 Frctn Loss (ft)	0.09	Cum Volume (acre-ft)		74.83
C & E Loss (ft)	0.00	Cum SA (acres)		21.91

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	104.46	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-Val.		0.045
w.s. Elev (ft)	104.44	Reach Len. (ft)	381.00	381.00
381.00 Crit w.s. (ft)	100.50	Flow Area (sq ft)		241.24
E.G. Slope (ft/ft)	0.000234	Area (sq ft)		241.24

NM115 OUTPUT REPORT.TXT			
Q Total (cfs)	268.00	Flow (cfs)	268.00
Top width (ft)	72.20	Top width (ft)	72.20
Vel Total (ft/s)	1.11	Avg. Vel. (ft/s)	1.11
Max Chl Dpth (ft)	6.43	Hydr. Depth (ft)	3.34
Conv. Total (cfs)	17528.5	Conv. (cfs)	17528.5
Length wtd. (ft)	381.00	wetted Per. (ft)	73.90
Min Ch El (ft)	98.01	Shear (lb/sq ft)	0.05
Alpha 0.00	1.00	Stream Power (lb/ft s)	2138.51
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)	96.55
C & E Loss (ft)	0.00	Cum SA (acres)	23.90

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	103.14	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	103.12	Reach Len. (ft)	381.00	381.00
381.00 Crit w.s. (ft)	99.88	Flow Area (sq ft)		155.67
E.G. Slope (ft/ft)	0.000243	Area (sq ft)		155.67
Q Total (cfs)	150.00	Flow (cfs)		150.00
Top width (ft)	59.49	Top width (ft)		59.49
Vel Total (ft/s)	0.96	Avg. Vel. (ft/s)		0.96
Max Chl Dpth (ft)	5.11	Hydr. Depth (ft)		2.62
Conv. Total (cfs)	9614.7	Conv. (cfs)		9614.7
Length wtd. (ft)	381.00	wetted Per. (ft)		60.85
Min Ch El (ft)	98.01	Shear (lb/sq ft)		0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	2138.51	0.00
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)		64.14
C & E Loss (ft)	0.00	Cum SA (acres)		20.60

Note: Multiple critical depths were found at this location. The critical depth
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with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	103.62	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-Val.		0.045
W.S. Elev (ft)	103.60	Reach Len. (ft)	381.00	381.00
381.00 Crit w.s. (ft)	100.18	Flow Area (sq ft)		185.14
E.G. Slope (ft/ft)	0.000241	Area (sq ft)		185.14
Q Total (cfs)	190.00	Flow (cfs)		190.00
Top width (ft)	63.86	Top width (ft)		63.86
Vel Total (ft/s)	1.03	Avg. Vel. (ft/s)		1.03
Max chl Dpth (ft)	5.59	Hydr. Depth (ft)		2.90
Conv. Total (cfs)	12241.5	Conv. (cfs)		12241.5
Length wtd. (ft)	381.00	wetted Per. (ft)		65.34
Min Ch El (ft)	98.01	Shear (lb/sq ft)		0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	2138.51	0.00
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)		75.70
C & E Loss (ft)	0.00	Cum SA (acres)		21.99

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	104.47	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-Val.		0.045
W.S. Elev (ft)	104.45	Reach Len. (ft)	381.00	381.00
381.00 Crit w.s. (ft)	100.51	Flow Area (sq ft)		242.11
E.G. Slope (ft/ft)	0.000235	Area (sq ft)		242.11
Q Total (cfs)	270.00	Flow (cfs)		270.00
Top width (ft)	72.40	Top width (ft)		72.40
Vel Total (ft/s)	1.12	Avg. Vel. (ft/s)		1.12
Max chl Dpth (ft)	6.44	Hydr. Depth (ft)		3.34
Conv. Total (cfs)	17602.6	Conv. (cfs)		17602.6

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Length Wtd. (ft)	381.00	Wetted Per. (ft)	74.11
Min Ch El (ft)	98.01	Shear (lb/sq ft)	0.05
Alpha 0.00	1.00	Stream Power (lb/ft s)	2138.51
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)	96.79
C & E Loss (ft)	0.00	Cum SA (acres)	23.92

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-115
REACH: NM-115

RS: 12224

INPUT

Description:

Station	Elevation	Data	num=	172							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	113.27	14.99	113.38	54.96	113.25	64.96	113.48	69.95	113.32		
79.94	113.32	84.94	113.47	89.94	113.24	114.92	113.57	144.9	113.42		
149.9	113.6	174.88	113.74	179.88	113.56	189.87	113.44	199.86	113.62		
209.85	113.71	229.84	113.47	239.83	113.24	259.82	113.08	269.81	112.88		
279.81	113.18	324.78	113.44	329.77	113.39	334.77	113.22	344.76	112.66		
349.76	112.29	364.75	111.76	379.74	111.79	384.73	111.97	389.73	112.57		
394.73	112.96	404.72	113.08	414.71	113.37	484.66	113.56	489.66	113.66		
494.66	113.64	499.65	113.44	559.61	113.46	574.6	113.47	579.6	113.59		
584.6	113.47	614.58	113.42	624.57	113.46	634.56	113.37	674.53	113.58		
679.53	113.55	684.53	113.7	699.52	113.65	704.51	113.53	719.5	113.62		
779.46	113.2	789.45	113.36	799.45	113.68	809.44	113.75	834.42	113.29		
869.4	113.11	874.4	113.01	889.39	113.27	919.36	113.19	929.36	112.96		
964.33	113.04	969.33	113.18	974.33	113.03	984.32	112.35	989.32	112.19		
994.31	111.88	999.31	112.19	1004.31	112.7	1009.3	112.37	1014.3	111.04		
1019.3	109.38	1024.29	107.4	1029.29	106.96	1034.29	105.03	1039.25	103.04		
1039.28	103.03	1044.28	101.63	1049.27	101.42	1054.27	100.42	1059.27	99.85		
1064.26	98.75	1069.26	98.47	1074.26	98.55	1079.25	99.22	1084.25	100.65		
1089.25	101.25	1094.24	101.28	1099.24	101.82	1099.26	101.83	1104.24	103.07		
1109.23	104.46	1114.23	104.55	1119.23	106.86	1124.22	108.41	1129.22	111.07		
1134.22	111.12	1139.21	112.11	1144.21	112.32	1149.2	112.41	1154.2	112.61		
1164.19	112.58	1169.19	112.33	1179.18	112.43	1189.18	113.08	1194.17	113.23		
1204.17	113.25	1209.16	113.15	1219.16	113.34	1234.15	113.06	1264.12	113.22		
1279.11	112.98	1309.09	112.75	1339.07	112.98	1349.07	113.44	1359.06	113.57		
1389.04	113.19	1424.01	113.2	1434.01	113.41	1468.98	113.49	1473.98	113.39		
1483.97	113.49	1498.96	113.32	1513.95	112.8	1518.95	112.43	1523.94	112.47		
1533.94	112.81	1543.93	112.68	1548.93	112.45	1553.92	112.57	1563.92	112.67		
1568.91	113.05	1573.91	113.26	1588.9	113.47	1593.89	113.35	1608.88	113.29		
1613.88	113.37	1628.87	113.29	1633.87	113.36	1638.86	113.24	1648.86	113.4		
1653.85	113.25	1658.85	113.31	1663.85	113.2	1698.82	113.12	1703.82	112.9		
1713.81	112.85	1718.81	112.58	1728.8	112.38	1733.8	112.37	1748.79	112.63		
1778.77	112.43	1783.76	112.56	1818.74	112.38	1838.72	112.69	1888.69	112.67		
1908.67	112.7	1923.66	112.43	1948.65	112.61	1953.64	112.78	1958.64	112.78		
1968.63	112.62	2013.6	112.8	2033.59	112.91	2048.58	112.65	2063.57	112.57		
2073.56	112.73	2083.55	112.63	2098.54	112.63	2103.54	112.78	2113.53	112.61		
2128.52	112.54	2138.51	112.63								

NM115 OUTPUT REPORT.TXT

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 1009.3 .045 1139.21 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 1009.3 1139.21 316 316 316 .1 .3
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 1009.3 112.37 F
 1139.21 2138.51 112.11 F

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	103.00	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	102.99	Reach Len. (ft)	316.00	316.00
316.00				
Crit w.s. (ft)	100.04	Flow Area (sq ft)		162.40
E.G. Slope (ft/ft)	0.000229	Area (sq ft)		162.40
Q Total (cfs)	148.70	Flow (cfs)		148.70
Top width (ft)	64.49	Top width (ft)		64.49
Vel Total (ft/s)	0.92	Avg. Vel. (ft/s)		0.92
Max Chl Dpth (ft)	4.52	Hydr. Depth (ft)		2.52
Conv. Total (cfs)	9833.5	Conv. (cfs)		9833.5
Length wtd. (ft)	316.00	wetted Per. (ft)		65.40
Min Ch El (ft)	98.47	shear (lb/sq ft)		0.04
Alpha	1.00	Stream Power (lb/ft s)	2138.51	0.00
0.00				
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)		61.93
C & E Loss (ft)	0.00	Cum SA (acres)		19.88

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	103.51	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	103.49	Reach Len. (ft)	316.00	316.00
316.00				
Crit w.s. (ft)	100.26	Flow Area (sq ft)		195.56

NM115 OUTPUT REPORT.TXT

E.G. Slope (ft/ft)	0.000212	Area (sq ft)	195.56
Q Total (cfs)	188.90	Flow (cfs)	188.90
Top width (ft)	67.63	Top width (ft)	67.63
Vel Total (ft/s)	0.97	Avg. Vel. (ft/s)	0.97
Max Chl Dpth (ft)	5.02	Hydr. Depth (ft)	2.89
Conv. Total (cfs)	12971.1	Conv. (cfs)	12971.1
Length wtd. (ft)	316.00	wetted Per. (ft)	68.69
Min ch El (ft)	98.47	Shear (lb/sq ft)	0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	2138.51
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	73.17
C & E Loss (ft)	0.00	Cum SA (acres)	21.34

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	104.37	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-Val.		0.045
w.s. Elev (ft)	104.36	Reach Len. (ft)	316.00	316.00
316.00 Crit w.s. (ft)	100.59	Flow Area (sq ft)		256.46
E.G. Slope (ft/ft)	0.000192	Area (sq ft)		256.46
Q Total (cfs)	268.00	Flow (cfs)		268.00
Top width (ft)	72.90	Top width (ft)		72.90
Vel Total (ft/s)	1.05	Avg. Vel. (ft/s)		1.05
Max Chl Dpth (ft)	5.89	Hydr. Depth (ft)		3.52
Conv. Total (cfs)	19349.8	Conv. (cfs)		19349.8
Length wtd. (ft)	316.00	wetted Per. (ft)		74.25
Min ch El (ft)	98.47	Shear (lb/sq ft)		0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	2138.51	0.00
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)		94.37

C & E Loss (ft) NM115 OUTPUT REPORT.TXT 23.27
0.00 Cum SA (acres)

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	103.05	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	103.04	Reach Len. (ft)	316.00	316.00
316.00				
Crit w.s. (ft)	100.05	Flow Area (sq ft)		165.40
E.G. Slope (ft/ft)	0.000221	Area (sq ft)		165.40
Q Total (cfs)	150.00	Flow (cfs)		150.00
Top width (ft)	64.84	Top width (ft)		64.84
Vel Total (ft/s)	0.91	Avg. Vel. (ft/s)		0.91
Max Chl Dpth (ft)	4.57	Hydr. Depth (ft)		2.55
Conv. Total (cfs)	10101.1	Conv. (cfs)		10101.1
Length wtd. (ft)	316.00	wetted Per. (ft)		65.76
Min Ch El (ft)	98.47	Shear (lb/sq ft)		0.03
Alpha	1.00	Stream Power (lb/ft s)	2138.51	0.00
0.00				
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)		62.74
C & E Loss (ft)	0.00	Cum SA (acres)		20.05

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	103.53	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	103.52	Reach Len. (ft)	316.00	316.00
316.00				
Crit w.s. (ft)	100.26	Flow Area (sq ft)		197.23
E.G. Slope (ft/ft)	0.000209	Area (sq ft)		197.23

NM115 OUTPUT REPORT.TXT			
Q Total (cfs)	190.00	Flow (cfs)	190.00
Top width (ft)	67.78	Top width (ft)	67.78
Vel Total (ft/s)	0.96	Avg. Vel. (ft/s)	0.96
Max Chl Dpth (ft)	5.05	Hydr. Depth (ft)	2.91
Conv. Total (cfs)	13136.1	Conv. (cfs)	13136.1
Length wtd. (ft)	316.00	wetted Per. (ft)	68.85
Min Ch El (ft)	98.47	Shear (lb/sq ft)	0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	2138.51
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	74.03
C & E Loss (ft)	0.00	Cum SA (acres)	21.42

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	104.39	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-Val.		0.045
w.s. Elev (ft)	104.37	Reach Len. (ft)	316.00	316.00
316.00 Crit w.s. (ft)	100.60	Flow Area (sq ft)		257.31
E.G. Slope (ft/ft)	0.000193	Area (sq ft)		257.31
Q Total (cfs)	270.00	Flow (cfs)		270.00
Top width (ft)	72.97	Top width (ft)		72.97
Vel Total (ft/s)	1.05	Avg. Vel. (ft/s)		1.05
Max Chl Dpth (ft)	5.90	Hydr. Depth (ft)		3.53
Conv. Total (cfs)	19444.0	Conv. (cfs)		19444.0
Length wtd. (ft)	316.00	wetted Per. (ft)		74.33
Min Ch El (ft)	98.47	Shear (lb/sq ft)		0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	2138.51	0.00
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)		94.61
C & E Loss (ft)	0.00	Cum SA (acres)		23.29

NM115 OUTPUT REPORT.TXT

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-115
 REACH: NM-115 RS: 11908

INPUT

Description:

Station Elevation Data		num= 178									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	113.69	19.99	113.36	34.98	113.34	39.97	113.23	49.97	113.33		
54.96	113.64	59.96	113.75	114.92	113.81	129.91	113.55	134.91	113.54		
139.9	113.32	144.9	113.45	154.89	113.42	159.89	113.32	184.87	113.29		
194.87	113.38	204.86	113.11	209.85	113.1	214.85	112.94	219.85	112.93		
224.84	113.17	239.83	113.22	249.83	113.34	254.82	113.51	259.82	113.55		
274.81	113.34	314.78	113.31	324.78	113.06	329.77	113.03	339.76	113.2		
344.76	113.19	349.76	112.83	354.75	112.33	359.75	112.31	364.75	112.43		
389.73	112.15	399.72	112.44	404.72	112.7	409.72	113.16	414.71	113.45		
464.68	113.41	484.66	113.78	509.65	113.79	554.62	113.28	559.61	113.42		
564.61	113.67	574.6	113.69	579.6	113.61	594.59	113.61	614.58	113.42		
629.56	112.8	634.56	112.79	639.56	112.67	644.55	112.93	649.55	112.67		
654.55	113.24	659.54	113.25	664.54	113.44	669.54	113.45	674.53	113.23		
709.51	113.34	714.51	113.22	719.5	113.21	729.5	112.94	734.49	112.92		
744.49	113.07	749.48	113.22	809.44	113.24	834.42	113.44	839.42	113.39		
849.41	113.09	864.4	112.96	914.37	113.15	924.36	113.55	929.36	113.67		
944.35	113.64	954.34	113.22	969.33	113	979.32	112.66	984.32	112.22		
989.32	112.13	994.31	112.35	1004.31	112.52	1009.3	111.99	1014.3	110.92		
1019.3	109.84	1024.29	109.32	1029.29	107.26	1034.29	104.07	1039.25	100.87		
1039.28	100.85	1044.28	100.5	1049.27	98.81	1054.27	98.27	1059.27	98.16		
1064.26	98.13	1069.26	97.94	1074.26	97.78	1079.25	98.57	1084.25	98.96		
1089.25	102.37	1094.24	105.14	1099.24	108.44	1099.26	108.45	1104.24	109.9		
1109.23	109.88	1114.23	111.13	1119.23	112.16	1124.22	112.99	1129.22	112.96		
1134.22	112.34	1139.21	112.15	1144.21	112.41	1154.2	112.46	1159.2	112.22		
1174.19	112.28	1179.18	113.28	1184.18	113.85	1194.17	113.91	1259.13	113.29		
1269.12	113.49	1299.1	113.44	1309.09	113.49	1344.07	112.97	1389.04	113.06		
1399.03	112.87	1404.03	112.87	1409.02	112.98	1419.02	113.39	1493.96	113.53		
1503.96	113.63	1558.92	113.34	1568.91	113.16	1578.9	113.19	1583.9	113.36		
1588.9	113.66	1603.89	113.65	1613.88	113.48	1618.88	113.48	1623.87	113.29		
1628.87	113.39	1673.84	113.29	1678.84	113	1683.83	112.98	1713.81	112.63		
1723.8	112.36	1733.8	112.8	1763.78	112.83	1768.77	113.13	1773.77	113.58		
1778.77	113.73	1783.76	114.16	1788.76	114.39	1803.75	114.34	1813.74	114.11		
1823.73	114.27	1833.73	114.16	1853.71	114.3	1863.71	113.75	1873.7	112.73		
1908.67	112.85	1918.67	112.6	1963.64	112.63	1978.63	112.65	1988.62	112.54		
2003.61	112.57	2013.6	112.38	2018.6	112.43	2023.6	112.67	2028.59	113.02		
2043.58	112.98	2053.57	113.22	2078.56	113.26	2083.55	113.34	2098.54	112.96		
2103.54	112.96	2118.53	112.43	2138.51	112.47						

Manning's n Values		num= 3			
Sta	n Val	Sta	n Val	Sta	n Val
0	.06	1009.3	.045	1119.23	.06

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.	
	1009.3	1119.23		300	300	300		.1	.3	
Ineffective Flow	num= 2									
Sta L	Sta R	Elev	Permanent							
0	1009.3	111.99	F							
1119.23	2138.51	112.16	F							

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	102.96	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	102.95	Reach Len. (ft)	300.00	300.00
300.00 Crit w.s. (ft)	99.09	Flow Area (sq ft)		207.54
E.G. Slope (ft/ft)	0.000083	Area (sq ft)		207.54
Q Total (cfs)	148.70	Flow (cfs)		148.70
Top width (ft)	54.28	Top width (ft)		54.28
Vel Total (ft/s)	0.72	Avg. Vel. (ft/s)		0.72
Max Chl Dpth (ft)	5.17	Hydr. Depth (ft)		3.82
Conv. Total (cfs)	16315.2	Conv. (cfs)		16315.2
Length wtd. (ft)	300.00	wetted Per. (ft)		56.50
Min Ch El (ft)	97.78	Shear (lb/sq ft)		0.02
Alpha	1.00	Stream Power (lb/ft s)	2138.51	0.00
0.00 Frctn Loss (ft)	0.05	Cum Volume (acre-ft)		60.59
C & E Loss (ft)	0.00	Cum SA (acres)		19.45

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	103.46	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	103.45	Reach Len. (ft)	300.00	300.00
300.00 Crit w.s. (ft)	99.22	Flow Area (sq ft)		235.09
E.G. Slope (ft/ft)	0.000093	Area (sq ft)		235.09
Q Total (cfs)	188.90	Flow (cfs)		188.90
Top width (ft)	55.95	Top width (ft)		55.95
Vel Total (ft/s)	0.80	Avg. Vel. (ft/s)		0.80
Max Chl Dpth (ft)	5.67	Hydr. Depth (ft)		4.20

NM115 OUTPUT REPORT.TXT				
Conv. Total (cfs)	19632.1	Conv. (cfs)		19632.1
Length wtd. (ft)	300.00	Wetted Per. (ft)		58.45
Min Ch El (ft)	97.78	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	2138.51	0.00
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)		71.61
C & E Loss (ft)	0.00	Cum SA (acres)		20.89

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	104.33	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	104.32	Reach Len. (ft)	300.00	300.00
300.00 Crit w.s. (ft)	99.48	Flow Area (sq ft)		284.69
E.G. Slope (ft/ft)	0.000106	Area (sq ft)		284.69
Q Total (cfs)	268.00	Flow (cfs)		268.00
Top width (ft)	58.85	Top width (ft)		58.85
Vel Total (ft/s)	0.94	Avg. Vel. (ft/s)		0.94
Max Chl Dpth (ft)	6.54	Hydr. Depth (ft)		4.84
Conv. Total (cfs)	26017.7	Conv. (cfs)		26017.7
Length wtd. (ft)	300.00	Wetted Per. (ft)		61.83
Min Ch El (ft)	97.78	Shear (lb/sq ft)		0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	2138.51	0.00
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)		92.41
C & E Loss (ft)	0.00	Cum SA (acres)		22.79

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	103.01	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	103.00	Reach Len. (ft)	300.00	300.00
300.00 Crit w.s. (ft)	99.09	Flow Area (sq ft)		210.12
E.G. Slope (ft/ft)	0.000081	Area (sq ft)		210.12
Q Total (cfs)	150.00	Flow (cfs)		150.00
Top width (ft)	54.43	Top width (ft)		54.43
Vel Total (ft/s)	0.71	Avg. Vel. (ft/s)		0.71
Max Chl Dpth (ft)	5.22	Hydr. Depth (ft)		3.86
Conv. Total (cfs)	16617.3	Conv. (cfs)		16617.3
Length wtd. (ft)	300.00	wetted Per. (ft)		56.69
Min Ch El (ft)	97.78	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	2138.51	0.00
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)		61.37
C & E Loss (ft)	0.00	Cum SA (acres)		19.62

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	103.49	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	103.48	Reach Len. (ft)	300.00	300.00
300.00 Crit w.s. (ft)	99.23	Flow Area (sq ft)		236.49
E.G. Slope (ft/ft)	0.000092	Area (sq ft)		236.49
Q Total (cfs)	190.00	Flow (cfs)		190.00
Top width (ft)	56.03	Top width (ft)		56.03
Vel Total (ft/s)	0.80	Avg. Vel. (ft/s)		0.80
Max Chl Dpth (ft)	5.70	Hydr. Depth (ft)		4.22

NM115 OUTPUT REPORT.TXT				
Conv. Total (cfs)	19805.2	Conv. (cfs)		19805.2
Length wtd. (ft)	300.00	Wetted Per. (ft)		58.55
Min Ch El (ft)	97.78	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	2138.51	0.00
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)		72.46
C & E Loss (ft)	0.00	Cum SA (acres)		20.97

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	104.34	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	104.33	Reach Len. (ft)	300.00	300.00
300.00 Crit w.s. (ft)	99.49	Flow Area (sq ft)		285.36
E.G. Slope (ft/ft)	0.000107	Area (sq ft)		285.36
Q Total (cfs)	270.00	Flow (cfs)		270.00
Top width (ft)	58.89	Top width (ft)		58.89
Vel Total (ft/s)	0.95	Avg. Vel. (ft/s)		0.95
Max Chl Dpth (ft)	6.55	Hydr. Depth (ft)		4.85
Conv. Total (cfs)	26107.3	Conv. (cfs)		26107.3
Length wtd. (ft)	300.00	Wetted Per. (ft)		61.88
Min Ch El (ft)	97.78	Shear (lb/sq ft)		0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	2138.51	0.00
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)		92.64
C & E Loss (ft)	0.00	Cum SA (acres)		22.81

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

NM115 OUTPUT REPORT.TXT

CROSS SECTION

RIVER: N-NM-115
 REACH: NM-115

RS: 11608

INPUT

Description:

Station	Elevation	Data	num=	217	Station	Elevation	Station	Elevation	Station	Elevation
0	112.73	19.99	113.18	29.98	113.08	34.98	112.93	39.97	112.91	
54.96	113.06	74.95	112.88	79.94	112.94	104.93	112.68	124.91	112.9	
134.91	112.84	144.9	112.6	159.89	113	164.89	112.97	169.88	112.73	
174.88	112.59	189.87	112.58	199.86	113.11	204.86	113.19	209.85	113.13	
214.85	112.86	219.85	112.84	229.84	113.09	239.83	112.97	249.83	112.91	
254.82	112.78	259.82	112.84	269.81	112.59	274.81	112.24	279.81	112.29	
284.8	112.63	289.8	112.62	294.8	112.51	309.79	112.57	334.77	113.16	
339.76	112.78	344.76	112.5	349.76	112.01	354.75	112.08	359.75	112.41	
369.74	112.3	384.73	112.41	389.73	112.24	394.73	112.26	399.72	112.82	
404.72	113.19	424.71	113.42	434.7	113.05	449.69	113.09	454.69	113.01	
469.68	113.1	489.66	112.92	494.66	112.72	504.65	112.66	519.64	112.34	
524.64	112.3	529.63	112.4	544.62	112.24	554.62	112.33	559.61	112.22	
564.61	112.21	579.6	112.78	594.59	113.15	614.58	113.19	619.57	113.27	
639.56	113.11	669.54	113.42	679.53	113.19	699.52	113.1	709.51	112.7	
719.5	112.67	724.5	112.84	729.5	113.12	744.49	113.47	749.48	113.49	
754.48	113.39	764.47	113.38	779.46	113.47	789.45	113.33	849.41	113.28	
859.41	112.97	864.4	112.98	874.4	113.13	884.39	112.94	909.37	112.72	
934.35	112.99	949.34	112.97	954.34	113.17	964.33	113.16	969.33	112.91	
974.33	112.86	979.32	112.52	989.32	112.13	994.31	112.07	999.31	110.92	
1004.31	109.43	1009.3	107.86	1014.3	107.41	1019.3	106.27	1024.29	104.39	
1029.29	102.69	1034.29	102.17	1039.25	101.68	1039.28	101.67	1044.28	101.22	
1049.27	100.68	1054.27	99.15	1059.27	98.34	1064.26	97.91	1069.26	99.59	
1074.26	101.61	1079.25	102.13	1084.25	102.42	1089.25	102.99	1094.24	104.12	
1099.24	104.82	1099.26	104.83	1104.24	105.71	1109.23	107.29	1114.23	109.03	
1119.23	109.94	1124.22	110.68	1129.22	111.56	1139.21	111.97	1144.21	112.09	
1164.19	111.54	1169.19	111.73	1174.19	112.18	1179.18	112.75	1184.18	113.11	
1214.16	112.99	1224.15	113.19	1234.15	113.2	1239.14	113.31	1244.14	113.25	
1254.13	112.82	1264.12	112.73	1269.12	112.88	1274.12	113.14	1289.11	112.94	
1299.1	113.23	1309.09	113.09	1319.09	113.26	1329.08	113.18	1339.07	112.96	
1359.06	113.15	1364.05	112.82	1369.05	112.8	1384.04	113.16	1389.04	113.15	
1404.03	112.93	1453.99	112.97	1463.98	112.65	1473.98	112.6	1493.96	112.8	
1503.96	113.12	1518.95	112.99	1528.94	113.19	1543.93	113.07	1553.92	112.62	
1563.92	112.5	1573.91	112.2	1578.9	112.13	1593.89	112.38	1608.88	112.25	
1613.88	112.3	1618.88	112.49	1623.87	112.55	1633.87	112.44	1648.86	112.49	
1658.85	112.7	1678.84	112.65	1688.83	112.82	1703.82	112.52	1738.79	112.52	
1743.79	112.42	1748.79	112.16	1758.78	112.1	1773.77	112.44	1803.75	112.31	
1808.74	112.35	1813.74	112.5	1818.74	112.51	1823.73	112.63	1828.73	112.58	
1833.73	112.29	1838.72	112.27	1843.72	112.12	1848.72	111.84	1858.71	110.88	
1868.7	110.77	1873.7	110.98	1883.69	111.04	1888.69	110.95	1893.69	110.99	
1898.68	111.4	1903.68	111.45	1908.67	111.82	1913.67	112.05	1973.63	112.02	
1998.61	112.07	2003.61	111.84	2008.61	111.77	2013.6	111.58	2018.6	111.59	
2023.6	111.8	2033.59	112.02	2043.58	112.62	2048.58	112.77	2058.57	112.87	
2073.56	113.23	2083.55	113.31	2103.54	113.63	2118.53	113.51	2123.53	113.36	
2133.52	113.38	2138.51	113.29							

Manning's n	Values	num=	3
Sta	n Val	Sta	n Val
0	.06	994.31	.045
		1129.22	.06

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	994.31	1129.22		540	539	538		.1	.3
Ineffective Flow			num=	2					
Sta L	Sta R	Elev	Permanent						

0 994.31 112.07
 1129.22 2138.51 111.56

NM115 OUTPUT REPORT.TXT
 F
 F

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	102.91	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-Val.		0.045
W.S. Elev (ft)	102.89	Reach Len. (ft)	540.00	539.00
538.00 Crit w.s. (ft)	100.01	Flow Area (sq ft)		124.51
E.G. Slope (ft/ft)	0.000503	Area (sq ft)		124.51
Q Total (cfs)	148.70	Flow (cfs)		148.70
Top width (ft)	59.62	Top width (ft)		59.62
Vel Total (ft/s)	1.19	Avg. Vel. (ft/s)		1.19
Max Chl Dpth (ft)	4.98	Hydr. Depth (ft)		2.09
Conv. Total (cfs)	6629.7	Conv. (cfs)		6629.7
Length wtd. (ft)	539.00	wetted Per. (ft)		60.80
Min Ch El (ft)	97.91	Shear (lb/sq ft)		0.06
Alpha 0.00	1.00	Stream Power (lb/ft s)	2138.51	0.00
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)		59.44
C & E Loss (ft)	0.00	Cum SA (acres)		19.06

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	103.41	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-Val.		0.045
W.S. Elev (ft)	103.39	Reach Len. (ft)	540.00	539.00
538.00 Crit w.s. (ft)	100.26	Flow Area (sq ft)		155.45
E.G. Slope (ft/ft)	0.000424	Area (sq ft)		155.45
Q Total (cfs)	188.90	Flow (cfs)		188.90
Top width (ft)	63.76	Top width (ft)		63.76
Vel Total (ft/s)	1.22	Avg. Vel. (ft/s)		1.22
Max Chl Dpth (ft)	5.48	Hydr. Depth (ft)		2.44

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Conv. Total (cfs)	9173.7	Conv. (cfs)		9173.7
Length wtd. (ft)	539.00	Wetted Per. (ft)		65.07
Min Ch El (ft)	97.91	Shear (lb/sq ft)		0.06
Alpha 0.00	1.00	Stream Power (lb/ft s)	2138.51	0.00
Frctn Loss (ft)	0.17	Cum Volume (acre-ft)		70.26
C & E Loss (ft)	0.00	Cum SA (acres)		20.48

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	104.28	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-val.		0.045
W.S. Elev (ft)	104.25	Reach Len. (ft)	540.00	539.00
538.00 Crit w.s. (ft)	100.66	Flow Area (sq ft)		213.42
E.G. Slope (ft/ft)	0.000340	Area (sq ft)		213.42
Q Total (cfs)	268.00	Flow (cfs)		268.00
Top width (ft)	70.48	Top width (ft)		70.48
Vel Total (ft/s)	1.26	Avg. Vel. (ft/s)		1.26
Max Chl Dpth (ft)	6.34	Hydr. Depth (ft)		3.03
Conv. Total (cfs)	14538.4	Conv. (cfs)		14538.4
Length wtd. (ft)	539.00	wetted Per. (ft)		72.03
Min Ch El (ft)	97.91	Shear (lb/sq ft)		0.06
Alpha 0.00	1.00	Stream Power (lb/ft s)	2138.51	0.00
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)		90.70
C & E Loss (ft)	0.00	Cum SA (acres)		22.34

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	102.96	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-val.		0.045

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W.S. Elev (ft)	102.94	Reach Len. (ft)	540.00	539.00
538.00 Crit w.s. (ft)	100.02	Flow Area (sq ft)		127.46
E.G. Slope (ft/ft)	0.000480	Area (sq ft)		127.46
Q Total (cfs)	150.00	Flow (cfs)		150.00
Top width (ft)	60.20	Top width (ft)		60.20
Vel Total (ft/s)	1.18	Avg. Vel. (ft/s)		1.18
Max Chl Dpth (ft)	5.03	Hydr. Depth (ft)		2.12
Conv. Total (cfs)	6850.0	Conv. (cfs)		6850.0
Length wtd. (ft)	539.00	wetted Per. (ft)		61.39
Min Ch El (ft)	97.91	Shear (lb/sq ft)		0.06
Alpha	1.00	Stream Power (lb/ft s)	2138.51	0.00
0.00 Frctn Loss (ft)	0.19	Cum Volume (acre-ft)		60.21
C & E Loss (ft)	0.00	Cum SA (acres)		19.23

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	103.43	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-val.		0.045
W.S. Elev (ft)	103.41	Reach Len. (ft)	540.00	539.00
538.00 Crit w.s. (ft)	100.26	Flow Area (sq ft)		157.09
E.G. Slope (ft/ft)	0.000416	Area (sq ft)		157.09
Q Total (cfs)	190.00	Flow (cfs)		190.00
Top width (ft)	63.95	Top width (ft)		63.95
Vel Total (ft/s)	1.21	Avg. Vel. (ft/s)		1.21
Max Chl Dpth (ft)	5.50	Hydr. Depth (ft)		2.46
Conv. Total (cfs)	9317.0	Conv. (cfs)		9317.0
Length wtd. (ft)	539.00	wetted Per. (ft)		65.26
Min Ch El (ft)	97.91	Shear (lb/sq ft)		0.06
Alpha	1.00	Stream Power (lb/ft s)	2138.51	0.00
0.00 Frctn Loss (ft)	0.17	Cum Volume (acre-ft)		71.10

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C & E Loss (ft) 0.00 Cum SA (acres) 20.55

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	104.29	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-Val.		0.045
W.S. Elev (ft)	104.26	Reach Len. (ft)	540.00	539.00
538.00 Crit w.s. (ft)	100.67	Flow Area (sq ft)		214.20
E.G. slope (ft/ft)	0.000341	Area (sq ft)		214.20
Q Total (cfs)	270.00	Flow (cfs)		270.00
Top width (ft)	70.60	Top width (ft)		70.60
Vel Total (ft/s)	1.26	Avg. Vel. (ft/s)		1.26
Max Chl Dpth (ft)	6.35	Hydr. Depth (ft)		3.03
Conv. Total (cfs)	14611.0	Conv. (cfs)		14611.0
Length wtd. (ft)	539.00	wetted Per. (ft)		72.14
Min Ch El (ft)	97.91	Shear (lb/sq ft)		0.06
Alpha 0.00	1.00	Stream Power (lb/ft s)	2138.51	0.00
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)		90.92
C & E Loss (ft)	0.00	Cum SA (acres)		22.36

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-115
 REACH: NM-115 RS: 11070

INPUT

Description:

Station	Elevation	Data	num=	210						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	
0	112.38	5	112.34	10	112	15	112.18	29.99	112.24	
34.99	112.37	39.99	112.78	44.99	113.02	94.98	112.83	104.97	112.64	
119.97	112.73	134.97	112.52	139.96	112.53	144.96	112.72	154.96	112.63	
209.95	113.01	239.94	112.74	249.94	112.42	254.94	112.39	264.93	112.72	
279.93	112.91	284.93	112.88	289.93	112.6	299.92	112.79	309.92	113.09	

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349.91	112.89	359.91	112.95	374.91	113.26	379.9	113.24	404.9	112.74
414.9	111.5	419.89	111.16	429.89	111.17	439.89	111.35	454.89	111.32
459.88	112.11	464.88	112.11	474.88	111.46	479.88	111.64	494.87	111.61
509.87	111.79	514.87	112.05	519.87	112.17	524.87	111.91	549.86	112
554.86	112.15	559.86	112.18	564.86	112.46	569.86	112.56	579.85	112.06
584.85	112.08	589.85	112.25	594.85	112.3	599.85	112.1	619.84	112.02
629.84	111.87	644.84	111.95	654.84	111.84	664.83	111.94	669.83	111.9
679.83	112.09	689.83	111.87	709.82	112.13	714.82	111.97	719.82	111.65
724.82	111.66	729.82	111.79	734.82	111.75	739.81	111.52	749.81	111.68
764.81	111.57	769.81	111.72	774.81	111.68	779.8	111.52	784.8	111.57
789.8	111.44	794.8	110.95	809.8	111.06	814.8	111.2	819.79	111.23
834.79	111.08	839.79	111.46	849.79	112.54	859.78	112.67	864.78	112.5
874.78	112.46	894.78	112.6	904.77	112.87	909.77	112.75	914.77	112.75
924.77	112.48	934.77	112.41	939.76	112.26	944.76	112.35	954.76	111.57
959.76	111.52	964.76	111.35	969.76	110.91	974.76	108.39	979.75	107.87
984.75	106.35	989.75	104.57	994.75	102.99	999.75	102.63	1004.75	101.63
1009.75	100.53	1014.74	100.02	1014.75	100.02	1019.74	99.93	1024.74	99.15
1029.74	97.82	1034.74	98.14	1039.74	99.71	1044.74	100.31	1049.74	100.71
1054.74	101.22	1059.73	102.07	1064.73	102.5	1069.73	103.25	1074.73	104.65
1079.73	106.21	1084.73	106.95	1089.73	108.14	1094.73	109.88	1099.72	110.53
1104.72	110.5	1109.72	110.58	1114.72	110.84	1119.72	110.94	1134.72	110.65
1139.71	110.71	1144.71	111.14	1154.71	111.68	1159.71	112.06	1199.7	111.91
1219.69	112.1	1224.69	112.29	1229.69	112.35	1279.68	112.06	1304.67	112.24
1309.67	112.2	1319.67	111.86	1329.67	111.9	1334.66	112	1339.66	111.91
1349.66	111.92	1354.66	112.07	1389.65	112.13	1399.65	112.3	1404.65	112.12
1429.64	112.04	1459.63	112.11	1464.63	112.19	1484.63	111.84	1494.62	111.91
1504.62	112.13	1534.61	111.94	1544.61	111.95	1569.6	111.55	1584.6	111.58
1589.6	111.52	1604.6	111.84	1639.59	111.97	1649.58	112.09	1654.58	112.06
1664.58	111.68	1684.58	111.9	1699.57	111.84	1704.57	111.72	1709.57	111.37
1714.57	111.48	1754.56	111.39	1774.55	111.52	1814.54	111.27	1824.54	111.12
1829.54	110.72	1834.54	110.09	1839.54	109.78	1849.53	109.84	1859.53	109.77
1864.53	110.11	1869.53	110.2	1874.53	110.53	1879.53	110.36	1884.52	110.61
1894.52	110.82	1904.52	111.35	1914.52	111.33	1924.51	111.04	1954.51	111.29
1959.51	111.11	1964.5	110.7	1969.5	110.4	1979.5	110.14	1984.5	110.16
1989.5	110.7	1994.5	110.99	1999.5	110.93	2004.49	111.01	2014.49	111.75
2024.49	112.04	2029.49	112.4	2034.49	112.48	2044.48	112.04	2054.48	110.86
2059.48	110.41	2064.48	110.24	2074.48	109.32	2084.47	109.46	2089.47	109.71

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 969.76 .045 1094.73 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 969.76 1094.73 692 692 692 .1 .3
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 969.76 110.91 F
 1094.73 2089.47 109.88 F

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	102.71	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-val.		0.045
w.s. Elev (ft)	102.70	Reach Len. (ft)	692.00	692.00
692.00 Crit w.s. (ft)	100.03	Flow Area (sq ft)		156.27
E.G. slope (ft/ft)	0.000274	Area (sq ft)		156.27
Q Total (cfs)	148.70	Flow (cfs)		148.70

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Top width (ft)	67.18	Top width (ft)	67.18
Vel Total (ft/s)	0.95	Avg. Vel. (ft/s)	0.95
Max Chl Dpth (ft)	4.87	Hydr. Depth (ft)	2.33
Conv. Total (cfs)	8977.5	Conv. (cfs)	8977.5
Length wtd. (ft)	692.00	wetted Per. (ft)	68.10
Min Ch El (ft)	97.82	Shear (lb/sq ft)	0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	2089.47
Frctn Loss (ft)	0.20	Cum volume (acre-ft)	57.71
C & E Loss (ft)	0.00	Cum SA (acres)	18.28

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	103.23	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-val.		0.045
W.S. Elev (ft)	103.22	Reach Len. (ft)	692.00	692.00
692.00 Crit w.s. (ft)	100.23	Flow Area (sq ft)		193.95
E.G. slope (ft/ft)	0.000252	Area (sq ft)		193.95
Q Total (cfs)	188.90	Flow (cfs)		188.90
Top width (ft)	75.49	Top width (ft)		75.49
Vel Total (ft/s)	0.97	Avg. Vel. (ft/s)		0.97
Max Chl Dpth (ft)	5.40	Hydr. Depth (ft)		2.57
Conv. Total (cfs)	11908.9	Conv. (cfs)		11908.9
Length wtd. (ft)	692.00	wetted Per. (ft)		76.49
Min Ch El (ft)	97.82	Shear (lb/sq ft)		0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	2089.47	0.00
Frctn Loss (ft)	0.18	Cum volume (acre-ft)		68.10
C & E Loss (ft)	0.00	Cum SA (acres)		19.61

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

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CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	104.14	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-val.		0.045
W.S. Elev (ft)	104.12	Reach Len. (ft)	692.00	692.00
692.00 Crit w.s. (ft)	100.56	Flow Area (sq ft)		264.82
E.G. slope (ft/ft)	0.000200	Area (sq ft)		264.82
Q Total (cfs)	268.00	Flow (cfs)		268.00
Top width (ft)	81.66	Top width (ft)		81.66
vel Total (ft/s)	1.01	Avg. vel. (ft/s)		1.01
Max Chl Dpth (ft)	6.30	Hydr. Depth (ft)		3.24
Conv. Total (cfs)	18963.5	Conv. (cfs)		18963.5
Length wtd. (ft)	692.00	wetted Per. (ft)		82.92
Min Ch El (ft)	97.82	Shear (lb/sq ft)		0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	2089.47	0.00
Frctn Loss (ft)	0.14	Cum volume (acre-ft)		87.74
C & E Loss (ft)	0.00	Cum SA (acres)		21.40

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	102.77	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-val.		0.045
W.S. Elev (ft)	102.75	Reach Len. (ft)	692.00	692.00
692.00 Crit w.s. (ft)	100.04	Flow Area (sq ft)		160.19
E.G. slope (ft/ft)	0.000263	Area (sq ft)		160.19
Q Total (cfs)	150.00	Flow (cfs)		150.00
Top width (ft)	68.37	Top width (ft)		68.37
vel Total (ft/s)	0.94	Avg. vel. (ft/s)		0.94
Max Chl Dpth (ft)	4.93	Hydr. Depth (ft)		2.34
Conv. Total (cfs)	9248.2	Conv. (cfs)		9248.2

NM115 OUTPUT REPORT.TXT				
Length wtd. (ft)	692.00	Wetted Per. (ft)		69.29
Min Ch El (ft)	97.82	Shear (lb/sq ft)		0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	2089.47	0.00
Frctn Loss (ft)	0.19	Cum Volume (acre-ft)		58.43
C & E Loss (ft)	0.00	Cum SA (acres)		18.43

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

CROSS SECTION OUTPUT Profile #ULT 25Y				
E.G. Elev (ft)	103.26	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-val.		0.045
w.s. Elev (ft)	103.25	Reach Len. (ft)	692.00	692.00
692.00 Crit w.s. (ft)	100.24	Flow Area (sq ft)		196.16
E.G. slope (ft/ft)	0.000246	Area (sq ft)		196.16
Q Total (cfs)	190.00	Flow (cfs)		190.00
Top width (ft)	75.78	Top width (ft)		75.78
vel Total (ft/s)	0.97	Avg. vel. (ft/s)		0.97
Max Chl Dpth (ft)	5.43	Hydr. Depth (ft)		2.59
Conv. Total (cfs)	12104.8	Conv. (cfs)		12104.8
Length wtd. (ft)	692.00	wetted Per. (ft)		76.78
Min Ch El (ft)	97.82	Shear (lb/sq ft)		0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	2089.47	0.00
Frctn Loss (ft)	0.17	Cum volume (acre-ft)		68.92
C & E Loss (ft)	0.00	Cum SA (acres)		19.69

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	104.15	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-val.		0.045
w.s. Elev (ft)	104.13	Reach Len. (ft)	692.00	692.00

NM115 OUTPUT REPORT.TXT

692.00					
Crit w.s. (ft)	100.57	Flow Area (sq ft)		265.66	
E.G. slope (ft/ft)	0.000201	Area (sq ft)		265.66	
Q Total (cfs)	270.00	Flow (cfs)		270.00	
Top width (ft)	81.73	Top width (ft)		81.73	
Vel Total (ft/s)	1.02	Avg. vel. (ft/s)		1.02	
Max Ch1 Dpth (ft)	6.31	Hydr. Depth (ft)		3.25	
Conv. Total (cfs)	19052.8	Conv. (cfs)		19052.8	
Length wtd. (ft)	692.00	wetted Per. (ft)		82.99	
Min ch El (ft)	97.82	shear (lb/sq ft)		0.04	
Alpha	1.00	Stream Power (lb/ft s)	2089.47	0.00	
0.00					
Frctn Loss (ft)	0.14	Cum volume (acre-ft)		87.95	
C & E Loss (ft)	0.00	Cum SA (acres)		21.42	

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-115
 REACH: NM-115

RS: 10378

INPUT

Description:

Station Elevation Data	num=	182							
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev									
0 112.55 24.99 112.56 54.99 112.84 64.98 112.75 74.98 112.36									
84.98 112.28 94.98 111.94 104.97 112.06 109.97 112.22 129.97 112.11									
149.96 112.36 154.96 112.5 179.95 112.39 204.95 112.04 219.94 111.95									
229.94 112.2 234.94 112.2 239.94 112.48 244.94 112.58 249.94 112.79									
254.94 112.77 269.93 113.14 279.93 113.17 289.93 112.9 369.91 112.43									
379.9 112.16 389.9 112.1 394.9 112.35 399.9 112.48 444.89 112.07									
454.89 112.14 479.88 111.73 494.87 111.35 504.87 111.38 519.87 111.06									
544.86 111.24 559.86 111.69 569.86 111.75 574.86 112.12 579.85 112.17									
594.85 111.86 604.85 110.57 624.84 110.61 629.84 110.76 634.84 111.96									
639.84 112.4 654.84 112.53 659.83 112.47 664.83 112.78 679.83 112.82									
684.83 112.94 714.82 113.01 734.82 112.65 749.81 112.05 759.81 111.82									
779.8 111.68 784.8 111.73 799.8 111.61 804.8 111.66 814.8 111.58									
819.79 111.63 829.79 111.46 839.79 111.71 844.79 111.7 854.79 112.24									
864.78 112.36 874.78 112.11 894.78 111.34 909.77 111.11 914.77 110.96									
924.77 111.06 934.77 110.83 944.76 110.83 964.76 110.41 974.76 109.7									
979.75 108.22 984.75 106.68 989.75 105.56 994.75 105.29 999.75 104.05									
1004.75 102.76 1009.75 101.95 1014.75 101.8 1019.74 100.59 1024.74 98.29									
1029.74 96.83 1034.74 97.02 1039.74 98.84 1044.74 100.48 1049.74 100.71									
1054.74 100.93 1059.73 100.96 1064.73 101.26 1069.73 101.88 1074.73 102.51									
1079.73 102.58 1084.73 103.61 1089.73 104.66 1094.73 106.38 1099.72 106.48									
1104.72 108.55 1109.72 109.25 1114.72 108.92 1119.72 108.89 1124.72 109.28									
1129.72 109.26 1134.72 109.05 1139.71 108.74 1144.71 108.72 1149.71 108.88									

NM115 OUTPUT REPORT.TXT

1154.71	109.17	1159.71	109.58	1194.7	109.89	1214.69	110.14	1239.69	110.16
1259.68	110.02	1279.68	110.04	1294.67	109.84	1334.66	110.23	1349.66	110.02
1404.65	110.46	1409.65	110.42	1414.64	110.24	1419.64	110.33	1429.64	110.17
1439.64	110.43	1454.63	110.64	1464.63	110.58	1474.63	110.16	1479.63	110.04
1489.62	109.96	1494.62	110.16	1499.62	110.54	1509.62	110.56	1524.62	110.19
1539.61	110.27	1559.61	110.11	1569.6	110.17	1579.6	110.72	1624.59	110.89
1629.59	110.74	1634.59	110.72	1639.59	110.46	1649.58	109.63	1654.58	109.53
1659.58	109.66	1664.58	110.14	1669.58	110.46	1674.58	110.61	1709.57	110.93
1739.56	110.75	1749.56	110.94	1774.55	110.69	1779.55	110.79	1784.55	111.1
1789.55	111.25	1799.55	111.1	1804.55	110.92	1809.54	110.55	1814.54	110.44
1824.54	110.82	1884.52	110.85	1889.52	111.03	1909.52	111	1919.52	110.66
1924.51	110.65	1934.51	110.5	1939.51	110.58	1944.51	110.23	1949.51	110.21
1954.51	109.84	1959.51	109.94	1964.5	110.14	1969.5	110.16	1974.5	110.64
1979.5	111.3	1984.5	111.75	2004.49	112.06	2034.49	112.26	2039.49	112.21
2084.47	112.56	2089.47	112.48						

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 974.76 .045 1104.72 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 974.76 1104.72 630 632 633 .1 .3
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 974.76 109.7 F
 1104.72 2089.47 108.55 F

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	102.51	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-val.		0.045
W.S. Elev (ft)	102.50	Reach Len. (ft)	630.00	632.00
633.00 Crit w.s. (ft)	98.94	Flow Area (sq ft)		154.10
E.G. Slope (ft/ft)	0.000297	Area (sq ft)		154.10
Q Total (cfs)	148.70	Flow (cfs)		148.70
Top width (ft)	68.25	Top width (ft)		68.25
Vel Total (ft/s)	0.96	Avg. Vel. (ft/s)		0.96
Max Chl Dpth (ft)	5.67	Hydr. Depth (ft)		2.26
Conv. Total (cfs)	8624.2	Conv. (cfs)		8624.2
Length wtd. (ft)	632.00	wetted Per. (ft)		69.84
Min Ch El (ft)	96.83	Shear (lb/sq ft)		0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	2089.47	0.00
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)		55.24
C & E Loss (ft)	0.00	Cum SA (acres)		17.20

NM115 OUTPUT REPORT.TXT

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	103.05	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	103.04	Reach Len. (ft)	630.00	632.00
633.00 Crit w.s. (ft)	99.21	Flow Area (sq ft)		195.05
E.G. Slope (ft/ft)	0.000262	Area (sq ft)		195.05
Q Total (cfs)	188.90	Flow (cfs)		188.90
Top width (ft)	78.30	Top width (ft)		78.30
Vel Total (ft/s)	0.97	Avg. Vel. (ft/s)		0.97
Max Chl Dpth (ft)	6.21	Hydr. Depth (ft)		2.49
Conv. Total (cfs)	11667.5	Conv. (cfs)		11667.5
Length wtd. (ft)	632.00	wetted Per. (ft)		79.99
Min Ch El (ft)	96.83	Shear (lb/sq ft)		0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	2089.47	0.00
Frctn Loss (ft)	0.11	Cum Volume (acre-ft)		65.01
C & E Loss (ft)	0.00	Cum SA (acres)		18.39

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	104.00	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	103.98	Reach Len. (ft)	630.00	632.00
633.00 Crit w.s. (ft)	99.66	Flow Area (sq ft)		272.71
E.G. Slope (ft/ft)	0.000197	Area (sq ft)		272.71
Q Total (cfs)	268.00	Flow (cfs)		268.00
Top width (ft)	86.49	Top width (ft)		86.49
Vel Total (ft/s)	0.98	Avg. Vel. (ft/s)		0.98
Max Chl Dpth (ft)	7.15	Hydr. Depth (ft)		3.15

NM115 OUTPUT REPORT.TXT				
Conv. Total (cfs)	19082.7	Conv. (cfs)		19082.7
Length wtd. (ft)	632.00	Wetted Per. (ft)		88.40
Min Ch El (ft)	96.83	Shear (lb/sq ft)		0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	2089.47	0.00
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)		83.47
C & E Loss (ft)	0.00	Cum SA (acres)		20.07

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	102.57	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	102.56	Reach Len. (ft)	630.00	632.00
633.00 Crit w.s. (ft)	98.95	Flow Area (sq ft)		158.46
E.G. Slope (ft/ft)	0.000297	Area (sq ft)		158.46
Q Total (cfs)	150.00	Flow (cfs)		150.00
Top width (ft)	72.26	Top width (ft)		72.26
Vel Total (ft/s)	0.95	Avg. Vel. (ft/s)		0.95
Max Chl Dpth (ft)	5.73	Hydr. Depth (ft)		2.19
Conv. Total (cfs)	8704.0	Conv. (cfs)		8704.0
Length wtd. (ft)	632.00	Wetted Per. (ft)		73.85
Min Ch El (ft)	96.83	Shear (lb/sq ft)		0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	2089.47	0.00
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)		55.90
C & E Loss (ft)	0.00	Cum SA (acres)		17.31

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

NM115 OUTPUT REPORT.TXT				
		Element	Left OB	Channel
E.G. Elev (ft)	103.09			
Right OB				
Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	103.07	Reach Len. (ft)	630.00	632.00
633.00				
Crit w.s. (ft)	99.22	Flow Area (sq ft)		197.68
E.G. Slope (ft/ft)	0.000255	Area (sq ft)		197.68
Q Total (cfs)	190.00	Flow (cfs)		190.00
Top width (ft)	78.59	Top width (ft)		78.59
Vel Total (ft/s)	0.96	Avg. Vel. (ft/s)		0.96
Max Chl Dpth (ft)	6.24	Hydr. Depth (ft)		2.52
Conv. Total (cfs)	11901.4	Conv. (cfs)		11901.4
Length wtd. (ft)	632.00	wetted Per. (ft)		80.29
Min Ch El (ft)	96.83	Shear (lb/sq ft)		0.04
Alpha	1.00	Stream Power (lb/ft s)	2089.47	0.00
0.00				
Frctn Loss (ft)	0.11	Cum Volume (acre-ft)		65.79
C & E Loss (ft)	0.00	Cum SA (acres)		18.46

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

		Element	Left OB	Channel
E.G. Elev (ft)	104.01			
Right OB				
Vel Head (ft)	0.02	wt. n-Val.		0.045
W.S. Elev (ft)	103.99	Reach Len. (ft)	630.00	632.00
633.00				
Crit w.s. (ft)	99.66	Flow Area (sq ft)		273.53
E.G. Slope (ft/ft)	0.000198	Area (sq ft)		273.53
Q Total (cfs)	270.00	Flow (cfs)		270.00
Top width (ft)	86.58	Top width (ft)		86.58
Vel Total (ft/s)	0.99	Avg. Vel. (ft/s)		0.99
Max Chl Dpth (ft)	7.16	Hydr. Depth (ft)		3.16
Conv. Total (cfs)	19166.4	Conv. (cfs)		19166.4
Length wtd. (ft)	632.00	wetted Per. (ft)		88.49
Min Ch El (ft)	96.83	Shear (lb/sq ft)		0.04

NM115 OUTPUT REPORT.TXT

Alpha	1.00	Stream Power (lb/ft s)	2089.47	0.00
0.00				
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)		83.67
C & E Loss (ft)	0.00	Cum SA (acres)		20.08

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-115
 REACH: NM-115 RS: 9746

INPUT

Description:

Station	Elevation	Data	num=	197	Station	Elevation	Station	Elevation	Station	Elevation
0	111.44	4.99	111.39	14.98	111.6	44.94	111.7	64.91	112.15	
74.9	112	84.89	112.2	89.88	112.13	99.87	111.49	104.86	111.28	
214.71	111.83	219.71	111.91	224.7	112.12	239.68	111.98	249.67	111.63	
264.65	111.63	309.58	111.54	319.57	111.35	324.56	111.35	339.54	111.07	
349.53	110.99	354.52	110.87	364.51	110.89	369.5	110.73	374.5	110.28	
384.48	109.76	394.47	109.71	399.46	109.83	409.45	109.74	414.44	109.88	
419.44	109.88	424.43	110.34	429.42	110.45	434.42	110.88	439.41	111.12	
449.4	111.18	454.39	110.94	459.38	110.54	464.38	110.4	494.34	110.77	
509.32	111.12	524.3	111.26	539.28	111	549.26	111.05	554.26	110.73	
559.25	110.3	574.23	109.98	579.22	109.99	584.22	110.14	589.21	110.14	
594.2	110.31	599.2	110.37	604.19	110.19	619.17	110.51	634.15	110.6	
649.13	110.41	654.12	110.24	659.12	110.35	664.11	110.63	684.08	110.72	
689.08	110.86	709.05	110.81	719.04	110.86	724.03	110.76	729.02	110.56	
734.02	110.6	739.01	110.53	749	110.53	758.98	110.4	763.98	110.44	
768.97	110.65	773.96	110.7	778.96	110.59	793.94	110.7	798.93	110.53	
818.9	110.51	828.89	110.58	843.87	110.18	858.85	110.18	868.83	110.27	
873.83	110.21	878.82	110.01	888.81	109.94	898.79	109.74	913.77	109.97	
918.77	110.17	923.76	109.79	928.75	108.23	933.75	107.64	938.74	106.03	
943.73	104.18	948.73	102.86	953.72	102.46	958.71	101.87	963.71	101.12	
968.7	100.77	973.69	100.71	974.76	100.69	978.69	100.63	983.68	99.33	
988.67	96.71	993.67	96.81	998.66	97.89	1003.65	98.65	1008.65	99.6	
1013.64	99.96	1018.63	100.18	1023.63	100.34	1028.62	100.77	1033.61	101.33	
1034.76	101.4	1038.61	101.62	1043.6	102.07	1048.59	103.06	1053.59	104.64	
1058.58	106.01	1063.57	106.61	1068.57	107.94	1073.56	108.67	1078.55	108.63	
1088.54	108.75	1098.53	108.76	1108.51	108.64	1113.51	108.7	1123.49	109.7	
1128.49	109.88	1133.48	110.36	1183.41	109.94	1193.4	110.04	1198.39	110.2	
1213.37	110.18	1218.37	109.96	1243.33	109.83	1248.33	110.01	1253.32	110.01	
1258.31	110.17	1263.31	110.23	1268.3	110.11	1273.29	110.23	1288.27	110.24	
1323.23	109.9	1328.22	110.05	1338.21	110.06	1343.2	110.27	1353.19	110.4	
1373.16	110.13	1378.15	109.99	1403.12	109.52	1418.1	110.04	1433.08	110.19	
1448.06	110.15	1453.05	110.39	1458.04	110.48	1463.04	110.42	1468.03	110.47	
1478.02	110.83	1488	110.37	1517.96	110.42	1527.95	110.53	1532.94	110.35	
1582.88	110.7	1592.86	110.42	1597.86	110.39	1602.85	110.2	1617.83	110.36	
1627.82	110.73	1652.78	110.43	1682.74	110.77	1687.74	110.9	1697.72	110.63	
1702.72	110.69	1707.71	110.94	1712.7	110.85	1737.67	111.14	1742.66	111.03	
1747.66	111.02	1752.65	110.91	1757.64	110.66	1767.63	110.76	1772.62	110.68	
1777.62	110.74	1782.61	110.57	1787.6	110.53	1832.54	110.81	1837.54	110.78	
1847.52	111.05	1857.51	111.12	1897.46	110.85	1917.43	109.97	1932.41	110.41	
1942.4	111.32	1947.39	111.48	1962.37	111.69	2042.26	111.61	2062.23	111.79	
2067.23	111.66	2072.22	111.69							

NM115 OUTPUT REPORT.TXT

Manning's n Values

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	923.76	.045	1073.56	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.	Expan.
923.76	1073.56	495	496	496	.1	.3	
Ineffective Flow	num=						
Sta L	Sta R	Elev	Permanent				
0	923.76	109.79	F				
1073.56	2072.22	108.67	F				

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	102.38	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	wt. n-Val.		0.045
w.s. Elev (ft)	102.37	Reach Len. (ft)	495.00	496.00
496.00				
Crit w.s. (ft)	98.77	Flow Area (sq ft)		210.60
E.G. Slope (ft/ft)	0.000151	Area (sq ft)		210.60
Q Total (cfs)	148.70	Flow (cfs)		148.70
Top width (ft)	90.64	Top width (ft)		90.64
Vel Total (ft/s)	0.71	Avg. Vel. (ft/s)		0.71
Max chl Dpth (ft)	5.66	Hydr. Depth (ft)		2.32
Conv. Total (cfs)	12083.0	Conv. (cfs)		12083.0
Length wtd. (ft)	496.00	wetted Per. (ft)		91.95
Min ch El (ft)	96.71	shear (lb/sq ft)		0.02
Alpha	1.00	Stream Power (lb/ft s)	2072.22	0.00
0.00				
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)		52.60
C & E Loss (ft)	0.00	Cum SA (acres)		16.05

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	102.94	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	wt. n-Val.		0.045
w.s. Elev (ft)	102.93	Reach Len. (ft)	495.00	496.00
496.00				
Crit w.s. (ft)	99.01	Flow Area (sq ft)		263.98

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E.G. Slope (ft/ft)	0.000130	Area (sq ft)	263.98
Q Total (cfs)	188.90	Flow (cfs)	188.90
Top width (ft)	99.49	Top width (ft)	99.49
Vel Total (ft/s)	0.72	Avg. Vel. (ft/s)	0.72
Max Chl Dpth (ft)	6.22	Hydr. Depth (ft)	2.65
Conv. Total (cfs)	16552.6	Conv. (cfs)	16552.6
Length wtd. (ft)	496.00	wetted Per. (ft)	100.87
Min ch El (ft)	96.71	Shear (lb/sq ft)	0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	2072.22
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)	61.68
C & E Loss (ft)	0.00	Cum SA (acres)	17.10

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	103.91	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	103.90	Reach Len. (ft)	495.00	496.00
496.00 Crit W.S. (ft)	99.42	Flow Area (sq ft)		363.96
E.G. Slope (ft/ft)	0.000099	Area (sq ft)		363.96
Q Total (cfs)	268.00	Flow (cfs)		268.00
Top width (ft)	106.47	Top width (ft)		106.47
Vel Total (ft/s)	0.74	Avg. Vel. (ft/s)		0.74
Max Chl Dpth (ft)	7.19	Hydr. Depth (ft)		3.42
Conv. Total (cfs)	26993.2	Conv. (cfs)		26993.2
Length wtd. (ft)	496.00	wetted Per. (ft)		108.13
Min ch El (ft)	96.71	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	2072.22	0.00
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)		78.85

C & E Loss (ft)

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0.00 Cum SA (acres)

18.67

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	102.45	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	wt. n-Val.		0.045
w.s. Elev (ft)	102.44	Reach Len. (ft)	495.00	496.00
496.00				
Crit w.s. (ft)	98.78	Flow Area (sq ft)		216.74
E.G. Slope (ft/ft)	0.000142	Area (sq ft)		216.74
Q Total (cfs)	150.00	Flow (cfs)		150.00
Top width (ft)	91.55	Top width (ft)		91.55
Vel Total (ft/s)	0.69	Avg. Vel. (ft/s)		0.69
Max Chl Dpth (ft)	5.73	Hydr. Depth (ft)		2.37
Conv. Total (cfs)	12592.2	Conv. (cfs)		12592.2
Length wtd. (ft)	496.00	wetted Per. (ft)		92.87
Min Ch El (ft)	96.71	Shear (lb/sq ft)		0.02
Alpha	1.00	Stream Power (lb/ft s)	2072.22	0.00
0.00				
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)		53.18
C & E Loss (ft)	0.00	Cum SA (acres)		16.13

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	102.98	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	wt. n-Val.		0.045
w.s. Elev (ft)	102.97	Reach Len. (ft)	495.00	496.00
496.00				
Crit w.s. (ft)	99.02	Flow Area (sq ft)		267.64

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E.G. Slope (ft/ft)	0.000126	Area (sq ft)		267.64
Q Total (cfs)	190.00	Flow (cfs)		190.00
Top width (ft)	99.81	Top width (ft)		99.81
Vel Total (ft/s)	0.71	Avg. Vel. (ft/s)		0.71
Max Chl Dpth (ft)	6.26	Hydr. Depth (ft)		2.68
Conv. Total (cfs)	16900.2	Conv. (cfs)		16900.2
Length wtd. (ft)	496.00	wetted Per. (ft)		101.21
Min ch El (ft)	96.71	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	2072.22	0.00
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)		62.41
C & E Loss (ft)	0.00	Cum SA (acres)		17.17

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	103.92	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.045
w.s. Elev (ft)	103.91	Reach Len. (ft)	495.00	496.00
496.00 Crit w.s. (ft)	99.43	Flow Area (sq ft)		364.92
E.G. Slope (ft/ft)	0.000099	Area (sq ft)		364.92
Q Total (cfs)	270.00	Flow (cfs)		270.00
Top width (ft)	106.53	Top width (ft)		106.53
Vel Total (ft/s)	0.74	Avg. Vel. (ft/s)		0.74
Max Chl Dpth (ft)	7.20	Hydr. Depth (ft)		3.43
Conv. Total (cfs)	27100.6	Conv. (cfs)		27100.6
Length wtd. (ft)	496.00	wetted Per. (ft)		108.19
Min ch El (ft)	96.71	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	2072.22	0.00
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)		79.04

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-115

REACH: NM-115

RS: 9251

INPUT

Description:

Station	Elevation	Data	num=	226	Sta	Elev	Sta	Elev	Sta	Elev
0	110.97	19.96	111.15	24.95	111.28	34.92	111.02	44.9	111.23	
69.85	111.2	74.84	110.94	89.8	111.05	94.79	110.99	99.78	110.71	
104.77	110.65	109.76	110.48	134.71	110.87	139.69	111.01	154.66	111.14	
184.6	110.78	209.54	110.79	214.53	110.37	219.52	110.41	239.48	110.16	
244.47	110.49	249.46	110.59	254.44	110.95	259.43	111.13	279.39	111.2	
289.37	110.95	324.29	110.93	339.26	111.18	349.24	111.45	374.18	111.06	
399.13	111.01	404.12	111.06	419.08	111.5	424.07	111.24	429.06	110.65	
439.04	110.36	454.01	110.12	463.99	110.73	468.98	110.81	473.97	111.04	
483.94	111.32	493.92	111.23	498.91	110.87	508.89	111.02	518.87	111.45	
523.86	111.57	533.83	111.59	543.81	111.3	558.78	111.18	563.77	111.41	
568.76	111.14	573.75	111.13	588.71	111.38	593.7	111.38	598.69	111.2	
603.68	111.24	608.67	111.08	613.66	111.06	618.65	110.88	623.64	110.26	
628.63	109.82	648.58	109.81	653.57	109.45	658.56	109.35	673.53	109.85	
683.51	109.95	688.5	109.92	693.49	109.78	698.47	109.74	708.45	109.43	
713.44	109.82	718.43	110.01	723.42	110.01	728.41	110.23	733.4	110.26	
738.39	110.07	748.37	109.98	758.34	111.06	763.33	111.15	783.29	110.89	
818.21	111.09	828.19	110.93	848.15	111.15	873.09	110.96	888.06	111.11	
898.04	110.84	908.02	109.52	913.01	109.35	927.97	109.32	932.96	109.19	
957.91	108.92	962.9	108.74	967.89	109.07	972.88	109.57	982.85	109.6	
987.84	109.45	992.83	108.99	997.82	107.81	1002.81	107.66	1007.8	106.7	
1012.79	105.94	1017.78	105.12	1022.77	105.12	1027.76	101.94	1030.19	100.51	
1032.74	99.01	1037.73	96.15	1042.72	96.03	1047.71	94.84	1052.7	94.63	
1057.69	94.85	1062.68	95.04	1067.67	95.96	1072.66	98.47	1077.65	101.91	
1082.64	105.3	1087.63	105.92	1090.19	106.64	1092.61	107.31	1097.6	107.66	
1102.59	108.43	1107.58	108.87	1112.57	109.15	1117.56	109.17	1122.55	109.33	
1127.54	109.33	1132.53	109.01	1137.52	108.91	1142.51	109.03	1167.45	109.07	
1172.44	109.23	1177.43	109.76	1182.42	110.01	1192.4	109.7	1202.38	109.61	
1212.35	109.7	1237.3	109.32	1252.27	109.29	1262.25	109.38	1277.21	109.28	
1287.19	109.53	1297.17	109.25	1312.14	109.26	1317.13	109.42	1327.1	109.25	
1342.07	109.4	1367.02	109.4	1377	109.29	1386.97	109.43	1406.93	109.48	
1411.92	109.56	1416.91	109.53	1426.89	109.93	1441.85	109.8	1461.81	109.94	
1466.8	110.1	1481.77	110.11	1496.74	109.79	1516.69	109.82	1521.68	109.94	
1536.65	109.89	1546.63	110.02	1556.6	109.95	1566.58	109.7	1571.57	109.68	
1576.56	109.87	1621.46	110.1	1631.44	109.79	1661.38	110.12	1671.36	110.01	
1691.31	110.32	1706.28	110.15	1726.24	110.46	1736.21	110.17	1751.18	110.21	
1756.17	110.06	1766.15	110.29	1776.13	110.18	1781.12	109.96	1786.11	109.99	
1791.09	110.19	1796.08	110.24	1811.05	110.13	1816.04	110.21	1826.02	110.15	
1831.01	110.03	1836	110.05	1840.99	109.9	1865.93	109.91	1885.89	110.3	
1890.88	110.3	1895.87	110.14	1900.86	110.14	1905.84	110.28	1915.82	110.3	
1925.8	110.07	1950.75	109.98	1960.73	110.06	1965.71	109.86	1980.68	110.15	
1985.67	110.65	1990.66	110.79	1995.65	110.79	2000.64	110.64	2005.63	110.85	
2010.62	111.19	2015.61	111.29	2020.6	111.29	2025.58	111.42	2030.57	110.88	

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2035.56	110.6	2040.55	110.75	2050.53	110.9	2060.51	110.9	2065.5	110.69
2070.49	110.6	2075.48	110.96	2080.46	111.15	2085.45	111.12	2090.44	110.75
2095.43	110.53	2100.42	110.66	2105.41	110.69	2110.4	110.94	2115.39	111.38
2120.38	111.52								

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 992.83 .045 1107.58 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 992.83 1107.58 302 302 302 .1 .3
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 992.83 108.99 F
 1107.58 2120.38 108.87 F

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	102.32	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	wt. n-val.		0.045
W.S. Elev (ft)	102.30	Reach Len. (ft)	302.00	302.00
302.00				
Crit w.s. (ft)	96.64	Flow Area (sq ft)		280.32
E.G. slope (ft/ft)	0.000104	Area (sq ft)		280.32
Q Total (cfs)	280.20	Flow (cfs)		280.20
Top width (ft)	51.04	Top width (ft)		51.04
vel Total (ft/s)	1.00	Avg. vel. (ft/s)		1.00
Max Chl Dpth (ft)	7.67	Hydr. Depth (ft)		5.49
Conv. Total (cfs)	27502.9	Conv. (cfs)		27502.9
Length wtd. (ft)	302.00	wetted Per. (ft)		54.73
Min Ch El (ft)	94.63	Shear (lb/sq ft)		0.03
Alpha	1.00	Stream Power (lb/ft s)	2120.38	0.00
0.00				
Frctn Loss (ft)	0.05	Cum volume (acre-ft)		49.80
C & E Loss (ft)	0.00	Cum SA (acres)		15.24

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	102.88	Element	Left OB	Channel
Right OB				

NM115 OUTPUT REPORT.TXT				
Vel Head (ft)	0.02	wt. n-val.		0.045
W.S. Elev (ft)	102.85	Reach Len. (ft)	302.00	302.00
302.00 Crit w.s. (ft)	96.89	Flow Area (sq ft)		308.87
E.G. Slope (ft/ft)	0.000127	Area (sq ft)		308.87
Q Total (cfs)	355.10	Flow (cfs)		355.10
Top Width (ft)	52.72	Top Width (ft)		52.72
Vel Total (ft/s)	1.15	Avg. Vel. (ft/s)		1.15
Max Chl Dpth (ft)	8.22	Hydr. Depth (ft)		5.86
Conv. Total (cfs)	31562.3	Conv. (cfs)		31562.3
Length wtd. (ft)	302.00	wetted Per. (ft)		56.74
Min Ch El (ft)	94.63	Shear (lb/sq ft)		0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	2120.38	0.00
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)		58.42
C & E Loss (ft)	0.00	Cum SA (acres)		16.24

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	103.84	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	wt. n-val.		0.045
W.S. Elev (ft)	103.81	Reach Len. (ft)	302.00	302.00
302.00 Crit w.s. (ft)	97.32	Flow Area (sq ft)		360.56
E.G. Slope (ft/ft)	0.000168	Area (sq ft)		360.56
Q Total (cfs)	508.60	Flow (cfs)		508.60
Top Width (ft)	55.62	Top Width (ft)		55.62
Vel Total (ft/s)	1.41	Avg. Vel. (ft/s)		1.41
Max Chl Dpth (ft)	9.18	Hydr. Depth (ft)		6.48
Conv. Total (cfs)	39262.0	Conv. (cfs)		39262.0
Length wtd. (ft)	302.00	wetted Per. (ft)		60.21
Min Ch El (ft)	94.63	Shear (lb/sq ft)		0.06
Alpha 0.00	1.00	Stream Power (lb/ft s)	2120.38	0.00

	NM115 OUTPUT REPORT.TXT		
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)	74.72
C & E Loss (ft)	0.00	Cum SA (acres)	17.74

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	102.39	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-val.		0.045
W.S. Elev (ft)	102.37	Reach Len. (ft)	302.00	302.00
302.00 Crit w.s. (ft)	96.68	Flow Area (sq ft)		283.71
E.G. slope (ft/ft)	0.000107	Area (sq ft)		283.71
Q Total (cfs)	290.00	Flow (cfs)		290.00
Top width (ft)	51.24	Top width (ft)		51.24
vel Total (ft/s)	1.02	Avg. vel. (ft/s)		1.02
Max Chl Dpth (ft)	7.74	Hydr. Depth (ft)		5.54
Conv. Total (cfs)	27976.6	Conv. (cfs)		27976.6
Length wtd. (ft)	302.00	wetted Per. (ft)		54.97
Min Ch El (ft)	94.63	Shear (lb/sq ft)		0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	2120.38	0.00
Frctn Loss (ft)	0.05	Cum volume (acre-ft)		50.33
C & E Loss (ft)	0.00	Cum SA (acres)		15.31

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	102.91	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-val.		0.045
W.S. Elev (ft)	102.89	Reach Len. (ft)	302.00	302.00
302.00 Crit w.s. (ft)	96.90	Flow Area (sq ft)		310.80

NM115 OUTPUT REPORT.TXT			
E.G. Slope (ft/ft)	0.000128	Area (sq ft)	310.80
Q Total (cfs)	360.00	Flow (cfs)	360.00
Top Width (ft)	52.83	Top Width (ft)	52.83
Vel Total (ft/s)	1.16	Avg. Vel. (ft/s)	1.16
Max Chl Dpth (ft)	8.26	Hydr. Depth (ft)	5.88
Conv. Total (cfs)	31841.7	Conv. (cfs)	31841.7
Length wtd. (ft)	302.00	wetted Per. (ft)	56.87
Min Ch El (ft)	94.63	Shear (lb/sq ft)	0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	2120.38
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	59.12
C & E Loss (ft)	0.00	Cum SA (acres)	16.30

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	103.85	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	wt. n-val.		0.045
W.S. Elev (ft)	103.82	Reach Len. (ft)	302.00	302.00
302.00 Crit w.s. (ft)	97.33	Flow Area (sq ft)		361.05
E.G. Slope (ft/ft)	0.000168	Area (sq ft)		361.05
Q Total (cfs)	510.00	Flow (cfs)		510.00
Top Width (ft)	55.64	Top Width (ft)		55.64
Vel Total (ft/s)	1.41	Avg. Vel. (ft/s)		1.41
Max Chl Dpth (ft)	9.19	Hydr. Depth (ft)		6.49
Conv. Total (cfs)	39336.4	Conv. (cfs)		39336.4
Length wtd. (ft)	302.00	wetted Per. (ft)		60.24
Min Ch El (ft)	94.63	Shear (lb/sq ft)		0.06
Alpha 0.00	1.00	Stream Power (lb/ft s)	2120.38	0.00
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)		74.91
C & E Loss (ft)	0.00	Cum SA (acres)		17.76

NM115 OUTPUT REPORT.TXT

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-115
 REACH: NM-115

RS: 8949

INPUT

Description:

Station Elevation Data		num= 190							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	111.44	9.98	111.25	14.97	111.23	19.96	111.11	29.93	110.59
39.91	110.57	44.9	110.48	49.89	110.66	64.86	110.77	69.85	110.73
74.84	110.59	79.83	110.6	84.81	110.75	89.8	110.7	94.79	110.83
99.78	110.83	109.76	111.19	144.68	111.27	149.67	110.86	159.65	110.7
169.63	110.77	174.62	111.07	179.61	111.21	204.55	111.29	214.53	111.81
294.36	111.88	304.34	111.73	334.27	111.71	349.24	111.34	354.23	111.08
359.22	110.55	364.2	109.57	369.19	109.06	379.17	109.01	384.16	109.09
394.14	110.04	399.13	110.21	419.08	110.33	434.05	110.27	454.01	110.25
459	110.37	468.98	110.42	483.94	110.04	488.93	110.01	493.92	109.8
498.91	109.78	503.9	109.92	528.85	109.69	533.83	109.83	543.81	110.3
548.8	110.28	563.77	110.83	573.75	110.78	578.74	110.03	583.73	110.41
593.7	110.28	598.69	110.14	603.68	110.1	608.67	109.95	613.66	109.95
618.65	109.75	628.63	109.7	633.62	109.57	638.61	109.31	643.59	109.25
648.58	109	653.57	108.95	663.55	109.18	668.54	109.22	678.52	109.11
693.49	109.37	698.47	109.55	708.45	109.57	728.41	109.97	733.4	109.94
743.38	110.17	753.35	110.12	763.33	110.37	783.29	110.14	803.25	110.39
823.2	110.2	883.07	110.65	903.03	110.59	918	110.1	922.98	110.05
942.94	108.92	947.93	108.91	952.92	108.73	957.91	108.77	962.9	108.92
972.88	108.96	977.86	109.34	987.84	109.27	992.83	107.44	997.82	105.72
1002.81	104.2	1007.8	104.13	1012.79	102.65	1017.78	101.53	1022.77	100.62
1027.76	99.92	1030.19	99.89	1032.74	99.86	1037.73	98.43	1042.72	95.74
1047.71	95.14	1052.7	95.14	1057.69	96.98	1062.68	98.66	1067.67	99.16
1072.66	99.25	1077.65	99.6	1082.64	100.8	1087.63	102.07	1090.19	102.22
1092.61	102.36	1097.6	103.49	1102.59	105.31	1107.58	107.4	1112.57	108.94
1122.55	109.76	1127.54	109.69	1132.53	109.46	1137.52	109.39	1142.51	109.58
1152.48	110.43	1157.47	110.6	1262.25	110.63	1272.22	110.53	1277.21	110.57
1282.2	110.43	1297.17	110.66	1322.12	110.61	1352.05	110.79	1377	110.85
1391.96	110.56	1401.94	110.5	1406.93	110.37	1411.92	110.14	1416.91	110.11
1421.9	109.86	1426.89	109.48	1436.87	109.49	1441.85	109.38	1446.84	109.03
1461.81	108.86	1471.79	108.96	1481.77	108.81	1486.76	108.85	1496.74	109.82
1506.71	110.07	1511.7	110.39	1516.69	110.52	1521.68	110.53	1526.67	110.01
1531.66	109.39	1536.65	109.14	1541.64	109.08	1551.62	109.37	1556.6	109.33
1561.59	109.58	1566.58	109.7	1571.57	109.92	1581.55	110.64	1586.54	110.75
1591.53	110.98	1601.51	111.73	1621.46	112.2	1726.24	112.76	1950.75	112
1955.74	111.65	1960.73	111.53	1965.71	111.77	1970.7	112.22	1975.69	112.45
1980.68	112.52	1985.67	112.26	1990.66	111.84	2000.64	111.78	2010.62	112.43
2020.6	112.72	2040.55	112.91	2065.5	112.89	2075.48	113.05	2090.44	112.74
2100.42	112.12	2105.41	111.99	2110.4	112.04	2115.39	111.93	2120.38	111.66

Manning's n Values		num= 3		
Sta	n Val	Sta	n Val	Sta
0	.06	987.84	.045	1112.57

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	987.84	1112.57		530	530		.1	.3
Ineffective Flow			num=	2				
	Sta L	Sta R	Elev	Permanent				
	0	987.84	109.27	F				
	1112.57	2120.38	108.94	F				

NM115 OUTPUT REPORT.TXT

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	102.27	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-val.		0.045
W.S. Elev (ft)	102.26	Reach Len. (ft)	530.00	530.00
530.00 Crit w.s. (ft)	97.72	Flow Area (sq ft)		253.30
E.G. slope (ft/ft)	0.000235	Area (sq ft)		253.30
Q Total (cfs)	280.20	Flow (cfs)		280.20
Top width (ft)	76.25	Top width (ft)		76.25
vel Total (ft/s)	1.11	Avg. vel. (ft/s)		1.11
Max Chl Dpth (ft)	7.12	Hydr. Depth (ft)		3.32
Conv. Total (cfs)	18291.1	Conv. (cfs)		18291.1
Length wtd. (ft)	530.00	wetted Per. (ft)		78.32
Min Ch El (ft)	95.14	Shear (lb/sq ft)		0.05
Alpha 0.00	1.00	Stream Power (lb/ft s)	2120.38	0.00
Frctn Loss (ft)	0.14	Cum volume (acre-ft)		47.95
C & E Loss (ft)	0.00	Cum SA (acres)		14.80

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	102.82	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-val.		0.045
W.S. Elev (ft)	102.80	Reach Len. (ft)	530.00	530.00
530.00 Crit w.s. (ft)	98.07	Flow Area (sq ft)		296.88
E.G. slope (ft/ft)	0.000246	Area (sq ft)		296.88
Q Total (cfs)	355.10	Flow (cfs)		355.10
Top width (ft)	82.28	Top width (ft)		82.28
vel Total (ft/s)	1.20	Avg. vel. (ft/s)		1.20
Max Chl Dpth (ft)	7.66	Hydr. Depth (ft)		3.61
Conv. Total (cfs)	22661.3	Conv. (cfs)		22661.3

NM115 OUTPUT REPORT.TXT				
Length wtd. (ft)	530.00	Wetted Per. (ft)		84.47
Min Ch El (ft)	95.14	Shear (lb/sq ft)		0.05
Alpha 0.00	1.00	Stream Power (lb/ft s)	2120.38	0.00
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)		56.32
C & E Loss (ft)	0.00	Cum SA (acres)		15.77

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	103.78	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	wt. n-val.		0.045
w.s. Elev (ft)	103.75	Reach Len. (ft)	530.00	530.00
530.00 Crit w.s. (ft)	98.68	Flow Area (sq ft)		378.39
E.G. slope (ft/ft)	0.000250	Area (sq ft)		378.39
Q Total (cfs)	508.60	Flow (cfs)		508.60
Top width (ft)	89.23	Top width (ft)		89.23
vel Total (ft/s)	1.34	Avg. vel. (ft/s)		1.34
Max Chl Dpth (ft)	8.61	Hydr. Depth (ft)		4.24
Conv. Total (cfs)	32147.4	Conv. (cfs)		32147.4
Length wtd. (ft)	530.00	wetted Per. (ft)		91.68
Min Ch El (ft)	95.14	Shear (lb/sq ft)		0.06
Alpha 0.00	1.00	Stream Power (lb/ft s)	2120.38	0.00
Frctn Loss (ft)	0.15	Cum volume (acre-ft)		72.16
C & E Loss (ft)	0.00	Cum SA (acres)		17.24

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	102.34	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-val.		0.045
w.s. Elev (ft)	102.32	Reach Len. (ft)	530.00	530.00

NM115 OUTPUT REPORT.TXT

530.00			
Crit w.s. (ft)	97.77	Flow Area (sq ft)	258.29
E.G. slope (ft/ft)	0.000241	Area (sq ft)	258.29
Q Total (cfs)	290.00	Flow (cfs)	290.00
Top width (ft)	77.66	Top width (ft)	77.66
Vel Total (ft/s)	1.12	Avg. vel. (ft/s)	1.12
Max Chl Dpth (ft)	7.18	Hydr. Depth (ft)	3.33
Conv. Total (cfs)	18671.0	Conv. (cfs)	18671.0
Length wtd. (ft)	530.00	wetted Per. (ft)	79.74
Min Ch El (ft)	95.14	Shear (lb/sq ft)	0.05
Alpha 0.00	1.00	Stream Power (lb/ft s)	2120.38
Frctn Loss (ft)	0.14	Cum volume (acre-ft)	48.45
C & E Loss (ft)	0.00	Cum SA (acres)	14.87

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	102.86	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-val.		0.045
w.s. Elev (ft)	102.84	Reach Len. (ft)	530.00	530.00
530.00 Crit w.s. (ft)	98.09	Flow Area (sq ft)		299.88
E.G. slope (ft/ft)	0.000245	Area (sq ft)		299.88
Q Total (cfs)	360.00	Flow (cfs)		360.00
Top width (ft)	82.56	Top width (ft)		82.56
Vel Total (ft/s)	1.20	Avg. vel. (ft/s)		1.20
Max Chl Dpth (ft)	7.70	Hydr. Depth (ft)		3.63
Conv. Total (cfs)	22991.5	Conv. (cfs)		22991.5
Length wtd. (ft)	530.00	wetted Per. (ft)		84.76
Min Ch El (ft)	95.14	Shear (lb/sq ft)		0.05
Alpha 0.00	1.00	Stream Power (lb/ft s)	2120.38	0.00
Frctn Loss (ft)	0.14	Cum volume (acre-ft)		57.00
C & E Loss (ft)	0.00	Cum SA (acres)		15.83

NM115 OUTPUT REPORT.TXT

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	103.79	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.03	wt. n-Val.		0.045
W.S. Elev (ft)	103.76	Reach Len. (ft)	530.00	530.00
530.00				
Crit w.s. (ft)	98.69	Flow Area (sq ft)		379.16
E.G. slope (ft/ft)	0.000250	Area (sq ft)		379.16
Q Total (cfs)	510.00	Flow (cfs)		510.00
Top width (ft)	89.28	Top width (ft)		89.28
vel Total (ft/s)	1.35	Avg. vel. (ft/s)		1.35
Max Chl Dpth (ft)	8.62	Hydr. Depth (ft)		4.25
Conv. Total (cfs)	32244.6	Conv. (cfs)		32244.6
Length wtd. (ft)	530.00	wetted Per. (ft)		91.74
Min Ch El (ft)	95.14	Shear (lb/sq ft)		0.06
Alpha	1.00	Stream Power (lb/ft s)	2120.38	0.00
0.00				
Frctn Loss (ft)	0.15	Cum volume (acre-ft)		72.34
C & E Loss (ft)	0.00	Cum SA (acres)		17.26

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-115
 REACH: NM-115 RS: 8418

INPUT

Description:

Station	Elevation	Data	num=	244	Sta	Elev	Sta	Elev	Sta	Elev
0	111.34	4.99	111.35	9.98	111.56	19.96	112.32	24.95	112.34	
39.92	111.86	49.89	111.74	54.88	111.79	59.87	112.06	74.84	111.85	
79.83	111.92	89.81	111.75	104.78	111.08	114.76	110.86	134.71	110.79	
139.7	110.85	144.69	110.76	149.68	110.48	164.65	110.11	174.63	110.09	
184.61	109.88	199.58	110.07	209.56	109.96	214.55	110.11	219.53	110.09	
239.49	109.45	244.48	109.55	259.45	110.46	264.44	110.54	269.43	110.97	
279.41	111.45	309.34	111.15	314.33	111.17	319.32	111.35	324.31	111.43	

NM115 OUTPUT REPORT.TXT

329.3	111.38	334.29	111.16	344.27	110.54	349.26	110.51	354.25	110.58
359.24	110.36	369.22	110.32	379.2	109.75	384.19	110.04	389.18	110.09
394.16	110.43	399.15	110.25	404.14	110.65	409.13	110.79	419.11	110.73
439.07	110.83	464.02	110.67	469.01	111	488.96	111.05	498.94	110.87
508.92	110.46	518.9	110.62	528.88	109.96	533.87	109.83	538.86	109.81
548.84	109.25	558.82	109.12	573.78	109.34	588.75	109.21	593.74	108.99
598.73	108.87	603.72	108.92	608.71	109.07	613.7	109.41	618.69	109.63
628.67	109.72	638.65	109.67	653.62	109.91	658.6	109.92	663.59	109.8
673.57	109.89	688.54	109.74	698.52	109.91	713.49	109.95	718.48	109.86
723.47	109.47	728.46	109.25	733.45	109.27	738.44	109.02	748.41	109.28
758.39	109.27	773.36	109.78	778.35	109.81	783.34	110.07	788.33	110.09
798.31	109.97	803.3	110.12	813.28	110.55	823.26	110.48	828.25	110.16
833.24	110.47	843.21	110.25	848.2	110.36	853.19	110.28	858.18	109.99
883.13	109.82	888.12	110.06	893.11	110.41	903.09	110.37	908.08	110.18
923.05	110.3	933.02	109.95	938.01	109.68	943	109.09	947.99	108.87
957.97	108.96	962.96	109.12	967.95	109.17	972.94	109.05	977.93	108.34
982.92	107.28	987.91	106.85	992.9	106	997.89	104.65	1002.88	103.96
1007.87	102.97	1012.86	101.65	1017.84	101.02	1022.83	100.21	1025.5	99.57
1027.82	99.02	1032.81	98.33	1037.8	97.11	1042.79	96.1	1047.78	95.62
1052.77	96.18	1057.76	98.28	1062.75	99.28	1067.74	99.46	1072.73	100.03
1077.72	101	1082.71	101.75	1085.5	102.06	1087.7	102.31	1092.69	103.79
1097.68	105.41	1102.67	106.5	1107.65	107.05	1112.64	108.46	1117.63	109.16
1122.62	109.22	1132.6	109.21	1147.57	109.63	1167.53	109.93	1177.51	109.92
1182.5	109.74	1192.47	109.76	1207.44	109.93	1217.42	109.86	1222.41	110.1
1227.4	109.98	1232.39	110.14	1237.38	110.14	1242.37	110.27	1257.34	110.24
1262.33	110.14	1267.32	110.31	1272.31	110.05	1277.3	110.03	1282.28	110.22
1287.27	110.07	1292.26	110.13	1297.25	109.82	1312.22	109.7	1322.2	109.78
1332.18	109.57	1342.16	109.62	1347.15	109.79	1357.13	109.55	1362.12	109.51
1377.08	109.07	1387.06	108.99	1397.04	108.7	1417	108.8	1436.96	109.12
1446.94	108.79	1456.91	108.89	1466.89	108.69	1476.87	108.88	1491.84	109.54
1496.83	109.6	1506.81	109.93	1511.8	110	1516.79	109.92	1521.78	109.72
1536.75	109.82	1556.7	110.05	1561.69	109.99	1566.68	109.8	1571.67	109.36
1581.65	109.35	1591.63	109.66	1596.62	110.14	1601.61	110.06	1606.6	109.64
1611.59	109.39	1616.58	109.28	1626.55	109.34	1636.53	109.52	1651.5	109.41
1656.49	109.7	1671.46	109.81	1691.42	109.57	1721.35	109.97	1731.33	110
1741.31	109.71	1746.3	109.95	1771.25	110.1	1776.24	110.03	1791.21	110.17
1801.18	110.03	1811.16	110.1	1821.14	109.84	1861.06	109.47	1876.03	109.51
1881.02	109.45	1890.99	109.59	1895.98	109.58	1905.96	109.35	1925.92	109.44
1930.91	109.31	1935.9	109.08	1945.88	109.23	1960.85	109.67	1970.82	109.72
1980.8	109.5	1995.77	109.27	2010.74	109.29	2020.72	109.11	2050.66	108.99
2055.65	109.05	2060.63	109.27	2065.62	109.12	2075.6	109.13	2080.59	109.23
2085.58	109.43	2090.57	109.36	2095.56	109.47	2110.53	109.44		

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 977.93 .045 1112.64 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 977.93 1112.64 492 492 493 .1 .3
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 977.93 108.34 F
 1112.64 2110.53 108.46 F

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft) 102.13 Element Left OB Channel
 Right OB
 Vel Head (ft) 0.02 wt. n-val. 0.045
 W.S. Elev (ft) 102.11 Reach Len. (ft) 492.00 492.00
 493.00

NM115 OUTPUT REPORT.TXT				
Crit w.s. (ft)	98.23	Flow Area (sq ft)		231.51
E.G. Slope (ft/ft)	0.000305	Area (sq ft)		231.51
Q Total (cfs)	280.20	Flow (cfs)		280.20
Top width (ft)	74.82	Top width (ft)		74.82
Vel Total (ft/s)	1.21	Avg. Vel. (ft/s)		1.21
Max Chl Dpth (ft)	6.49	Hydr. Depth (ft)		3.09
Conv. Total (cfs)	16035.7	Conv. (cfs)		16035.7
Length wtd. (ft)	492.00	wetted Per. (ft)		76.20
Min Ch El (ft)	95.62	Shear (lb/sq ft)		0.06
Alpha	1.00	Stream Power (lb/ft s)	2110.53	0.00
0.00				
Frctn Loss (ft)	0.22	Cum Volume (acre-ft)		45.00
C & E Loss (ft)	0.00	Cum SA (acres)		13.88

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	102.68	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.03	wt. n-val.		0.045
W.S. Elev (ft)	102.65	Reach Len. (ft)	492.00	492.00
493.00				
Crit w.s. (ft)	98.57	Flow Area (sq ft)		273.57
E.G. Slope (ft/ft)	0.000306	Area (sq ft)		273.57
Q Total (cfs)	355.10	Flow (cfs)		355.10
Top width (ft)	79.78	Top width (ft)		79.78
Vel Total (ft/s)	1.30	Avg. Vel. (ft/s)		1.30
Max Chl Dpth (ft)	7.03	Hydr. Depth (ft)		3.43
Conv. Total (cfs)	20285.9	Conv. (cfs)		20285.9
Length wtd. (ft)	492.00	wetted Per. (ft)		81.29
Min Ch El (ft)	95.62	Shear (lb/sq ft)		0.06
Alpha	1.00	Stream Power (lb/ft s)	2110.53	0.00
0.00				
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)		52.85

NM115 OUTPUT REPORT.TXT

C & E Loss (ft) 0.00 Cum SA (acres) 14.78

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	103.63	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.03	wt. n-val.		0.045
W.S. Elev (ft)	103.60	Reach Len. (ft)	492.00	492.00
493.00				
Crit w.s. (ft)	99.12	Flow Area (sq ft)		352.60
E.G. Slope (ft/ft)	0.000305	Area (sq ft)		352.60
Q Total (cfs)	508.60	Flow (cfs)		508.60
Top width (ft)	87.35	Top width (ft)		87.35
Vel Total (ft/s)	1.44	Avg. Vel. (ft/s)		1.44
Max Chl Dpth (ft)	7.98	Hydr. Depth (ft)		4.04
Conv. Total (cfs)	29129.3	Conv. (cfs)		29129.3
Length wtd. (ft)	492.00	wetted Per. (ft)		89.10
Min Ch El (ft)	95.62	Shear (lb/sq ft)		0.08
Alpha	1.00	Stream Power (lb/ft s)	2110.53	0.00
0.00				
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)		67.72
C & E Loss (ft)	0.00	Cum SA (acres)		16.17

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	102.19	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	wt. n-val.		0.045
W.S. Elev (ft)	102.17	Reach Len. (ft)	492.00	492.00
493.00				

NM115 OUTPUT REPORT.TXT				
Crit w.s. (ft)	98.27	Flow Area (sq ft)		236.14
E.G. Slope (ft/ft)	0.000310	Area (sq ft)		236.14
Q Total (cfs)	290.00	Flow (cfs)		290.00
Top width (ft)	75.59	Top width (ft)		75.59
Vel Total (ft/s)	1.23	Avg. Vel. (ft/s)		1.23
Max Chl Dpth (ft)	6.55	Hydr. Depth (ft)		3.12
Conv. Total (cfs)	16460.7	Conv. (cfs)		16460.7
Length wtd. (ft)	492.00	wetted Per. (ft)		76.99
Min Ch El (ft)	95.62	Shear (lb/sq ft)		0.06
Alpha	1.00	Stream Power (lb/ft s)	2110.53	0.00
0.00				
Frctn Loss (ft)	0.22	Cum Volume (acre-ft)		45.44
C & E Loss (ft)	0.00	Cum SA (acres)		13.93

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	102.71	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.03	wt. n-val.		0.045
W.S. Elev (ft)	102.69	Reach Len. (ft)	492.00	492.00
493.00				
Crit w.s. (ft)	98.58	Flow Area (sq ft)		276.51
E.G. Slope (ft/ft)	0.000305	Area (sq ft)		276.51
Q Total (cfs)	360.00	Flow (cfs)		360.00
Top width (ft)	80.04	Top width (ft)		80.04
Vel Total (ft/s)	1.30	Avg. Vel. (ft/s)		1.30
Max Chl Dpth (ft)	7.07	Hydr. Depth (ft)		3.45
Conv. Total (cfs)	20604.6	Conv. (cfs)		20604.6
Length wtd. (ft)	492.00	wetted Per. (ft)		81.57
Min Ch El (ft)	95.62	Shear (lb/sq ft)		0.06
Alpha	1.00	Stream Power (lb/ft s)	2110.53	0.00
0.00				
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)		53.50

NM115 OUTPUT REPORT.TXT

C & E Loss (ft) 0.00 Cum SA (acres) 14.84

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	103.64	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.03	wt. n-Val.		0.045
W.S. Elev (ft)	103.61	Reach Len. (ft)	492.00	492.00
493.00				
Crit w.s. (ft)	99.12	Flow Area (sq ft)		353.37
E.G. Slope (ft/ft)	0.000305	Area (sq ft)		353.37
Q Total (cfs)	510.00	Flow (cfs)		510.00
Top width (ft)	87.42	Top width (ft)		87.42
Vel Total (ft/s)	1.44	Avg. Vel. (ft/s)		1.44
Max Chl Dpth (ft)	7.99	Hydr. Depth (ft)		4.04
Conv. Total (cfs)	29218.9	Conv. (cfs)		29218.9
Length wtd. (ft)	492.00	wetted Per. (ft)		89.18
Min Ch El (ft)	95.62	Shear (lb/sq ft)		0.08
Alpha	1.00	Stream Power (lb/ft s)	2110.53	0.00
0.00				
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)		67.88
C & E Loss (ft)	0.00	Cum SA (acres)		16.18

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-115
 REACH: NM-115 RS: 7926

INPUT

Description:
 Station Elevation Data num= 204

NM115 OUTPUT REPORT.TXT

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	109.89	5	110.01	14.99	110.06	19.98	110.3	29.97	110.22
39.96	110.33	44.96	110.1	59.94	110.2	64.94	110.33	84.92	110.2
89.91	109.99	114.89	109.92	119.89	110.01	124.88	110.43	129.88	110.3
134.87	110.3	139.87	110.11	144.86	110.11	149.86	110.23	159.85	110.33
164.84	110.01	169.84	110.24	179.83	110.15	184.82	109.96	194.81	110.04
209.8	110.03	214.79	110.2	219.79	110.12	229.78	110.21	249.76	110.04
274.74	110.25	284.73	110.03	294.72	110.18	299.71	110.57	304.71	110.47
309.7	110.22	324.69	110.25	349.66	109.97	364.65	110.2	369.65	110.1
374.64	109.81	379.64	109.67	389.63	109.83	404.61	109.73	414.6	110.03
424.59	109.82	429.59	109.82	434.58	110.03	439.58	110.04	449.57	109.65
454.56	109.85	479.54	109.78	489.53	109.67	494.52	109.69	499.52	109.92
514.51	109.89	524.5	109.49	529.49	109.47	534.49	109.59	544.48	109.95
554.47	109.99	564.46	109.61	569.45	109.81	574.45	109.79	579.44	109.98
584.44	110.01	599.42	109.79	609.41	109.9	629.4	109.87	634.39	110.2
639.39	110.2	644.38	110.31	649.38	110.18	659.37	110.11	664.36	110
689.34	109.97	694.33	110.09	704.32	110.05	714.31	110.24	734.3	109.8
749.28	109.9	754.28	110.18	774.26	110.07	779.25	110.29	784.25	110.34
799.23	109.96	804.23	109.66	809.22	109.47	819.21	108.75	829.2	108.92
839.19	108.93	854.18	108.74	859.18	108.83	864.17	109.11	874.16	109.44
879.16	109.8	884.15	110.04	894.14	110.25	899.14	110.44	939.1	110.54
944.09	110.61	949.09	110.58	954.08	110.3	959.08	110.17	974.07	109.21
979.06	109.07	984.06	108.65	994.05	108.29	1004.04	108.41	1009.03	108.31
1014.03	107.34	1019.02	106.29	1024.02	106.05	1029.01	104.91	1034.01	103.99
1039	103.28	1044	103.12	1048.99	102.36	1053.99	101.69	1056.46	101.34
1058.98	100.98	1063.98	100.78	1068.97	99.17	1073.97	96.25	1078.97	95.39
1083.96	96.42	1088.96	96.57	1093.95	99.6	1098.95	100.3	1103.94	100.62
1108.94	100.63	1113.93	101.21	1116.46	101.81	1118.93	102.38	1123.92	103.9
1128.92	103.95	1133.91	105.7	1138.91	107.12	1143.9	108.43	1148.9	108.52
1153.89	108.98	1158.89	108.95	1163.88	109.03	1168.88	109.28	1173.87	109.32
1188.86	109.86	1193.86	109.93	1208.84	110.94	1213.84	111.03	1218.83	111.25
1223.83	111.37	1303.75	110.98	1323.73	111.25	1388.67	110.94	1428.63	111.13
1438.62	111.01	1448.61	111.19	1453.61	111.13	1458.6	110.96	1463.6	110.94
1478.58	111.2	1483.58	111.21	1488.57	111.09	1548.52	111.02	1558.51	110.93
1598.47	111.19	1608.46	111.04	1633.44	110.99	1643.43	111.24	1648.42	111.03
1653.42	110.98	1663.41	110.66	1668.4	110.22	1673.4	110.14	1683.39	109.35
1688.38	109.09	1693.38	109.03	1703.37	109.39	1723.35	109.43	1733.34	109.87
1743.33	109.99	1753.32	110.4	1763.31	110.67	1768.31	110.89	1778.3	110.96
1833.25	110.58	1843.24	110.69	1858.22	110.47	1873.21	110.42	1878.2	110.32
1913.17	110.35	1923.16	109.98	1928.16	110.2	1938.15	110.43	1998.09	110.17
2003.08	110.08	2023.06	110.14	2033.06	109.78	2083.01	109.41	2088	109.29
2097.99	109.71	2147.94	109.88	2152.94	109.77	2172.92	110.02		

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 1009.03 .045 1143.9 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 1009.03 1143.9 198 198 198 .1 .3
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 1009.03 108.31 F
 1143.9 2172.92 108.43 F

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft) 101.92 Element Left OB Channel
 Right OB
 Vel Head (ft) 0.04 wt. n-val. 0.045
 W.S. Elev (ft) 101.87 Reach Len. (ft) 198.00 198.00
 198.00

NM115 OUTPUT REPORT.TXT				
Crit w.s. (ft)	98.19	Flow Area (sq ft)		172.60
E.G. Slope (ft/ft)	0.000677	Area (sq ft)		172.60
Q Total (cfs)	280.20	Flow (cfs)		280.20
Top width (ft)	64.13	Top width (ft)		64.13
Vel Total (ft/s)	1.62	Avg. Vel. (ft/s)		1.62
Max Chl Dpth (ft)	6.48	Hydr. Depth (ft)		2.69
Conv. Total (cfs)	10770.2	Conv. (cfs)		10770.2
Length wtd. (ft)	198.00	wetted Per. (ft)		66.44
Min Ch El (ft)	95.39	Shear (lb/sq ft)		0.11
Alpha	1.00	Stream Power (lb/ft s)	2172.92	0.00
0.00				
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)		42.72
C & E Loss (ft)	0.00	Cum SA (acres)		13.10

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	102.46	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.04	wt. n-Val.		0.045
W.S. Elev (ft)	102.42	Reach Len. (ft)	198.00	198.00
198.00				
Crit w.s. (ft)	98.52	Flow Area (sq ft)		209.28
E.G. Slope (ft/ft)	0.000647	Area (sq ft)		209.28
Q Total (cfs)	355.10	Flow (cfs)		355.10
Top width (ft)	70.46	Top width (ft)		70.46
Vel Total (ft/s)	1.70	Avg. Vel. (ft/s)		1.70
Max Chl Dpth (ft)	7.03	Hydr. Depth (ft)		2.97
Conv. Total (cfs)	13962.9	Conv. (cfs)		13962.9
Length wtd. (ft)	198.00	wetted Per. (ft)		72.87
Min Ch El (ft)	95.39	Shear (lb/sq ft)		0.12
Alpha	1.00	Stream Power (lb/ft s)	2172.92	0.00
0.00				
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)		50.12
C & E Loss (ft)	0.00	Cum SA (acres)		13.93

NM115 OUTPUT REPORT.TXT

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	103.42	Element	Left OB	Channel
Right OB Vel Head (ft)	0.05	wt. n-Val.		0.045
W.S. Elev (ft)	103.37	Reach Len. (ft)	198.00	198.00
198.00 Crit w.s. (ft)	99.11	Flow Area (sq ft)		281.48
E.G. Slope (ft/ft)	0.000620	Area (sq ft)		281.48
Q Total (cfs)	508.60	Flow (cfs)		508.60
Top width (ft)	83.83	Top width (ft)		83.83
Vel Total (ft/s)	1.81	Avg. Vel. (ft/s)		1.81
Max Chl Dpth (ft)	7.98	Hydr. Depth (ft)		3.36
Conv. Total (cfs)	20419.8	Conv. (cfs)		20419.8
Length wtd. (ft)	198.00	wetted Per. (ft)		86.44
Min Ch El (ft)	95.39	Shear (lb/sq ft)		0.13
Alpha 0.00	1.00	Stream Power (lb/ft s)	2172.92	0.00
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)		64.14
C & E Loss (ft)	0.00	Cum SA (acres)		15.20

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	101.97	Element	Left OB	Channel
Right OB Vel Head (ft)	0.04	wt. n-Val.		0.045
W.S. Elev (ft)	101.93	Reach Len. (ft)	198.00	198.00
198.00 Crit w.s. (ft)	98.24	Flow Area (sq ft)		176.34
E.G. Slope (ft/ft)	0.000684	Area (sq ft)		176.34
Q Total (cfs)	290.00	Flow (cfs)		290.00
Top width (ft)	64.81	Top width (ft)		64.81
Vel Total (ft/s)	1.64	Avg. Vel. (ft/s)		1.64

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Max Chl Dpth (ft)	6.54	Hydr. Depth (ft)	2.72
Conv. Total (cfs)	11084.9	Conv. (cfs)	11084.9
Length wtd. (ft)	198.00	Wetted Per. (ft)	67.13
Min Ch El (ft)	95.39	Shear (lb/sq ft)	0.11
Alpha 0.00	1.00	Stream Power (lb/ft s)	2172.92
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)	43.11
C & E Loss (ft)	0.00	Cum SA (acres)	13.14

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	102.50	Element	Left OB	Channel
Right OB Vel Head (ft)	0.04	wt. n-Val.		0.045
W.S. Elev (ft)	102.46	Reach Len. (ft)	198.00	198.00
198.00 Crit w.s. (ft)	98.54	Flow Area (sq ft)		211.97
E.G. Slope (ft/ft)	0.000642	Area (sq ft)		211.97
Q Total (cfs)	360.00	Flow (cfs)		360.00
Top width (ft)	70.84	Top width (ft)		70.84
Vel Total (ft/s)	1.70	Avg. Vel. (ft/s)		1.70
Max Chl Dpth (ft)	7.07	Hydr. Depth (ft)		2.99
Conv. Total (cfs)	14213.5	Conv. (cfs)		14213.5
Length wtd. (ft)	198.00	Wetted Per. (ft)		73.25
Min Ch El (ft)	95.39	Shear (lb/sq ft)		0.12
Alpha 0.00	1.00	Stream Power (lb/ft s)	2172.92	0.00
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)		50.74
C & E Loss (ft)	0.00	Cum SA (acres)		13.99

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

NM115 OUTPUT REPORT.TXT

Element	Left OB	Channel
E.G. Elev (ft)	103.43	
Right OB		
Vel Head (ft)	0.05	0.045
W.S. Elev (ft)	103.38	198.00
198.00		
Crit w.s. (ft)	99.11	282.24
E.G. slope (ft/ft)	0.000619	282.24
Q Total (cfs)	510.00	510.00
Top width (ft)	83.92	83.92
Vel Total (ft/s)	1.81	1.81
Max Chl Dpth (ft)	7.99	3.36
Conv. Total (cfs)	20497.1	20497.1
Length wtd. (ft)	198.00	86.53
Min Ch El (ft)	95.39	0.13
Alpha	1.00	2172.92
0.00		
Frctn Loss (ft)	0.13	64.29
C & E Loss (ft)	0.00	15.21

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-115
 REACH: NM-115 RS: 7728

INPUT

Description:

Station	Elevation	Data	num=	211	Station	Elevation	Station	Elevation	Station	Elevation
0	109.82	5	110.04	14.99	110.13	19.98	109.94	29.97	109.89	
34.97	109.62	39.96	109.72	44.96	109.94	49.95	109.94	54.95	110.07	
59.94	110.06	69.93	109.83	74.93	109.81	79.92	109.94	99.9	109.85	
109.89	110.14	124.88	110.12	139.87	109.98	144.86	109.34	154.85	109.03	
159.85	109.05	169.84	109.74	174.83	109.33	179.83	109.19	184.82	109.16	
194.81	109.79	199.81	109.84	209.8	109.63	229.78	109.83	269.74	109.87	
274.74	110	279.73	110.23	294.72	110.39	304.71	110.24	314.7	110.27	
324.69	110.02	349.66	109.78	364.65	110.1	379.64	110.11	384.63	110.21	
419.6	110.05	434.58	109.81	459.56	109.96	464.55	109.86	474.54	109.12	
479.54	109.07	484.53	108.74	489.53	108.58	499.52	108.72	504.52	109.42	
509.51	109.53	514.51	109.83	519.5	109.92	524.5	109.89	529.49	109.66	
534.49	109.97	554.47	109.91	564.46	109.82	569.45	109.93	599.42	109.75	
609.41	109.84	614.41	110.02	624.4	109.7	639.39	109.68	684.34	110.13	
694.33	110.04	704.32	109.72	714.31	109.7	724.3	109.85	734.3	109.55	
744.29	109.82	789.24	109.58	799.23	109.75	804.23	109.64	809.22	109.38	
819.21	108.35	834.2	108.29	839.19	108.17	849.19	108.37	854.18	108.25	
859.18	108.26	864.17	108.45	869.17	108.9	884.15	109.68	894.14	109.74	

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899.14	109.66	904.13	109.3	914.12	109.66	934.1	109.77	949.09	109.75
969.07	109.42	974.07	109.4	979.06	109.24	989.05	108.64	999.04	108.62
1004.04	109.04	1014.03	108.79	1019.02	107.02	1024.02	105.94	1029.01	104.86
1034.01	104.85	1039	103.96	1044	103.1	1048.99	102.66	1053.99	102.43
1056.46	102.43	1058.98	102.43	1063.98	101.37	1068.97	98.73	1073.97	96.12
1078.97	95.93	1083.96	95.02	1088.96	97.23	1093.95	99.4	1098.95	99.7
1103.94	100.02	1108.94	100.58	1113.93	101.46	1116.46	101.56	1118.93	101.65
1123.92	102.82	1128.92	104.34	1133.91	106.03	1138.91	107.25	1148.9	107.63
1153.89	107.6	1158.89	107.31	1168.88	107.05	1183.87	107.54	1193.86	107.6
1198.85	107.75	1203.85	108.16	1208.84	108.78	1223.83	109.4	1238.81	109.62
1248.8	109.45	1258.79	109.54	1268.78	109.93	1278.77	110.04	1303.75	109.38
1313.74	108.85	1318.74	108.37	1323.73	108.11	1328.73	108.08	1333.72	108.2
1338.72	108.65	1343.71	108.85	1353.7	109.08	1368.69	109.03	1378.68	108.71
1383.67	108.63	1403.66	109.08	1418.64	109.08	1423.64	108.92	1438.62	108.91
1443.62	109.04	1448.61	109.28	1483.58	109.18	1493.57	109.31	1503.56	109.18
1513.55	109.32	1543.52	109.25	1563.5	109.41	1583.48	109.25	1603.46	109.29
1633.44	109.14	1663.41	109.3	1673.4	108.86	1688.38	108.77	1693.38	108.81
1703.37	109.2	1713.36	109.38	1723.35	109.78	1793.28	109.36	1803.27	109.54
1818.26	109.39	1823.26	109.27	1838.24	109.27	1868.21	109.21	1878.2	109.42
1898.18	109.22	1908.17	109.31	1938.15	109.12	1943.14	109	1953.13	108.92
1963.12	108.59	1968.12	108.55	1973.11	108.15	1978.11	107.93	1983.1	108.2
1988.1	108.22	1998.09	108.76	2013.07	108.8	2018.07	108.94	2023.06	108.96
2028.06	108.77	2033.06	108.82	2038.05	108.49	2048.04	108.34	2058.03	108.41
2063.03	108.57	2073.02	108.59	2083.01	108.37	2088	108.54	2112.98	108.72
2117.97	108.65	2127.96	108.73	2132.96	108.23	2152.94	107.6	2167.93	107.38
2172.92	107.17								

Manning's n values	num=	3
Sta n Val	Sta n Val	Sta n Val
0 .06 1014.03	.045 1138.91	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.	Expan.
1014.03	1138.91	550	549	548	.1	.3	
Ineffective Flow	num=	2					
Sta L	Sta R	Elev	Permanent				
0 1014.03	108.79	F					
1138.91	2172.92	107.25	F				

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	101.78	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.04	wt. n-Val.		0.045
w.s. Elev (ft)	101.74	Reach Len. (ft)	550.00	549.00
548.00				
Crit w.s. (ft)	98.05	Flow Area (sq ft)		167.44
E.G. Slope (ft/ft)	0.000647	Area (sq ft)		167.44
Q Total (cfs)	280.20	Flow (cfs)		280.20
Top width (ft)	57.09	Top width (ft)		57.09
Vel Total (ft/s)	1.67	Avg. Vel. (ft/s)		1.67
Max chl Dpth (ft)	6.72	Hydr. Depth (ft)		2.93
Conv. Total (cfs)	11012.5	Conv. (cfs)		11012.5
Length wtd. (ft)	549.00	Wetted Per. (ft)		59.57

NM115 OUTPUT REPORT.TXT				
Min Ch El (ft)	95.02	Shear (lb/sq ft)		0.11
Alpha 0.00	1.00	Stream Power (lb/ft s)	2172.92	0.00
Frctn Loss (ft)	0.22	Cum Volume (acre-ft)		41.95
C & E Loss (ft)	0.01	Cum SA (acres)		12.82

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	102.34	Element	Left OB	Channel
Right OB Vel Head (ft)	0.05	wt. n-val.		0.045
w.s. Elev (ft)	102.29	Reach Len. (ft)	550.00	549.00
548.00 Crit w.s. (ft)	98.39	Flow Area (sq ft)		199.98
E.G. Slope (ft/ft)	0.000641	Area (sq ft)		199.98
Q Total (cfs)	355.10	Flow (cfs)		355.10
Top width (ft)	62.00	Top width (ft)		62.00
Vel Total (ft/s)	1.78	Avg. Vel. (ft/s)		1.78
Max Chl Dpth (ft)	7.27	Hydr. Depth (ft)		3.23
Conv. Total (cfs)	14027.1	Conv. (cfs)		14027.1
Length wtd. (ft)	549.00	wetted Per. (ft)		64.60
Min Ch El (ft)	95.02	Shear (lb/sq ft)		0.12
Alpha 0.00	1.00	Stream Power (lb/ft s)	2172.92	0.00
Frctn Loss (ft)	0.22	Cum Volume (acre-ft)		49.19
C & E Loss (ft)	0.01	Cum SA (acres)		13.63

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	103.29	Element	Left OB	Channel
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NM115 OUTPUT REPORT.TXT

Right OB				
Vel Head (ft)	0.05	Wt. n-Val.		0.045
W.S. Elev (ft)	103.24	Reach Len. (ft)	550.00	549.00
548.00				
Crit W.S. (ft)	98.99	Flow Area (sq ft)		270.62
E.G. Slope (ft/ft)	0.000690	Area (sq ft)		270.62
Q Total (cfs)	508.60	Flow (cfs)		508.60
Top width (ft)	82.09	Top width (ft)		82.09
Vel Total (ft/s)	1.88	Avg. Vel. (ft/s)		1.88
Max Chl Dpth (ft)	8.22	Hydr. Depth (ft)		3.30
Conv. Total (cfs)	19359.9	Conv. (cfs)		19359.9
Length wtd. (ft)	549.00	wetted Per. (ft)		84.87
Min ch El (ft)	95.02	Shear (lb/sq ft)		0.14
Alpha	1.00	Stream Power (lb/ft s)	2172.92	0.00
0.00				
Frctn Loss (ft)	0.23	Cum Volume (acre-ft)		62.88
C & E Loss (ft)	0.01	Cum SA (acres)		14.82

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	101.84	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.04	Wt. n-Val.		0.045
W.S. Elev (ft)	101.80	Reach Len. (ft)	550.00	549.00
548.00				
Crit W.S. (ft)	98.09	Flow Area (sq ft)		170.64
E.G. Slope (ft/ft)	0.000659	Area (sq ft)		170.64
Q Total (cfs)	290.00	Flow (cfs)		290.00
Top width (ft)	57.59	Top width (ft)		57.59
Vel Total (ft/s)	1.70	Avg. Vel. (ft/s)		1.70
Max Chl Dpth (ft)	6.78	Hydr. Depth (ft)		2.96
Conv. Total (cfs)	11300.8	Conv. (cfs)		11300.8
Length wtd. (ft)	549.00	wetted Per. (ft)		60.08

NM115 OUTPUT REPORT.TXT				
Min Ch El (ft)	95.02	Shear (lb/sq ft)		0.12
Alpha 0.00	1.00	Stream Power (lb/ft s)	2172.92	0.00
Frctn Loss (ft)	0.23	Cum Volume (acre-ft)		42.32
C & E Loss (ft)	0.01	Cum SA (acres)		12.86

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	102.38	Element	Left OB	Channel
Right OB Vel Head (ft)	0.05	wt. n-val.		0.045
w.s. Elev (ft)	102.33	Reach Len. (ft)	550.00	549.00
548.00 Crit w.s. (ft)	98.41	Flow Area (sq ft)		202.40
E.G. Slope (ft/ft)	0.000638	Area (sq ft)		202.40
Q Total (cfs)	360.00	Flow (cfs)		360.00
Top width (ft)	62.35	Top width (ft)		62.35
Vel Total (ft/s)	1.78	Avg. Vel. (ft/s)		1.78
Max Chl Dpth (ft)	7.31	Hydr. Depth (ft)		3.25
Conv. Total (cfs)	14257.9	Conv. (cfs)		14257.9
Length wtd. (ft)	549.00	wetted Per. (ft)		64.95
Min Ch El (ft)	95.02	Shear (lb/sq ft)		0.12
Alpha 0.00	1.00	Stream Power (lb/ft s)	2172.92	0.00
Frctn Loss (ft)	0.22	Cum Volume (acre-ft)		49.80
C & E Loss (ft)	0.01	Cum SA (acres)		13.69

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	103.30	Element	Left OB	Channel
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NM115 OUTPUT REPORT.TXT

Right OB				
Vel Head (ft)	0.05	wt. n-val.		0.045
w.s. Elev (ft)	103.25	Reach Len. (ft)	550.00	549.00
548.00				
Crit w.s. (ft)	99.00	Flow Area (sq ft)		271.40
E.G. slope (ft/ft)	0.000688	Area (sq ft)		271.40
Q Total (cfs)	510.00	Flow (cfs)		510.00
Top width (ft)	82.18	Top width (ft)		82.18
Vel Total (ft/s)	1.88	Avg. Vel. (ft/s)		1.88
Max chl Dpth (ft)	8.23	Hydr. Depth (ft)		3.30
Conv. Total (cfs)	19438.9	Conv. (cfs)		19438.9
Length wtd. (ft)	549.00	wetted Per. (ft)		84.95
Min ch El (ft)	95.02	shear (lb/sq ft)		0.14
Alpha	1.00	Stream Power (lb/ft s)	2172.92	0.00
0.00				
Frctn Loss (ft)	0.23	Cum Volume (acre-ft)		63.04
C & E Loss (ft)	0.01	Cum SA (acres)		14.84

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-115
 REACH: NM-115

RS: 7179

INPUT

Description:

Station	Elevation	Data	num=	226						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	
0	109.46	4.99	109.58	9.98	109.54	14.97	109.61	19.97	109.58	
29.95	109.83	34.94	109.7	49.92	109.61	59.9	109.73	64.89	109.95	
79.87	109.88	99.83	109.5	104.82	109.48	114.81	109.8	149.75	109.86	
169.72	109.68	179.7	109.5	184.69	109.26	189.68	109.12	199.67	109.02	
204.66	109.17	209.65	109.16	214.64	108.81	219.63	108.79	224.62	108.91	
229.61	108.88	234.61	108.72	259.56	108.89	264.56	108.84	269.55	108.93	
274.54	109.42	279.53	109.59	289.51	109.46	299.5	109.23	354.41	109.58	
364.39	109.48	369.38	109.74	404.32	109.67	409.31	109.46	424.29	109.42	
429.28	109.54	434.27	109.55	439.26	109.76	449.25	109.31	454.24	109.57	
459.23	109.54	474.2	108.95	479.2	108.97	484.19	108.87	494.17	108.51	
504.15	108.37	509.15	108.49	519.13	108.07	524.12	108.09	529.11	108.28	
534.1	108.6	539.1	108.73	544.09	108.64	549.08	108.74	554.07	109.02	
564.05	108.78	584.02	108.97	594	108.96	613.97	109.43	623.95	109.36	
633.94	109.46	648.91	109.15	668.88	109.15	673.87	109.22	678.86	109.52	
683.85	109.7	693.84	109.32	698.83	109.03	703.82	109.43	708.81	109.54	

NM115 OUTPUT REPORT.TXT

723.79	109.4	728.78	109.09	743.75	109.08	748.74	109.01	753.74	108.73
758.73	108.68	763.72	108.12	768.71	107.85	798.66	107.96	803.65	107.8
813.64	108.73	818.63	108.87	823.62	108.88	828.61	109.13	833.6	109.23
848.58	109.04	853.57	109.31	858.56	109.09	883.52	109.18	888.51	109.05
898.49	109.18	913.47	108.98	918.46	109.01	923.45	108.85	928.44	108.79
938.43	108.39	948.41	108.34	953.4	108.06	958.39	107.5	963.38	106.38
968.38	105.91	973.37	104.91	978.36	103.28	983.35	101.82	988.34	101.26
993.33	100.41	998.33	99.21	998.86	99.12	1003.32	98.37	1008.31	97.39
1013.3	96.79	1018.29	95.81	1023.28	95.38	1028.28	96.9	1033.27	97.96
1038.26	98.11	1043.25	98.35	1048.24	98.98	1053.23	99.64	1058.23	100.5
1058.86	100.74	1063.22	102.38	1068.21	104.1	1073.2	105.07	1078.19	105.69
1083.18	107.09	1088.18	108.03	1093.17	108.13	1098.16	107.81	1103.15	107.68
1108.14	107.4	1123.12	107.53	1128.11	107.66	1138.09	108.07	1143.08	108.11
1158.06	108.6	1178.03	108.89	1188.01	108.84	1197.99	109.08	1207.98	109.1
1217.96	109.29	1222.95	109.19	1232.93	109.28	1237.93	109.25	1247.91	109.32
1252.9	109.25	1257.89	109.47	1262.88	109.19	1277.86	109.09	1292.83	109.22
1307.81	109.74	1312.8	109.78	1317.79	110	1327.78	109.82	1377.69	109.45
1382.68	109.53	1387.68	109.74	1397.66	109.61	1402.65	109.21	1412.63	108.22
1417.63	108.01	1427.61	107.28	1432.6	107.29	1447.58	107.56	1457.56	107.3
1467.54	107.33	1477.53	107.76	1487.51	107.7	1492.5	107.78	1497.49	108.04
1507.48	108.33	1512.47	108.57	1517.46	108.65	1522.45	108.88	1527.44	109.49
1532.43	109.83	1567.38	109.82	1582.35	109.72	1592.33	109.85	1602.32	109.72
1612.3	109.42	1617.29	109.62	1627.28	109.36	1637.26	108.58	1642.25	108.43
1647.24	108.42	1652.23	108.08	1662.22	107.81	1667.21	107.79	1682.18	107.35
1692.17	107.44	1697.16	108.39	1702.15	108.17	1707.14	108.15	1717.13	107.12
1722.12	107.08	1732.1	107.22	1742.08	107.16	1747.08	106.97	1752.07	106.92
1762.05	107.17	1772.03	107.12	1777.03	107	1782.02	107.09	1787.01	107.32
1792	107.39	1801.99	107.83	1811.97	108.6	1826.94	109.04	1846.91	109.26
1881.85	109.11	1891.83	108.93	1906.81	108.44	1916.79	107.61	1926.78	107.66
1936.76	108.25	1941.75	108.41	1946.74	108.44	1956.73	108.84	2066.54	108.55
2071.54	108.35								

Manning's n Values
 Sta n Val Sta num= 3
 0 .06 953.4 .045 1088.18 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 953.4 1088.18 540 538 537 .1 .3
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 953.4 108.06 F
 1088.18 2071.54 108.03 F

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	101.55	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-val.		0.045
w.s. Elev (ft)	101.53	Reach Len. (ft)	540.00	538.00
537.00 Crit w.s. (ft)	98.19	Flow Area (sq ft)		237.73
E.G. slope (ft/ft)	0.000280	Area (sq ft)		237.73
Q Total (cfs)	280.20	Flow (cfs)		280.20
Top width (ft)	75.06	Top width (ft)		75.06
Vel Total (ft/s)	1.18	Avg. Vel. (ft/s)		1.18
Max chl Dpth (ft)	6.15	Hydr. Depth (ft)		3.17

NM115 OUTPUT REPORT.TXT

Conv. Total (cfs)	16747.5	Conv. (cfs)	16747.5
Length wtd. (ft)	538.00	wetted Per. (ft)	76.29
Min Ch El (ft)	95.38	Shear (lb/sq ft)	0.05
Alpha 0.00	1.00	Stream Power (lb/ft s)	2071.54 0.00
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)	39.39
C & E Loss (ft)	0.00	Cum SA (acres)	11.99

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	102.11	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-val.		0.045
W.S. Elev (ft)	102.08	Reach Len. (ft)	540.00	538.00
537.00 Crit w.s. (ft)	98.45	Flow Area (sq ft)		280.39
E.G. slope (ft/ft)	0.000283	Area (sq ft)		280.39
Q Total (cfs)	355.10	Flow (cfs)		355.10
Top width (ft)	79.96	Top width (ft)		79.96
vel Total (ft/s)	1.27	Avg. vel. (ft/s)		1.27
Max Chl Dpth (ft)	6.70	Hydr. Depth (ft)		3.51
Conv. Total (cfs)	21125.7	Conv. (cfs)		21125.7
Length wtd. (ft)	538.00	wetted Per. (ft)		81.35
Min Ch El (ft)	95.38	Shear (lb/sq ft)		0.06
Alpha 0.00	1.00	Stream Power (lb/ft s)	2071.54	0.00
Frctn Loss (ft)	0.15	Cum Volume (acre-ft)		46.17
C & E Loss (ft)	0.00	Cum SA (acres)		12.74

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	103.05	Element	Left OB	Channel
Right OB		Page 106		

NM115 OUTPUT REPORT.TXT				
Vel Head (ft)	0.03	wt. n-val.		0.045
W.S. Elev (ft)	103.02	Reach Len. (ft)	540.00	538.00
537.00 Crit w.s. (ft)	98.85	Flow Area (sq ft)		358.57
E.G. Slope (ft/ft)	0.000282	Area (sq ft)		358.57
Q Total (cfs)	508.60	Flow (cfs)		508.60
Top Width (ft)	85.85	Top Width (ft)		85.85
Vel Total (ft/s)	1.42	Avg. Vel. (ft/s)		1.42
Max Chl Dpth (ft)	7.64	Hydr. Depth (ft)		4.18
Conv. Total (cfs)	30312.5	Conv. (cfs)		30312.5
Length wtd. (ft)	538.00	wetted Per. (ft)		87.54
Min Ch El (ft)	95.38	Shear (lb/sq ft)		0.07
Alpha 0.00	1.00	Stream Power (lb/ft s)	2071.54	0.00
Frctn Loss (ft)	0.17	Cum Volume (acre-ft)		58.92
C & E Loss (ft)	0.00	Cum SA (acres)		13.77

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	101.61	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-val.		0.045
W.S. Elev (ft)	101.58	Reach Len. (ft)	540.00	538.00
537.00 Crit w.s. (ft)	98.23	Flow Area (sq ft)		241.59
E.G. Slope (ft/ft)	0.000287	Area (sq ft)		241.59
Q Total (cfs)	290.00	Flow (cfs)		290.00
Top Width (ft)	75.65	Top Width (ft)		75.65
Vel Total (ft/s)	1.20	Avg. Vel. (ft/s)		1.20
Max Chl Dpth (ft)	6.20	Hydr. Depth (ft)		3.19
Conv. Total (cfs)	17112.7	Conv. (cfs)		17112.7
Length wtd. (ft)	538.00	wetted Per. (ft)		76.89
Min Ch El (ft)	95.38	Shear (lb/sq ft)		0.06
Alpha 0.00	1.00	Stream Power (lb/ft s)	2071.54	0.00

	NM115 OUTPUT REPORT.TXT		
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)	39.73
C & E Loss (ft)	0.00	Cum SA (acres)	12.02

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	102.15	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	wt. n-val.		0.045
W.S. Elev (ft)	102.12	Reach Len. (ft)	540.00	538.00
537.00 Crit w.s. (ft)	98.46	Flow Area (sq ft)		283.61
E.G. slope (ft/ft)	0.000281	Area (sq ft)		283.61
Q Total (cfs)	360.00	Flow (cfs)		360.00
Top width (ft)	80.21	Top width (ft)		80.21
vel Total (ft/s)	1.27	Avg. vel. (ft/s)		1.27
Max Chl Dpth (ft)	6.74	Hydr. Depth (ft)		3.54
Conv. Total (cfs)	21486.2	Conv. (cfs)		21486.2
Length wtd. (ft)	538.00	wetted Per. (ft)		81.61
Min Ch El (ft)	95.38	Shear (lb/sq ft)		0.06
Alpha 0.00	1.00	Stream Power (lb/ft s)	2071.54	0.00
Frctn Loss (ft)	0.15	Cum volume (acre-ft)		46.73
C & E Loss (ft)	0.00	Cum SA (acres)		12.79

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	103.06	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	wt. n-val.		0.045
W.S. Elev (ft)	103.03	Reach Len. (ft)	540.00	538.00
537.00 Crit w.s. (ft)	98.85	Flow Area (sq ft)		359.42
E.G. slope (ft/ft)	0.000281	Area (sq ft)		359.42
Q Total (cfs)	510.00	Flow (cfs)		510.00

NM115 OUTPUT REPORT.TXT

Top width (ft)	85.91	Top width (ft)	85.91
Vel Total (ft/s)	1.42	Avg. Vel. (ft/s)	1.42
Max Chl Dpth (ft)	7.65	Hydr. Depth (ft)	4.18
Conv. Total (cfs)	30416.4	Conv. (cfs)	30416.4
Length wtd. (ft)	538.00	wetted Per. (ft)	87.60
Min Ch El (ft)	95.38	Shear (lb/sq ft)	0.07
Alpha 0.00	1.00	Stream Power (lb/ft s)	2071.54
Frctn Loss (ft)	0.17	Cum volume (acre-ft)	59.06
C & E Loss (ft)	0.00	Cum SA (acres)	13.78

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-115
REACH: NM-115

RS: 6641

INPUT

Description:

Station	Elevation	Data	num=	182					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	109.75	4.99	109.93	69.93	110.06	74.92	109.91	84.91	108.89
89.91	108.64	99.9	108.65	109.89	108.99	119.88	109.02	129.86	108.79
139.85	108.87	149.84	109.22	209.78	109.13	219.77	108.9	224.77	108.89
239.75	109.31	244.75	109.35	249.74	109.23	279.71	109.05	289.7	109.14
334.65	109.16	349.64	108.99	359.63	109.1	379.6	108.95	389.59	108.72
399.58	108.71	409.57	108.39	414.57	108.14	419.56	108.18	424.56	108.48
429.55	109.09	459.52	109.08	494.49	109.39	504.48	109.32	509.47	109.16
579.4	109.15	629.35	108.65	649.32	108.92	659.31	109.16	669.3	109.14
679.29	108.95	714.26	109.03	724.25	108.77	739.23	108.81	749.22	108.5
759.21	108.37	764.21	108.15	769.2	107.74	794.17	107.64	799.17	107.53
809.16	108.07	814.15	108.09	824.14	108.36	844.12	108.56	849.12	108.8
859.11	108.76	874.09	108.56	884.08	108.94	899.07	108.9	904.06	108.75
914.05	108.83	924.04	108.71	934.03	108.04	939.02	107.82	944.02	107.78
959	107.05	964	106.96	968.99	106.48	973.99	105.75	978.98	105.63
983.98	105.42	988.97	104.89	993.97	103.7	998.93	101.79	998.96	101.78
1003.96	98.71	1008.95	97.27	1013.95	96.03	1018.94	94.74	1023.94	94.56
1028.93	94.59	1033.93	94.97	1038.92	97.08	1043.91	100.17	1048.91	101.47
1053.9	102.03	1058.9	103	1058.93	103	1063.89	103.92	1068.89	104.53
1073.88	104.88	1078.88	105.95	1083.87	107.11	1088.87	107.99	1093.86	108.4
1098.86	108.31	1103.85	108.07	1108.85	107.96	1113.84	108.01	1118.84	107.95
1123.83	107.77	1128.83	107.8	1133.82	108.08	1138.82	107.92	1143.81	107.6
1153.8	107.74	1163.79	107.69	1168.78	107.59	1173.78	107.68	1178.77	107.66
1183.77	107.53	1193.76	107.61	1208.74	107.62	1213.74	107.55	1223.73	107.58
1228.72	107.26	1233.72	107.6	1248.7	107.57	1253.7	107.47	1258.69	107.61
1268.68	107.66	1278.67	107.58	1288.66	107.65	1298.65	107.5	1308.64	107.61
1313.63	107.55	1318.63	107.63	1333.61	107.57	1358.59	107.85	1363.58	107.78
1378.57	107.94	1403.54	107.78	1448.49	107.77	1463.48	107.61	1483.46	107.64
1488.45	107.58	1493.45	107.67	1508.43	107.7	1513.42	107.62	1523.41	107.77

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1528.41	107.72	1533.4	107.79	1573.36	107.66	1593.34	107.75	1633.3	107.65
1643.29	107.47	1648.28	107.21	1663.27	107.02	1673.26	107.18	1678.25	107.35
1688.24	107.98	1693.24	108.04	1698.23	108.56	1703.23	108.83	1778.15	108.24
1783.14	108.28	1793.13	108.03	1803.12	108.08	1808.12	108	1823.1	107.64
1833.09	107.68	1843.08	108.11	1858.07	108.07	1863.06	108.25	1868.05	108.29
1878.04	108.57	1888.03	108.56	1893.03	108.16	1903.02	107.88	1908.01	107.65
1918	107.67	1923	107.99	1932.99	107.94	1942.98	108.33	1952.97	108.23
1957.96	108.33	1967.95	108.37	1972.94	108.54	1977.94	108.84	1992.92	109.03
2032.88	108.7	2057.86	108.69						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	964	.045	1088.87	.06

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.	Expan.
	964	1088.87		290	293	.1	.3
Ineffective Flow			num=	2			
Sta L	Sta R	Elev	Permanent				
0	964	106.96	F				
1088.87	2057.86	107.99	F				

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	101.42	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	wt. n-Val.		0.045
W.S. Elev (ft)	101.40	Reach Len. (ft)	290.00	293.00
296.00				
Crit w.s. (ft)	96.65	Flow Area (sq ft)		221.06
E.G. Slope (ft/ft)	0.000213	Area (sq ft)		221.06
Q Total (cfs)	280.20	Flow (cfs)		280.20
Top width (ft)	49.05	Top width (ft)		49.05
Vel Total (ft/s)	1.27	Avg. Vel. (ft/s)		1.27
Max Chl Dpth (ft)	6.84	Hydr. Depth (ft)		4.51
Conv. Total (cfs)	19202.6	Conv. (cfs)		19202.6
Length wtd. (ft)	293.00	wetted Per. (ft)		51.81
Min Ch El (ft)	94.56	Shear (lb/sq ft)		0.06
Alpha	1.00	Stream Power (lb/ft s)	2057.86	0.00
0.00				
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)		36.56
C & E Loss (ft)	0.00	Cum SA (acres)		11.22

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

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		Element	Left OB	Channel
E.G. Elev (ft)	101.96			
Right OB				
Vel Head (ft)	0.03	wt. n-Val.		0.045
W.S. Elev (ft)	101.93	Reach Len. (ft)	290.00	293.00
296.00				
Crit w.s. (ft)	96.94	Flow Area (sq ft)		248.21
E.G. Slope (ft/ft)	0.000266	Area (sq ft)		248.21
Q Total (cfs)	355.10	Flow (cfs)		355.10
Top width (ft)	54.39	Top width (ft)		54.39
Vel Total (ft/s)	1.43	Avg. Vel. (ft/s)		1.43
Max Chl Dpth (ft)	7.37	Hydr. Depth (ft)		4.56
Conv. Total (cfs)	21775.8	Conv. (cfs)		21775.8
Length wtd. (ft)	293.00	wetted Per. (ft)		57.32
Min Ch El (ft)	94.56	Shear (lb/sq ft)		0.07
Alpha	1.00	Stream Power (lb/ft s)	2057.86	0.00
0.00				
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)		42.90
C & E Loss (ft)	0.00	Cum SA (acres)		11.91

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

		Element	Left OB	Channel
E.G. Elev (ft)	102.89			
Right OB				
Vel Head (ft)	0.04	wt. n-Val.		0.045
W.S. Elev (ft)	102.84	Reach Len. (ft)	290.00	293.00
296.00				
Crit w.s. (ft)	97.44	Flow Area (sq ft)		301.80
E.G. Slope (ft/ft)	0.000337	Area (sq ft)		301.80
Q Total (cfs)	508.60	Flow (cfs)		508.60
Top width (ft)	61.90	Top width (ft)		61.90
Vel Total (ft/s)	1.69	Avg. Vel. (ft/s)		1.69
Max Chl Dpth (ft)	8.28	Hydr. Depth (ft)		4.88
Conv. Total (cfs)	27711.0	Conv. (cfs)		27711.0
Length wtd. (ft)	293.00	wetted Per. (ft)		65.09
Min Ch El (ft)	94.56	Shear (lb/sq ft)		0.10

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Alpha	1.00	Stream Power (lb/ft s)	2057.86	0.00
0.00				
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)		54.84
C & E Loss (ft)	0.01	Cum SA (acres)		12.85

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	101.47	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.03	wt. n-Val.		0.045
W.S. Elev (ft)	101.44	Reach Len. (ft)	290.00	293.00
296.00				
Crit w.s. (ft)	96.69	Flow Area (sq ft)		223.34
E.G. Slope (ft/ft)	0.000222	Area (sq ft)		223.34
Q Total (cfs)	290.00	Flow (cfs)		290.00
Top width (ft)	49.30	Top width (ft)		49.30
Vel Total (ft/s)	1.30	Avg. Vel. (ft/s)		1.30
Max Chl Dpth (ft)	6.88	Hydr. Depth (ft)		4.53
Conv. Total (cfs)	19464.6	Conv. (cfs)		19464.6
Length wtd. (ft)	293.00	wetted Per. (ft)		52.08
Min Ch El (ft)	94.56	Shear (lb/sq ft)		0.06
Alpha	1.00	Stream Power (lb/ft s)	2057.86	0.00
0.00				
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)		36.86
C & E Loss (ft)	0.00	Cum SA (acres)		11.25

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	102.00	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.03	wt. n-Val.		0.045
W.S. Elev (ft)	101.96	Reach Len. (ft)	290.00	293.00
296.00				
Crit w.s. (ft)	96.95	Flow Area (sq ft)		250.39
E.G. slope (ft/ft)	0.000268	Area (sq ft)		250.39

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Q Total (cfs)	360.00	Flow (cfs)	360.00
Top width (ft)	54.84	Top width (ft)	54.84
Vel Total (ft/s)	1.44	Avg. Vel. (ft/s)	1.44
Max Chl Dpth (ft)	7.40	Hydr. Depth (ft)	4.57
Conv. Total (cfs)	21975.0	Conv. (cfs)	21975.0
Length wtd. (ft)	293.00	Wetted Per. (ft)	57.78
Min Ch El (ft)	94.56	Shear (lb/sq ft)	0.07
Alpha 0.00	1.00	Stream Power (lb/ft s)	2057.86
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)	43.44
C & E Loss (ft)	0.00	Cum SA (acres)	11.96

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	102.90	Element	Left OB	Channel
Right OB Vel Head (ft)	0.04	wt. n-val.		0.045
W.S. Elev (ft)	102.85	Reach Len. (ft)	290.00	293.00
296.00 Crit W.S. (ft)	97.45	Flow Area (sq ft)		302.41
E.G. Slope (ft/ft)	0.000337	Area (sq ft)		302.41
Q Total (cfs)	510.00	Flow (cfs)		510.00
Top width (ft)	61.98	Top width (ft)		61.98
Vel Total (ft/s)	1.69	Avg. Vel. (ft/s)		1.69
Max Chl Dpth (ft)	8.29	Hydr. Depth (ft)		4.88
Conv. Total (cfs)	27782.1	Conv. (cfs)		27782.1
Length wtd. (ft)	293.00	wetted Per. (ft)		65.17
Min Ch El (ft)	94.56	Shear (lb/sq ft)		0.10
Alpha 0.00	1.00	Stream Power (lb/ft s)	2057.86	0.00
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)		54.97
C & E Loss (ft)	0.01	Cum SA (acres)		12.86

NM115 OUTPUT REPORT.TXT

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-115
 REACH: NM-115

RS: 6348

INPUT

Description:

Station Elevation Data		num= 211	
Sta	Elev	Sta	Elev
0	108.42	5	108.41
89.96	108.44	99.95	108.52
129.94	108.98	139.93	108.66
159.92	108.31	194.91	108.43
244.88	108.69	269.87	108.68
334.84	108.68	349.83	108.42
409.8	108.48	424.8	108.74
474.77	108.71	494.76	108.94
514.75	109.74	519.75	109.57
574.72	109.01	579.72	109.28
619.7	109.34	629.7	109.35
669.68	109.25	674.67	109.39
699.66	109.61	704.66	109.48
729.65	108.73	734.65	108.49
764.63	107.54	769.63	107.14
804.61	107.72	809.61	107.49
844.59	107.39	849.59	107.59
874.58	109.19	884.57	109.5
944.54	108.89	949.54	109.21
994.52	109.4	999.52	109.09
1019.51	103.77	1024.51	101.98
1043.71	99.65	1044.5	99.5
1064.49	95.95	1069.48	96.81
1089.47	98.69	1094.47	98.75
1109.47	99.63	1114.46	100.54
1134.45	106.68	1139.45	107.03
1174.43	109.03	1194.42	109.24
1229.41	109.34	1244.4	109.45
1269.39	109.16	1274.39	109.31
1304.37	109.39	1309.37	109.41
1339.36	109.39	1344.35	109.22
1374.34	109.25	1379.34	109.42
1404.32	109.48	1414.32	109.29
1529.26	109.51	1539.26	109.39
1574.24	109.06	1584.24	109.08
1639.21	109.4	1649.21	109.44
1684.19	108.7	1689.19	108.54
1729.17	108.91	1744.16	109.51
1829.12	109.42	1834.12	109.41
1874.1	108.92	1884.09	108.67
1989.04	108.63	2004.04	108.53
2039.02	108.97	2044.02	108.91
2118.98	109.31		

Manning's n Values		num= 3	
Sta	n Val	Sta	n Val
0	.06	999.52	.045
		1144.45	.06

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.	Expan.
	999.52	1144.45		555	553	.1	.3
					552		

NM115 OUTPUT REPORT.TXT

Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 999.52 109.09 F
 1144.45 2118.98 108.24 F

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	101.35	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	wt. n-val.		0.045
W.S. Elev (ft)	101.33	Reach Len. (ft)	555.00	553.00
552.00				
Crit w.s. (ft)	98.15	Flow Area (sq ft)		244.89
E.G. Slope (ft/ft)	0.000325	Area (sq ft)		244.89
Q Total (cfs)	280.20	Flow (cfs)		280.20
Top width (ft)	90.74	Top width (ft)		90.74
Vel Total (ft/s)	1.14	Avg. Vel. (ft/s)		1.14
Max chl Dpth (ft)	6.10	Hydr. Depth (ft)		2.70
Conv. Total (cfs)	15534.4	Conv. (cfs)		15534.4
Length wtd. (ft)	553.00	wetted Per. (ft)		91.98
Min ch El (ft)	95.23	shear (lb/sq ft)		0.05
Alpha	1.00	Stream Power (lb/ft s)	2118.98	0.00
0.00				
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)		34.99
C & E Loss (ft)	0.00	Cum SA (acres)		10.75

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	101.87	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	wt. n-val.		0.045
W.S. Elev (ft)	101.85	Reach Len. (ft)	555.00	553.00
552.00				
Crit w.s. (ft)	98.43	Flow Area (sq ft)		293.63
E.G. Slope (ft/ft)	0.000307	Area (sq ft)		293.63
Q Total (cfs)	355.10	Flow (cfs)		355.10
Top width (ft)	95.70	Top width (ft)		95.70
Vel Total (ft/s)	1.21	Avg. Vel. (ft/s)		1.21

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Max Chl Dpth (ft)	6.62	Hydr. Depth (ft)		3.07
Conv. Total (cfs)	20278.3	Conv. (cfs)		20278.3
Length Wtd. (ft)	553.00	Wetted Per. (ft)		97.08
Min Ch El (ft)	95.23	Shear (lb/sq ft)		0.06
Alpha 0.00	1.00	Stream Power (lb/ft s)	2118.98	0.00
Frctn Loss (ft)	0.18	Cum Volume (acre-ft)		41.08
C & E Loss (ft)	0.00	Cum SA (acres)		11.40

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	102.79	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	wt. n-Val.		0.045
W.S. Elev (ft)	102.77	Reach Len. (ft)	555.00	553.00
552.00 Crit w.s. (ft)	99.01	Flow Area (sq ft)		384.21
E.G. Slope (ft/ft)	0.000277	Area (sq ft)		384.21
Q Total (cfs)	508.60	Flow (cfs)		508.60
Top width (ft)	101.01	Top width (ft)		101.01
Vel Total (ft/s)	1.32	Avg. Vel. (ft/s)		1.32
Max Chl Dpth (ft)	7.54	Hydr. Depth (ft)		3.80
Conv. Total (cfs)	30570.6	Conv. (cfs)		30570.6
Length Wtd. (ft)	553.00	Wetted Per. (ft)		102.72
Min Ch El (ft)	95.23	Shear (lb/sq ft)		0.06
Alpha 0.00	1.00	Stream Power (lb/ft s)	2118.98	0.00
Frctn Loss (ft)	0.16	Cum Volume (acre-ft)		52.53
C & E Loss (ft)	0.00	Cum SA (acres)		12.31

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	101.39	Element	Left OB	Channel
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Right OB				
Vel Head (ft)	0.02	wt. n-Val.		0.045
W.S. Elev (ft)	101.37	Reach Len. (ft)	555.00	553.00
552.00				
Crit w.s. (ft)	98.19	Flow Area (sq ft)		248.90
E.G. Slope (ft/ft)	0.000332	Area (sq ft)		248.90
Q Total (cfs)	290.00	Flow (cfs)		290.00
Top width (ft)	91.16	Top width (ft)		91.16
Vel Total (ft/s)	1.17	Avg. Vel. (ft/s)		1.17
Max Chl Dpth (ft)	6.14	Hydr. Depth (ft)		2.73
Conv. Total (cfs)	15910.4	Conv. (cfs)		15910.4
Length wtd. (ft)	553.00	wetted Per. (ft)		92.40
Min ch El (ft)	95.23	Shear (lb/sq ft)		0.06
Alpha	1.00	Stream Power (lb/ft s)	2118.98	0.00
0.00				
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)		35.27
C & E Loss (ft)	0.00	Cum SA (acres)		10.78

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	101.91	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	wt. n-Val.		0.045
W.S. Elev (ft)	101.89	Reach Len. (ft)	555.00	553.00
552.00				
Crit w.s. (ft)	98.46	Flow Area (sq ft)		297.46
E.G. Slope (ft/ft)	0.000303	Area (sq ft)		297.46
Q Total (cfs)	360.00	Flow (cfs)		360.00
Top width (ft)	96.08	Top width (ft)		96.08
Vel Total (ft/s)	1.21	Avg. Vel. (ft/s)		1.21
Max Chl Dpth (ft)	6.66	Hydr. Depth (ft)		3.10
Conv. Total (cfs)	20666.1	Conv. (cfs)		20666.1
Length wtd. (ft)	553.00	wetted Per. (ft)		97.47
Min ch El (ft)	95.23	Shear (lb/sq ft)		0.06
Alpha	1.00	Stream Power (lb/ft s)	2118.98	0.00

NM115 OUTPUT REPORT.TXT

0.00			
Frctn Loss (ft)	0.18	Cum Volume (acre-ft)	41.59
C & E Loss (ft)	0.00	Cum SA (acres)	11.45

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	102.80	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.03	wt. n-val.		0.045
w.s. Elev (ft)	102.78	Reach Len. (ft)	555.00	553.00
552.00				
Crit w.s. (ft)	99.01	Flow Area (sq ft)		385.22
E.G. Slope (ft/ft)	0.000276	Area (sq ft)		385.22
Q Total (cfs)	510.00	Flow (cfs)		510.00
Top width (ft)	101.06	Top width (ft)		101.06
Vel Total (ft/s)	1.32	Avg. Vel. (ft/s)		1.32
Max chl Dpth (ft)	7.55	Hydr. Depth (ft)		3.81
Conv. Total (cfs)	30694.0	Conv. (cfs)		30694.0
Length wtd. (ft)	553.00	wetted Per. (ft)		102.77
Min ch El (ft)	95.23	shear (lb/sq ft)		0.06
Alpha	1.00	Stream Power (lb/ft s)	2118.98	0.00
0.00				
Frctn Loss (ft)	0.16	Cum Volume (acre-ft)		52.66
C & E Loss (ft)	0.00	Cum SA (acres)		12.31

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-115
 REACH: NM-115 RS: 5795

INPUT

Description:

Station	Elevation	Data	num=	209					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	109.38	9.99	109.36	19.98	109.1	24.97	109.09	39.95	108.7
44.94	108.7	49.94	108.81	54.93	109.03	74.91	109	89.89	108.83
114.86	108.69	124.84	108.56	139.83	108.53	149.81	108.87	164.79	108.95

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174.78	108.88	179.78	108.97	184.77	108.86	189.76	108.65	194.76	108.59
199.75	108.63	209.74	108.34	219.73	108.37	229.71	108.84	234.71	108.51
239.7	108.01	244.7	107.71	249.69	107.64	259.68	107.71	264.67	107.85
269.66	108.29	274.66	108.59	289.64	108.92	299.63	108.69	319.6	109.22
329.59	109.18	339.58	109.02	349.56	108.95	354.56	108.78	359.55	108.82
364.55	108.73	374.53	108.7	379.53	108.84	389.51	108.8	394.51	109.01
399.5	109.01	404.5	108.83	434.46	108.63	439.45	108.92	459.43	108.83
464.42	108.73	499.38	108.58	514.36	108.62	529.34	108.32	539.33	108.37
544.32	108.22	554.31	108.15	559.3	108.39	564.3	108.79	574.29	109.04
584.27	109.08	594.26	108.91	599.25	109.07	619.23	109.16	629.22	108.82
644.2	108.72	654.19	108.76	664.17	108.52	669.17	108.49	684.15	108.61
724.1	107.88	734.09	107.32	739.08	107.14	749.07	107.08	754.06	107.26
764.05	107.29	769.04	107.09	774.04	107.14	779.03	107.5	789.02	107.67
794.01	108.03	804	108.4	808.99	108.44	813.99	108.82	818.98	108.41
833.96	108.49	838.96	108.4	843.95	108.18	848.94	108.17	868.92	108.68
873.91	108.71	878.91	108.89	883.9	108.87	888.89	109.03	898.88	108.97
908.87	109.25	913.86	109.29	918.86	109.51	928.84	109.2	938.83	109.19
943.83	108.44	948.82	106.95	953.81	104.94	958.81	104.32	963.8	102.74
968.79	100.53	970.99	100.1	973.79	99.56	978.78	99.4	983.78	99.11
988.77	98.43	993.76	96.9	998.76	96.23	1003.75	95.41	1008.75	96.2
1013.74	98.03	1018.73	98.78	1023.73	98.98	1028.72	99.15	1031.02	99.15
1033.71	99.14	1038.71	99.11	1043.7	99.11	1048.7	99.69	1053.69	101.19
1058.68	103.15	1063.68	104.27	1068.67	105.08	1073.66	106.73	1078.66	107.99
1083.65	108.53	1123.6	107.93	1143.58	107.85	1158.56	108.05	1168.55	107.75
1173.54	107.78	1178.53	107.91	1198.51	107.86	1203.5	107.97	1228.47	108.01
1233.47	107.9	1248.45	107.99	1258.43	107.87	1263.43	108.07	1268.42	107.9
1273.42	108.02	1278.41	108.02	1283.4	107.88	1293.39	108.03	1298.38	108.01
1303.38	107.89	1313.37	108	1328.35	107.86	1343.33	108.02	1348.32	108.19
1353.32	108	1373.29	107.98	1378.28	108.09	1383.28	108.1	1398.26	107.85
1413.24	107.88	1418.24	107.99	1448.2	107.87	1453.19	108.01	1458.19	108.05
1483.15	107.8	1523.1	107.94	1543.08	107.84	1548.07	107.93	1588.02	107.95
1598.01	107.84	1627.97	107.93	1632.97	108.07	1642.96	108.04	1657.94	107.85
1692.89	107.81	1707.87	107.91	1712.87	108.05	1717.86	107.96	1727.85	107.97
1737.84	107.84	1757.81	107.98	1762.81	107.95	1767.8	108.04	1772.79	108.03
1782.78	107.82	1792.77	107.91	1802.76	107.85	1812.74	107.99	1822.73	107.87
1827.72	107.91	1832.72	107.85	1852.69	107.95	1862.68	107.83	1872.67	107.94
1907.63	107.79	1927.6	107.93	1932.59	108.03	1937.59	108.02	1947.58	107.84
1962.56	107.86	1967.55	107.78	1987.53	107.75	2022.48	107.76	2032.47	107.83
2037.46	107.71	2047.45	107.61	2052.45	107.79	2062.43	107.79		

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 938.83 .045 1083.65 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 938.83 1083.65 473 473 473 .1 .3
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 938.83 109.19 F
 1083.65 2062.43 108.53 F

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft) 101.15 Element Left OB Channel
 Right OB
 Vel Head (ft) 0.02 wt. n-val. 0.045
 W.S. Elev (ft) 101.12 Reach Len. (ft) 473.00 473.00
 473.00
 Crit w.s. (ft) 98.16 Flow Area (sq ft) 224.97
 E.G. slope (ft/ft) 0.000403 Area (sq ft) 224.97
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Q Total (cfs)	280.20	Flow (cfs)	280.20
Top width (ft)	86.00	Top width (ft)	86.00
Vel Total (ft/s)	1.25	Avg. Vel. (ft/s)	1.25
Max Chl Dpth (ft)	5.71	Hydr. Depth (ft)	2.62
Conv. Total (cfs)	13961.4	Conv. (cfs)	13961.4
Length wtd. (ft)	473.00	wetted Per. (ft)	87.31
Min Ch El (ft)	95.41	Shear (lb/sq ft)	0.06
Alpha 0.00	1.00	Stream Power (lb/ft s)	2062.43
Frctn Loss (ft)	0.16	Cum Volume (acre-ft)	32.01
C & E Loss (ft)	0.00	Cum SA (acres)	9.63

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	101.69	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	wt. n-val.		0.045
W.S. Elev (ft)	101.66	Reach Len. (ft)	473.00	473.00
473.00 Crit W.S. (ft)	98.49	Flow Area (sq ft)		272.09
E.G. Slope (ft/ft)	0.000358	Area (sq ft)		272.09
Q Total (cfs)	355.10	Flow (cfs)		355.10
Top width (ft)	88.65	Top width (ft)		88.65
Vel Total (ft/s)	1.31	Avg. Vel. (ft/s)		1.31
Max Chl Dpth (ft)	6.25	Hydr. Depth (ft)		3.07
Conv. Total (cfs)	18761.2	Conv. (cfs)		18761.2
Length wtd. (ft)	473.00	wetted Per. (ft)		90.17
Min Ch El (ft)	95.41	Shear (lb/sq ft)		0.07
Alpha 0.00	1.00	Stream Power (lb/ft s)	2062.43	0.00
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)		37.49
C & E Loss (ft)	0.00	Cum SA (acres)		10.23

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Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	102.63	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	wt. n-Val.		0.045
W.S. Elev (ft)	102.60	Reach Len. (ft)	473.00	473.00
473.00 Crit w.s. (ft)	99.29	Flow Area (sq ft)		357.31
E.G. Slope (ft/ft)	0.000318	Area (sq ft)		357.31
Q Total (cfs)	508.60	Flow (cfs)		508.60
Top width (ft)	93.15	Top width (ft)		93.15
Vel Total (ft/s)	1.42	Avg. Vel. (ft/s)		1.42
Max Chl Dpth (ft)	7.19	Hydr. Depth (ft)		3.84
Conv. Total (cfs)	28523.8	Conv. (cfs)		28523.8
Length wtd. (ft)	473.00	wetted Per. (ft)		95.05
Min Ch El (ft)	95.41	Shear (lb/sq ft)		0.07
Alpha 0.00	1.00	Stream Power (lb/ft s)	2062.43	0.00
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)		47.82
C & E Loss (ft)	0.00	Cum SA (acres)		11.07

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	101.19	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	wt. n-Val.		0.045
W.S. Elev (ft)	101.16	Reach Len. (ft)	473.00	473.00
473.00 Crit w.s. (ft)	98.21	Flow Area (sq ft)		228.37
E.G. Slope (ft/ft)	0.000412	Area (sq ft)		228.37
Q Total (cfs)	290.00	Flow (cfs)		290.00
Top width (ft)	86.22	Top width (ft)		86.22
Vel Total (ft/s)	1.27	Avg. Vel. (ft/s)		1.27
Max Chl Dpth (ft)	5.75	Hydr. Depth (ft)		2.65

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Conv. Total (cfs)	14288.9	Conv. (cfs)		14288.9
Length wtd. (ft)	473.00	Wetted Per. (ft)		87.55
Min Ch El (ft)	95.41	Shear (lb/sq ft)		0.07
Alpha 0.00	1.00	Stream Power (lb/ft s)	2062.43	0.00
Frctn Loss (ft)	0.16	Cum Volume (acre-ft)		32.24
C & E Loss (ft)	0.00	Cum SA (acres)		9.65

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	101.73	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	wt. n-Val.		0.045
W.S. Elev (ft)	101.70	Reach Len. (ft)	473.00	473.00
473.00 Crit w.s. (ft)	98.51	Flow Area (sq ft)		275.85
E.G. Slope (ft/ft)	0.000353	Area (sq ft)		275.85
Q Total (cfs)	360.00	Flow (cfs)		360.00
Top width (ft)	88.85	Top width (ft)		88.85
Vel Total (ft/s)	1.31	Avg. Vel. (ft/s)		1.31
Max Chl Dpth (ft)	6.29	Hydr. Depth (ft)		3.10
Conv. Total (cfs)	19163.7	Conv. (cfs)		19163.7
Length wtd. (ft)	473.00	Wetted Per. (ft)		90.39
Min Ch El (ft)	95.41	Shear (lb/sq ft)		0.07
Alpha 0.00	1.00	Stream Power (lb/ft s)	2062.43	0.00
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)		37.96
C & E Loss (ft)	0.00	Cum SA (acres)		10.27

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	102.64	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	wt. n-Val.		0.045

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W.S. Elev (ft)	102.61	Reach Len. (ft)	473.00	473.00
473.00				
Crit w.s. (ft)	99.29	Flow Area (sq ft)		358.28
E.G. Slope (ft/ft)	0.000317	Area (sq ft)		358.28
Q Total (cfs)	510.00	Flow (cfs)		510.00
Top width (ft)	93.20	Top width (ft)		93.20
Vel Total (ft/s)	1.42	Avg. Vel. (ft/s)		1.42
Max Chl Dpth (ft)	7.20	Hydr. Depth (ft)		3.84
Conv. Total (cfs)	28642.7	Conv. (cfs)		28642.7
Length wtd. (ft)	473.00	Wetted Per. (ft)		95.11
Min Ch El (ft)	95.41	Shear (lb/sq ft)		0.07
Alpha	1.00	Stream Power (lb/ft s)	2062.43	0.00
0.00				
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)		47.94
C & E Loss (ft)	0.00	Cum SA (acres)		11.08

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-115
 REACH: NM-115

RS: 5322

INPUT

Description:

Station	Elevation	Data	num=	221					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	108.44	4.99	107.81	9.98	107.76	14.97	107.44	19.96	107.45
24.94	107.78	29.93	107.81	34.92	108.32	44.9	108.89	49.89	109.05
59.87	109.14	64.85	109.37	69.84	109.07	129.71	108.85	139.69	108.94
154.65	108.57	164.63	108.41	174.61	108.03	184.58	107.91	189.57	107.97
199.55	108.36	204.54	108.38	209.53	108.5	214.52	108.48	239.46	109.08
294.34	108.97	309.3	108.52	319.28	107.96	329.26	107.3	334.25	107.32
344.23	107.64	354.2	108.09	359.19	108.75	364.18	108.96	379.15	109.01
394.11	108.85	399.1	108.73	424.05	108.81	434.02	109.01	463.96	109.1
468.95	108.83	473.93	108.06	478.92	107.95	483.91	107.67	488.9	107.95
498.88	107.78	503.87	107.78	508.86	107.65	518.83	108.23	533.8	108.46
538.79	108.67	553.76	108.86	598.65	108.77	613.62	108.59	628.59	107.97
633.58	107.85	638.56	107.61	643.55	107.47	658.52	107.32	663.51	107.61
668.5	108.19	673.49	108.53	678.47	108.67	683.46	108.95	708.41	108.94
738.34	108.94	753.31	108.75	783.24	108.72	788.23	108.23	793.22	107.55
798.21	107.39	803.19	107.38	808.18	107.19	813.17	107.4	818.16	107.51
828.14	107.48	833.13	107.18	838.12	107.49	843.1	107.55	853.08	108.21
858.07	108.32	868.05	108.2	873.04	108.41	878.03	108.46	883.01	108.33
907.96	108.43	932.9	108.74	942.88	108.64	952.86	108.76	957.85	109.02
962.83	108.99	967.82	108.63	972.81	108.56	982.79	108.91	992.77	109.75
997.76	109.64	1002.75	109.17	1007.73	108.03	1012.72	106.89	1017.71	106.01

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1021.67	104.24	1022.7	103.78	1027.69	101.76	1032.68	100.17	1037.67	99.31
1042.66	99.18	1047.64	98.45	1052.63	97.05	1057.62	95.59	1062.61	94.96
1067.6	94.91	1072.59	95.28	1077.58	96.92	1081.71	98.31	1082.57	98.6
1087.55	99.01	1092.54	99.08	1097.53	99.36	1102.52	99.31	1107.51	99.17
1112.5	99.25	1117.49	99.81	1122.48	101.03	1127.47	103.13	1132.45	105.06
1137.44	105.2	1142.43	107.09	1147.42	107.94	1157.4	107.91	1162.39	107.65
1172.36	107.87	1182.34	107.81	1187.33	107.64	1197.31	107.67	1202.3	107.76
1222.25	107.51	1232.23	107.57	1237.22	107.71	1247.2	107.81	1267.15	107.81
1272.14	107.67	1282.12	107.68	1287.11	107.59	1307.06	107.75	1317.04	107.73
1327.02	107.52	1351.96	107.81	1386.88	107.59	1426.79	107.84	1431.78	107.68
1436.77	107.73	1441.76	107.88	1456.73	107.67	1466.7	107.86	1471.69	107.68
1486.66	107.64	1491.65	107.52	1501.63	107.58	1506.61	107.97	1516.59	107.75
1521.58	107.78	1526.57	107.64	1541.54	107.75	1551.51	107.71	1556.5	107.56
1566.48	107.58	1571.47	107.78	1576.46	107.84	1596.41	107.68	1601.4	107.52
1611.38	107.49	1621.36	107.62	1631.33	107.58	1636.32	107.66	1646.3	107.52
1671.25	107.7	1691.2	107.58	1701.18	107.71	1716.14	107.54	1726.12	107.65
1746.08	107.47	1756.06	107.73	1766.03	107.5	1781	107.49	1790.98	107.7
1810.93	107.6	1815.92	107.69	1820.91	107.66	1830.89	107.39	1835.88	107.52
1845.85	107.51	1850.84	107.59	1855.83	107.48	1860.82	107.61	1865.81	107.57
1870.8	107.41	1880.78	107.61	1890.75	107.52	1905.72	107.64	1910.71	107.46
1930.66	107.61	1940.64	107.72	1945.63	107.51	1950.62	107.51	1955.61	107.85
1970.57	107.75	1975.56	107.83	1980.55	107.66	1990.53	107.69	1995.52	107.82
2000.51	107.72	2015.47	107.78	2030.44	107.55	2045.41	107.61	2070.35	107.56
2125.23	107.48	2140.19	107.66	2160.15	107.5	2170.13	107.61	2185.09	107.6
2195.07	107.48								

Manning's n	Values	num=	3
Sta	n Val	Sta	n val
0	.06	1002.75	.045
		1147.42	.06

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	1002.75	1147.42		270	270	270		.1	.3
Ineffective Flow		num=	2						
Sta L	Sta R	Elev	Permanent						
0	1002.75	109.17	F						
1147.42	2195.07	107.94	F						

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	100.99	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	wt. n-val.		0.045
W.S. Elev (ft)	100.97	Reach Len. (ft)	270.00	270.00
270.00				
Crit w.s. (ft)	97.14	Flow Area (sq ft)		258.37
E.G. slope (ft/ft)	0.000278	Area (sq ft)		258.37
Q Total (cfs)	280.20	Flow (cfs)		280.20
Top width (ft)	92.05	Top width (ft)		92.05
Vel Total (ft/s)	1.08	Avg. vel. (ft/s)		1.08
Max chl Dpth (ft)	6.06	Hydr. Depth (ft)		2.81
Conv. Total (cfs)	16800.9	Conv. (cfs)		16800.9
Length wtd. (ft)	270.00	wetted Per. (ft)		93.50
Min ch El (ft)	94.91	Shear (lb/sq ft)		0.05

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Alpha	1.00	Stream Power (lb/ft s)	2195.07	0.00
0.00				
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)		29.39
C & E Loss (ft)	0.00	Cum SA (acres)		8.66

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	101.54	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	wt. n-val.		0.045
W.S. Elev (ft)	101.52	Reach Len. (ft)	270.00	270.00
270.00				
Crit w.s. (ft)	97.43	Flow Area (sq ft)		310.37
E.G. slope (ft/ft)	0.000254	Area (sq ft)		310.37
Q Total (cfs)	355.10	Flow (cfs)		355.10
Top width (ft)	95.22	Top width (ft)		95.22
vel Total (ft/s)	1.14	Avg. vel. (ft/s)		1.14
Max Chl Dpth (ft)	6.61	Hydr. Depth (ft)		3.26
Conv. Total (cfs)	22275.4	Conv. (cfs)		22275.4
Length wtd. (ft)	270.00	wetted Per. (ft)		96.86
Min Ch El (ft)	94.91	Shear (lb/sq ft)		0.05
Alpha	1.00	Stream Power (lb/ft s)	2195.07	0.00
0.00				
Frctn Loss (ft)	0.07	Cum volume (acre-ft)		34.33
C & E Loss (ft)	0.00	Cum SA (acres)		9.24

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	102.50	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	wt. n-val.		0.045
W.S. Elev (ft)	102.47	Reach Len. (ft)	270.00	270.00
270.00				
Crit w.s. (ft)	97.95	Flow Area (sq ft)		403.29

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E.G. Slope (ft/ft)	0.000233	Area (sq ft)	403.29
Q Total (cfs)	508.60	Flow (cfs)	508.60
Top Width (ft)	99.99	Top Width (ft)	99.99
Vel Total (ft/s)	1.26	Avg. Vel. (ft/s)	1.26
Max Chl Dpth (ft)	7.56	Hydr. Depth (ft)	4.03
Conv. Total (cfs)	33299.3	Conv. (cfs)	33299.3
Length wtd. (ft)	270.00	wetted Per. (ft)	101.99
Min Ch El (ft)	94.91	Shear (lb/sq ft)	0.06
Alpha 0.00	1.00	Stream Power (lb/ft s)	2195.07
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)	43.69
C & E Loss (ft)	0.00	Cum SA (acres)	10.02

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	101.02	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-val.		0.045
W.S. Elev (ft)	101.00	Reach Len. (ft)	270.00	270.00
270.00 Crit w.s. (ft)	97.18	Flow Area (sq ft)		261.62
E.G. slope (ft/ft)	0.000287	Area (sq ft)		261.62
Q Total (cfs)	290.00	Flow (cfs)		290.00
Top Width (ft)	92.31	Top Width (ft)		92.31
Vel Total (ft/s)	1.11	Avg. Vel. (ft/s)		1.11
Max Chl Dpth (ft)	6.09	Hydr. Depth (ft)		2.83
Conv. Total (cfs)	17122.1	Conv. (cfs)		17122.1
Length wtd. (ft)	270.00	wetted Per. (ft)		93.76
Min Ch El (ft)	94.91	Shear (lb/sq ft)		0.05
Alpha 0.00	1.00	Stream Power (lb/ft s)	2195.07	0.00
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)		29.58
C & E Loss (ft)	0.00	Cum SA (acres)		8.68

NM115 OUTPUT REPORT.TXT

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	101.59	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-val.		0.045
W.S. Elev (ft)	101.57	Reach Len. (ft)	270.00	270.00
270.00 Crit w.s. (ft)	97.45	Flow Area (sq ft)		314.60
E.G. slope (ft/ft)	0.000251	Area (sq ft)		314.60
Q Total (cfs)	360.00	Flow (cfs)		360.00
Top width (ft)	95.46	Top width (ft)		95.46
vel Total (ft/s)	1.14	Avg. vel. (ft/s)		1.14
Max Chl Dpth (ft)	6.66	Hydr. Depth (ft)		3.30
Conv. Total (cfs)	22743.0	Conv. (cfs)		22743.0
Length wtd. (ft)	270.00	wetted Per. (ft)		97.12
Min Ch El (ft)	94.91	Shear (lb/sq ft)		0.05
Alpha 0.00	1.00	Stream Power (lb/ft s)	2195.07	0.00
Frctn Loss (ft)	0.07	Cum volume (acre-ft)		34.75
C & E Loss (ft)	0.00	Cum SA (acres)		9.27

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	102.51	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-val.		0.045
W.S. Elev (ft)	102.49	Reach Len. (ft)	270.00	270.00
270.00 Crit w.s. (ft)	97.95	Flow Area (sq ft)		404.37
E.G. slope (ft/ft)	0.000233	Area (sq ft)		404.37
Q Total (cfs)	510.00	Flow (cfs)		510.00
Top width (ft)	100.04	Top width (ft)		100.04
vel Total (ft/s)	1.26	Avg. vel. (ft/s)		1.26
Max Chl Dpth (ft)	7.58	Hydr. Depth (ft)		4.04

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Conv. Total (cfs)	33435.9	Conv. (cfs)	33435.9
Length wtd. (ft)	270.00	wetted Per. (ft)	102.05
Min Ch El (ft)	94.91	Shear (lb/sq ft)	0.06
Alpha 0.00	1.00	Stream Power (lb/ft s)	2195.07
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)	43.80
C & E Loss (ft)	0.00	Cum SA (acres)	10.03

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-115
 REACH: NM-115 RS: 5052

INPUT

Description:

Station	Elevation	Data	num=	243					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	108.71	19.96	108.52	29.93	108.21	39.91	107.53	44.9	107.48
54.88	107.73	59.87	108.01	64.85	108.11	74.83	109.18	79.82	109.22
84.81	109.16	89.8	108.8	94.79	109.11	99.78	109.22	104.76	109.18
109.75	108.97	114.74	108.86	119.73	108.99	129.71	108.99	134.7	109.27
144.67	108.59	154.65	108.55	159.64	108.61	169.62	108.51	174.61	108.92
184.58	108.35	189.57	108.28	194.56	107.86	199.55	107.88	204.54	108
214.52	107.89	219.51	107.71	224.5	107.98	229.48	108.35	239.46	108.51
249.44	108.96	264.41	109.07	329.26	108.62	344.23	108.33	349.21	108.06
354.2	107.63	359.19	107.38	369.17	107.3	374.16	107.48	379.15	107.78
384.14	107.93	389.13	108.37	394.11	108.66	424.05	109.02	473.93	108.99
478.92	108.89	483.91	108.89	488.9	108.76	493.89	108.76	498.88	108.51
503.87	108.72	508.86	108.02	518.83	107.98	523.82	108.28	528.81	108.12
538.79	108.1	543.78	108.62	553.76	108.52	563.73	108.98	578.7	109.15
608.63	108.86	628.59	108.96	648.54	108.59	658.52	108.63	663.51	108.5
668.5	108.05	673.49	107.73	678.47	107.71	688.45	107.33	693.44	107.28
698.43	107.52	703.42	108	708.41	108.18	718.38	108.13	733.35	108.43
743.33	108.48	753.31	108.74	768.27	108.55	778.25	108.79	793.22	108.88
798.21	109.04	808.18	109.04	813.17	108.61	818.16	108.28	823.15	108.27
828.14	107.99	833.13	107.33	838.12	107.37	843.1	107.62	858.07	107.6
868.05	107.78	873.04	108.04	878.03	108.11	883.01	108	888	107.99
897.98	108.7	902.97	108.82	917.94	108.77	922.92	109.11	932.9	108.96
942.88	108.71	947.87	108.49	952.86	108.42	957.85	108.72	972.81	109
977.8	108.71	982.79	108.64	1012.72	108.68	1022.7	109.03	1027.69	109.04
1037.67	108.41	1042.53	107.49	1042.66	107.47	1047.64	105.43	1052.63	103.15
1057.62	101.87	1062.61	101.11	1067.6	99.62	1072.59	98.83	1077.58	98.66
1082.57	98.35	1087.55	97.32	1092.54	95.69	1097.53	94.54	1102.52	94.58
1102.56	94.58	1107.51	95.26	1112.5	97.17	1117.49	98.27	1122.48	98.29
1127.47	98.4	1132.45	98.99	1137.44	100.13	1142.43	101.12	1147.42	101.41
1152.41	102.95	1157.4	105.13	1162.39	106.42	1167.38	106.62	1172.36	107.85
1177.35	107.99	1182.34	107.86	1192.32	107.97	1197.31	107.83	1202.3	107.51
1212.27	107.52	1217.26	107.62	1232.23	107.62	1242.21	107.57	1252.19	107.68
1262.16	107.39	1267.15	107.67	1272.14	107.71	1282.12	107.54	1287.11	107.56
1292.1	107.75	1302.07	107.75	1307.06	107.56	1317.04	107.76	1346.97	107.64
1356.95	107.45	1366.93	107.62	1381.89	107.81	1391.87	107.61	1401.85	107.74

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1411.83	107.55	1426.79	107.82	1436.77	107.68	1441.76	107.86	1461.72	107.79
1471.69	107.59	1476.68	107.71	1496.64	107.69	1501.63	107.81	1516.59	107.68
1531.56	107.75	1536.55	107.89	1546.53	107.71	1561.49	107.85	1566.48	107.56
1571.47	107.71	1581.45	107.62	1596.41	107.66	1601.4	107.6	1606.39	107.77
1616.37	107.74	1621.36	107.64	1636.32	107.75	1646.3	107.57	1681.22	107.68
1686.21	107.53	1691.2	107.6	1701.18	107.41	1711.16	107.6	1726.12	107.6
1736.1	107.42	1746.08	107.56	1771.02	107.44	1785.99	107.58	1815.92	107.3
1820.91	107.32	1830.89	107.64	1840.87	107.45	1845.85	107.44	1850.84	107.55
1875.79	107.47	1880.78	107.26	1885.76	107.41	1900.73	107.41	1905.72	107.58
1910.71	107.58	1915.7	107.37	1940.64	107.39	1945.63	107.62	1950.62	107.37
1955.61	107.62	1965.59	107.45	1980.55	107.4	1985.54	107.19	1990.53	107.17
1995.52	107.34	2015.47	107.38	2020.46	107.3	2040.42	107.39	2045.41	107.31
2055.38	107.38	2075.34	107.09	2080.33	107.28	2100.28	107.23	2105.27	107.34
2110.26	108.18	2115.25	108.88	2120.24	108.96	2140.19	107.89	2165.14	107.74
2175.12	107.86	2190.08	107.56	2195.07	107.71				

Manning's n Values num= 3
 Sta n Val Sta n Val
 0 .06 1037.67 .045 1172.36 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 1037.67 1172.36 468 530 593 .1 .3
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 1037.67 108.41 F
 1172.36 2195.07 107.85 F

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	100.91	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-val.		0.045
W.S. Elev (ft)	100.89	Reach Len. (ft)	468.00	530.00
593.00 Crit w.s. (ft)	97.00	Flow Area (sq ft)		244.98
E.G. Slope (ft/ft)	0.000267	Area (sq ft)		244.98
Q Total (cfs)	280.20	Flow (cfs)		280.20
Top width (ft)	77.94	Top width (ft)		77.94
Vel Total (ft/s)	1.14	Avg. Vel. (ft/s)		1.14
Max Chl Dpth (ft)	6.35	Hydr. Depth (ft)		3.14
Conv. Total (cfs)	17135.9	Conv. (cfs)		17135.9
Length wtd. (ft)	530.00	wetted Per. (ft)		79.46
Min Ch El (ft)	94.54	Shear (lb/sq ft)		0.05
Alpha 0.00	1.00	Stream Power (lb/ft s)	2195.07	0.00
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)		27.83
C & E Loss (ft)	0.00	Cum SA (acres)		8.14

NM115 OUTPUT REPORT.TXT

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	101.47	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-val.		0.045
W.S. Elev (ft)	101.45	Reach Len. (ft)	468.00	530.00
593.00 Crit w.s. (ft)	97.32	Flow Area (sq ft)		290.39
E.G. Slope (ft/ft)	0.000282	Area (sq ft)		290.39
Q Total (cfs)	355.10	Flow (cfs)		355.10
Top width (ft)	87.15	Top width (ft)		87.15
Vel Total (ft/s)	1.22	Avg. Vel. (ft/s)		1.22
Max Chl Dpth (ft)	6.91	Hydr. Depth (ft)		3.33
Conv. Total (cfs)	21132.5	Conv. (cfs)		21132.5
Length wtd. (ft)	530.00	wetted Per. (ft)		88.76
Min Ch El (ft)	94.54	Shear (lb/sq ft)		0.06
Alpha 0.00	1.00	Stream Power (lb/ft s)	2195.07	0.00
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)		32.46
C & E Loss (ft)	0.00	Cum SA (acres)		8.67

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	102.43	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	wt. n-val.		0.045
W.S. Elev (ft)	102.40	Reach Len. (ft)	468.00	530.00
593.00 Crit w.s. (ft)	97.91	Flow Area (sq ft)		377.74
E.G. Slope (ft/ft)	0.000271	Area (sq ft)		377.74
Q Total (cfs)	508.60	Flow (cfs)		508.60
Top width (ft)	95.10	Top width (ft)		95.10
Vel Total (ft/s)	1.35	Avg. Vel. (ft/s)		1.35

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Max Chl Dpth (ft)	7.86	Hydr. Depth (ft)	3.97
Conv. Total (cfs)	30885.4	Conv. (cfs)	30885.4
Length wtd. (ft)	530.00	wetted Per. (ft)	96.95
Min Ch El (ft)	94.54	Shear (lb/sq ft)	0.07
Alpha 0.00	1.00	Stream Power (lb/ft s)	2195.07
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)	41.27
C & E Loss (ft)	0.00	Cum SA (acres)	9.42

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	100.95	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-Val.		0.045
W.S. Elev (ft)	100.92	Reach Len. (ft)	468.00	530.00
593.00 Crit w.s. (ft)	97.04	Flow Area (sq ft)		247.51
E.G. Slope (ft/ft)	0.000278	Area (sq ft)		247.51
Q Total (cfs)	290.00	Flow (cfs)		290.00
Top width (ft)	78.21	Top width (ft)		78.21
Vel Total (ft/s)	1.17	Avg. Vel. (ft/s)		1.17
Max Chl Dpth (ft)	6.38	Hydr. Depth (ft)		3.16
Conv. Total (cfs)	17391.0	Conv. (cfs)		17391.0
Length wtd. (ft)	530.00	wetted Per. (ft)		79.74
Min Ch El (ft)	94.54	Shear (lb/sq ft)		0.05
Alpha 0.00	1.00	Stream Power (lb/ft s)	2195.07	0.00
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)		28.00
C & E Loss (ft)	0.00	Cum SA (acres)		8.16

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

NM115 OUTPUT REPORT.TXT				
		Element	Left OB	Channel
E.G. Elev (ft)	101.52			
Right OB				
Vel Head (ft)	0.02	wt. n-Val.		0.045
W.S. Elev (ft)	101.49	Reach Len. (ft)	468.00	530.00
593.00				
Crit w.s. (ft)	97.34	Flow Area (sq ft)		294.35
E.G. Slope (ft/ft)	0.000279	Area (sq ft)		294.35
Q Total (cfs)	360.00	Flow (cfs)		360.00
Top width (ft)	87.59	Top width (ft)		87.59
Vel Total (ft/s)	1.22	Avg. Vel. (ft/s)		1.22
Max Chl Dpth (ft)	6.95	Hydr. Depth (ft)		3.36
Conv. Total (cfs)	21541.0	Conv. (cfs)		21541.0
Length wtd. (ft)	530.00	Wetted Per. (ft)		89.21
Min Ch El (ft)	94.54	Shear (lb/sq ft)		0.06
Alpha	1.00	Stream Power (lb/ft s)	2195.07	0.00
0.00				
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)		32.86
C & E Loss (ft)	0.00	Cum SA (acres)		8.71

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

		Element	Left OB	Channel
E.G. Elev (ft)	102.44			
Right OB				
Vel Head (ft)	0.03	wt. n-Val.		0.045
W.S. Elev (ft)	102.41	Reach Len. (ft)	468.00	530.00
593.00				
Crit w.s. (ft)	97.91	Flow Area (sq ft)		378.79
E.G. Slope (ft/ft)	0.000270	Area (sq ft)		378.79
Q Total (cfs)	510.00	Flow (cfs)		510.00
Top width (ft)	95.17	Top width (ft)		95.17
Vel Total (ft/s)	1.35	Avg. Vel. (ft/s)		1.35
Max Chl Dpth (ft)	7.87	Hydr. Depth (ft)		3.98
Conv. Total (cfs)	31010.7	Conv. (cfs)		31010.7
Length wtd. (ft)	530.00	Wetted Per. (ft)		97.03

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Min Ch El (ft)	94.54	Shear (lb/sq ft)	0.07
Alpha 0.00	1.00	Stream Power (lb/ft s)	2195.07
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)	41.37
C & E Loss (ft)	0.00	Cum SA (acres)	9.43

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-115
REACH: NM-115

RS: 4521

INPUT

Description:

Station	Elevation	Data	num=	226					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	108.25	9.95	108.06	24.86	107.4	34.81	107.33	49.73	107.02
54.7	106.8	59.67	106.88	64.65	107.28	74.59	107.71	79.57	108.1
84.54	108.12	89.51	108.41	94.48	108.5	99.46	108.7	104.43	108.78
119.35	108.58	124.32	108.73	159.13	108.41	174.05	108.89	179.02	108.9
188.97	108.55	198.91	108.48	203.89	108.75	208.86	109.16	213.83	108.4
218.8	108.37	223.78	108	228.75	108.1	233.72	107.95	238.7	107.65
248.64	107.56	253.61	107.42	258.59	107.13	263.56	107.12	268.53	107.26
283.45	107.07	288.42	107.14	298.37	107.53	308.31	107.63	318.26	108.13
333.18	108.47	338.15	108.31	348.1	108.46	358.04	108.53	377.93	108.8
387.88	108.76	392.85	108.63	397.83	108.39	402.8	108.27	422.69	108.35
427.66	108.6	432.64	108.71	442.58	108.35	467.45	108.07	472.42	107.94
497.28	107.82	502.25	107.9	512.2	107.77	517.17	107.56	532.09	107.58
537.06	107.42	542.04	107.41	547.01	107.54	551.98	107.38	571.87	107.22
576.85	107.32	581.82	107.32	586.79	107.64	596.74	107.73	601.71	107.85
611.66	107.92	621.6	108.18	626.58	108.2	636.52	108.56	641.49	108.19
646.47	108.1	656.41	107.52	661.39	107.31	666.36	107.29	671.33	107.09
676.3	106.99	686.25	107.28	691.22	107.3	701.17	107.08	711.11	107.14
721.06	107.86	726.03	108.09	735.98	108.29	740.95	108.54	745.92	108.93
750.9	109.12	755.87	109.14	760.84	109.05	770.79	108.45	775.76	108.33
790.68	108.26	795.65	108.33	805.6	108.08	820.52	108.14	825.49	108.25
865.29	107.86	870.28	108.02	890.21	108.07	895.2	107.51	900.18	105.71
905.16	103.87	910.15	103.09	915.13	100.94	920.11	98.99	925.1	98.01
926.1	97.97	930.08	97.8	935.07	97.78	940.05	97.63	945.03	96.8
950.02	95.79	955	95.29	959.98	94.42	964.97	95.33	969.95	96.83
974.94	96.93	979.92	96.92	984.9	97	986.11	97.02	989.89	97.08
994.87	97.61	999.86	99.51	1004.84	102.11	1009.82	103.96	1014.81	104.23
1019.79	105.67	1024.77	106.66	1029.76	107.49	1034.74	107.82	1044.71	108.03
1054.68	107.89	1064.64	107.6	1084.61	107.48	1089.61	107.25	1094.6	107.27
1099.59	107.46	1104.59	107.5	1109.58	107.32	1114.58	107.25	1124.57	107.33
1129.56	107.25	1134.56	107.33	1144.54	107.2	1154.53	107.55	1169.52	107.51
1174.51	107.38	1189.49	107.55	1194.49	107.49	1199.48	107.54	1209.47	107.32
1224.45	107.36	1229.45	107.47	1239.44	107.26	1249.43	107.35	1294.38	107.24
1304.37	107.34	1309.36	107.29	1314.35	107.47	1329.34	107.29	1334.33	107.52
1344.32	107.54	1349.32	107.46	1354.31	107.28	1359.3	107.41	1389.27	107.28
1399.26	107.51	1404.25	107.5	1414.24	107.22	1434.22	107.29	1439.21	107.43
1454.2	107.38	1459.19	107.28	1464.19	107.44	1469.18	107.46	1474.18	107.24
1499.15	107.37	1504.14	107.3	1514.13	107.38	1519.12	107.3	1534.11	107.51
1544.1	107.23	1574.06	107.5	1589.05	107.32	1604.03	107.48	1624.01	107.47

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1634	107.32	1648.98	107.37	1678.95	107.22	1688.94	107.44	1703.92	107.25
1748.87	107.25	1753.86	107.15	1773.84	107.41	1778.83	107.29	1788.82	107.47
1803.81	107.33	1808.8	107.17	1813.8	107.17	1823.78	107.34	1828.78	107.12
1833.77	107.1	1838.77	107.19	1843.76	107.18	1848.76	107.48	1853.75	107.47
1858.75	107.18	1863.74	107.12	1868.73	107.22	1878.72	107.15	1883.72	107.37
1888.71	107.24	1903.7	107.21	1908.69	107.28	1938.66	107.18	1948.64	107.27
1958.63	107.12	1983.61	107.32	2008.58	107.27	2013.57	107.46	2023.56	107.26
2048.53	107.31								

Manning's n Values

num=	3				
Sta	n Val	Sta	n Val	Sta	n Val
0	.06	890.21	.045	1034.74	.06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

890.21	1034.74	546	484	423	.1	.3
Ineffective Flow num= 2						
Sta L	Sta R	Elev	Permanent			
0	890.21	108.07	F			
1034.74	2048.53	107.82	F			

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	100.81	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.045
w.s. Elev (ft)	100.80	Reach Len. (ft)	546.00	484.00
423.00 Crit w.s. (ft)	97.24	Flow Area (sq ft)		316.59
E.G. Slope (ft/ft)	0.000131	Area (sq ft)		316.59
Q Total (cfs)	280.20	Flow (cfs)		280.20
Top width (ft)	86.85	Top width (ft)		86.85
Vel Total (ft/s)	0.89	Avg. Vel. (ft/s)		0.89
Max Chl Dpth (ft)	6.38	Hydr. Depth (ft)		3.65
Conv. Total (cfs)	24439.5	Conv. (cfs)		24439.5
Length wtd. (ft)	484.00	wetted Per. (ft)		88.57
Min Ch El (ft)	94.42	Shear (lb/sq ft)		0.03
Alpha	1.00	Stream Power (lb/ft s)	2048.53	0.00
0.00 Frctn Loss (ft)	0.08	Cum Volume (acre-ft)		24.41
C & E Loss (ft)	0.00	Cum SA (acres)		7.13

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	101.37	Element	Left OB	Channel
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NM115 OUTPUT REPORT.TXT

Right OB				
Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	101.35	Reach Len. (ft)	546.00	484.00
423.00				
Crit W.S. (ft)	97.43	Flow Area (sq ft)		365.13
E.G. Slope (ft/ft)	0.000136	Area (sq ft)		365.13
Q Total (cfs)	355.10	Flow (cfs)		355.10
Top width (ft)	89.22	Top width (ft)		89.22
Vel Total (ft/s)	0.97	Avg. Vel. (ft/s)		0.97
Max Chl Dpth (ft)	6.93	Hydr. Depth (ft)		4.09
Conv. Total (cfs)	30403.9	Conv. (cfs)		30403.9
Length wtd. (ft)	484.00	wetted Per. (ft)		91.18
Min ch El (ft)	94.42	Shear (lb/sq ft)		0.03
Alpha	1.00	Stream Power (lb/ft s)	2048.53	0.00
0.00				
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)		28.48
C & E Loss (ft)	0.00	Cum SA (acres)		7.60

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	102.33	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	wt. n-Val.		0.045
W.S. Elev (ft)	102.31	Reach Len. (ft)	546.00	484.00
423.00				
Crit W.S. (ft)	97.83	Flow Area (sq ft)		452.06
E.G. Slope (ft/ft)	0.000147	Area (sq ft)		452.06
Q Total (cfs)	508.60	Flow (cfs)		508.60
Top width (ft)	93.40	Top width (ft)		93.40
Vel Total (ft/s)	1.13	Avg. Vel. (ft/s)		1.13
Max Chl Dpth (ft)	7.89	Hydr. Depth (ft)		4.84
Conv. Total (cfs)	42000.9	Conv. (cfs)		42000.9
Length wtd. (ft)	484.00	wetted Per. (ft)		95.78
Min ch El (ft)	94.42	Shear (lb/sq ft)		0.04
Alpha	1.00	Stream Power (lb/ft s)	2048.53	0.00

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0.00			
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)	36.23
C & E Loss (ft)	0.00	Cum SA (acres)	8.27

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	100.84	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.045
w.s. Elev (ft)	100.83	Reach Len. (ft)	546.00	484.00
423.00 Crit w.s. (ft)	97.27	Flow Area (sq ft)		319.06
E.G. Slope (ft/ft)	0.000137	Area (sq ft)		319.06
Q Total (cfs)	290.00	Flow (cfs)		290.00
Top width (ft)	86.98	Top width (ft)		86.98
Vel Total (ft/s)	0.91	Avg. Vel. (ft/s)		0.91
Max Chl Dpth (ft)	6.41	Hydr. Depth (ft)		3.67
Conv. Total (cfs)	24732.3	Conv. (cfs)		24732.3
Length wtd. (ft)	484.00	wetted Per. (ft)		88.71
Min Ch El (ft)	94.42	Shear (lb/sq ft)		0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	2048.53	0.00
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)		24.55
C & E Loss (ft)	0.00	Cum SA (acres)		7.15

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	101.41	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.045
w.s. Elev (ft)	101.40	Reach Len. (ft)	546.00	484.00
423.00 Crit w.s. (ft)	97.44	Flow Area (sq ft)		369.24
E.G. Slope (ft/ft)	0.000135	Area (sq ft)		369.24

NM115 OUTPUT REPORT.TXT			
Q Total (cfs)	360.00	Flow (cfs)	360.00
Top width (ft)	89.41	Top width (ft)	89.41
Vel Total (ft/s)	0.97	Avg. Vel. (ft/s)	0.97
Max Chl Dpth (ft)	6.98	Hydr. Depth (ft)	4.13
Conv. Total (cfs)	30928.3	Conv. (cfs)	30928.3
Length wtd. (ft)	484.00	wetted Per. (ft)	91.39
Min Ch El (ft)	94.42	Shear (lb/sq ft)	0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	2048.53
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)	28.83
C & E Loss (ft)	0.00	Cum SA (acres)	7.63

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	102.34	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-Val.		0.045
W.S. Elev (ft)	102.32	Reach Len. (ft)	546.00	484.00
423.00 Crit W.S. (ft)	97.83	Flow Area (sq ft)		453.10
E.G. Slope (ft/ft)	0.000146	Area (sq ft)		453.10
Q Total (cfs)	510.00	Flow (cfs)		510.00
Top width (ft)	93.46	Top width (ft)		93.46
Vel Total (ft/s)	1.13	Avg. Vel. (ft/s)		1.13
Max Chl Dpth (ft)	7.90	Hydr. Depth (ft)		4.85
Conv. Total (cfs)	42145.1	Conv. (cfs)		42145.1
Length wtd. (ft)	484.00	wetted Per. (ft)		95.84
Min Ch El (ft)	94.42	Shear (lb/sq ft)		0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	2048.53	0.00
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)		36.31
C & E Loss (ft)	0.00	Cum SA (acres)		8.28

Note: Multiple critical depths were found at this location. The critical depth
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with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-115
 REACH: NM-115

RS: 4037

INPUT

Description:

Station Elevation Data		num= 200							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	108.82	5	108.11	14.99	107.53	19.99	107.35	29.98	107.42
34.98	107.54	39.98	107.82	44.97	107.94	74.96	108.2	94.95	108.47
109.94	108.37	124.93	108.18	129.93	108.25	139.92	108.71	144.92	108.85
149.92	108.87	159.91	108.63	199.89	108.9	204.89	108.67	219.88	108.49
224.87	108.27	229.87	107.91	239.87	107.93	249.86	108.43	254.86	108.41
259.85	108.28	264.85	108.67	269.85	108.04	274.85	107.91	284.84	107.91
299.83	107.84	304.83	108.04	314.82	107.93	319.82	107.97	324.82	107.85
334.81	108.11	339.81	108.11	344.81	107.91	354.8	107.9	359.8	108.05
364.8	108.08	374.79	107.84	384.79	107.87	389.78	108.09	394.78	108.16
399.78	108.01	444.75	107.71	469.74	107.94	479.73	107.72	494.72	108.02
509.72	108.24	514.71	108.15	524.71	107.65	529.7	107.58	549.69	107.96
564.68	107.93	579.68	108.02	584.67	107.92	589.67	107.69	599.67	107.77
619.65	108.52	624.65	108.78	694.61	109.01	709.6	109.3	714.6	109.11
724.6	108.57	729.59	108.5	734.59	108.09	739.59	107.44	744.58	105.44
749.58	105.17	754.58	102.18	759.58	99.77	764.57	98.83	769.57	98.81
774.57	98.51	779.57	98.15	784.56	97.47	787.54	97.47	789.56	97.47
794.56	94.76	799.55	94.43	804.55	94.94	809.55	96.58	814.55	96.68
819.54	97.29	824.54	97.52	829.54	98.07	834.53	98.13	839.53	99.39
844.53	101.68	847.54	102.7	849.53	103.37	854.52	103.64	859.52	104.94
864.52	106.14	869.52	107	889.5	107.56	899.5	107.48	914.49	107.73
919.49	107.74	924.48	107.39	929.48	107.18	939.48	107.15	944.47	107.02
959.47	107.14	974.46	106.83	1009.44	106.99	1019.43	107.25	1029.43	107.17
1049.42	107.17	1059.41	107.11	1064.41	107.22	1074.4	107.15	1079.4	107.27
1099.39	107.16	1109.38	107.35	1119.38	107.26	1144.36	107.24	1159.35	107.36
1164.35	107.3	1169.35	107.11	1179.34	107.28	1184.34	107.46	1189.34	107.4
1194.33	107.23	1209.33	107.3	1229.31	107.18	1234.31	107.41	1239.31	107.4
1249.3	107.13	1254.3	107.3	1264.29	107.25	1269.29	107.31	1284.28	107.14
1294.28	107.35	1304.27	107.35	1309.27	107.17	1314.27	107.27	1324.26	107.22
1329.26	107.32	1334.26	107.21	1374.23	107.3	1379.23	107.19	1389.23	107.28
1394.22	107.21	1409.21	107.18	1414.21	107.3	1434.2	107.29	1444.19	107.54
1449.19	107.52	1454.19	107.39	1489.17	107.28	1494.17	107.16	1504.16	107.38
1534.14	107.43	1549.14	107.27	1559.13	107.46	1569.12	107.32	1579.12	107.54
1589.11	107.52	1599.11	107.25	1604.1	107.46	1624.09	107.27	1629.09	107.43
1639.09	107.42	1649.08	107.3	1664.07	107.44	1669.07	107.29	1689.06	107.25
1694.05	107.41	1699.05	107.38	1704.05	107.14	1709.05	107.26	1734.03	107.25
1739.03	107.48	1744.03	107.48	1759.02	107.25	1769.01	107.32	1779.01	107.08
1784	107.09	1789	106.97	1794	107.22	1799	107.11	1803.99	107.26
1813.99	107.35	1823.98	108.34	1828.98	108.4	1838.97	109.02	1848.97	109.03
1853.96	108.64	1868.96	108.65	1878.95	108.9	1883.95	108.65	1888.95	108.97
1893.94	109.12	1898.94	108.84	1933.92	108.57	1943.91	108.59	1953.91	108.43

Manning's n Values		num= 3		
Sta	n Val	Sta	n Val	Sta
0	.06	739.59	.045	869.52

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	739.59	869.52		380	381		.1	.3
Ineffective Flow			num=	2				
Sta L	Sta R	Elev	Permanent					
0	739.59	107.44	F					
869.52	1953.91	107	F					

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CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	100.73	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-val.		0.045
W.S. Elev (ft)	100.72	Reach Len. (ft)	380.00	381.00
383.00 Crit w.s. (ft)	97.16	Flow Area (sq ft)		274.08
E.G. slope (ft/ft)	0.000207	Area (sq ft)		274.08
Q Total (cfs)	280.20	Flow (cfs)		280.20
Top width (ft)	84.82	Top width (ft)		84.82
vel Total (ft/s)	1.02	Avg. vel. (ft/s)		1.02
Max Chl Dpth (ft)	6.29	Hydr. Depth (ft)		3.23
Conv. Total (cfs)	19494.1	Conv. (cfs)		19494.1
Length wtd. (ft)	381.00	wetted Per. (ft)		86.70
Min Ch El (ft)	94.43	Shear (lb/sq ft)		0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	1953.91	0.00
Frctn Loss (ft)	0.12	Cum volume (acre-ft)		21.13
C & E Loss (ft)	0.00	Cum SA (acres)		6.18

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	101.29	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-val.		0.045
W.S. Elev (ft)	101.27	Reach Len. (ft)	380.00	381.00
383.00 Crit w.s. (ft)	97.56	Flow Area (sq ft)		321.38
E.G. slope (ft/ft)	0.000203	Area (sq ft)		321.38
Q Total (cfs)	355.10	Flow (cfs)		355.10
Top width (ft)	87.16	Top width (ft)		87.16
vel Total (ft/s)	1.10	Avg. vel. (ft/s)		1.10
Max Chl Dpth (ft)	6.84	Hydr. Depth (ft)		3.69
Conv. Total (cfs)	24924.6	Conv. (cfs)		24924.6

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Length wtd. (ft)	381.00	Wetted Per. (ft)		89.29
Min Ch El (ft)	94.43	Shear (lb/sq ft)		0.05
Alpha 0.00	1.00	Stream Power (lb/ft s)	1953.91	0.00
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)		24.66
C & E Loss (ft)	0.00	Cum SA (acres)		6.62

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	102.24	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-val.		0.045
W.S. Elev (ft)	102.22	Reach Len. (ft)	380.00	381.00
383.00 Crit w.s. (ft)	97.98	Flow Area (sq ft)		406.09
E.G. slope (ft/ft)	0.000205	Area (sq ft)		406.09
Q Total (cfs)	508.60	Flow (cfs)		508.60
Top width (ft)	91.60	Top width (ft)		91.60
Vel Total (ft/s)	1.25	Avg. vel. (ft/s)		1.25
Max Chl Dpth (ft)	7.79	Hydr. Depth (ft)		4.43
Conv. Total (cfs)	35539.3	Conv. (cfs)		35539.3
Length wtd. (ft)	381.00	Wetted Per. (ft)		94.12
Min Ch El (ft)	94.43	Shear (lb/sq ft)		0.06
Alpha 0.00	1.00	Stream Power (lb/ft s)	1953.91	0.00
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)		31.46
C & E Loss (ft)	0.00	Cum SA (acres)		7.25

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	100.76	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-val.		0.045
W.S. Elev (ft)	100.74	Reach Len. (ft)	380.00	381.00

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383.00			
Crit w.s. (ft)	97.20	Flow Area (sq ft)	276.16
E.G. slope (ft/ft)	0.000216	Area (sq ft)	276.16
Q Total (cfs)	290.00	Flow (cfs)	290.00
Top width (ft)	84.92	Top width (ft)	84.92
Vel Total (ft/s)	1.05	Avg. vel. (ft/s)	1.05
Max Chl Dpth (ft)	6.31	Hydr. Depth (ft)	3.25
Conv. Total (cfs)	19724.2	Conv. (cfs)	19724.2
Length wtd. (ft)	381.00	wetted Per. (ft)	86.81
Min Ch El (ft)	94.43	Shear (lb/sq ft)	0.04
Alpha	1.00	Stream Power (lb/ft s)	1953.91
0.00			0.00
Frctn Loss (ft)	0.12	Cum volume (acre-ft)	21.25
C & E Loss (ft)	0.00	Cum SA (acres)	6.20

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	101.33	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	wt. n-val.		0.045
w.s. Elev (ft)	101.32	Reach Len. (ft)	380.00	381.00
383.00				
Crit w.s. (ft)	97.58	Flow Area (sq ft)		325.47
E.G. slope (ft/ft)	0.000201	Area (sq ft)		325.47
Q Total (cfs)	360.00	Flow (cfs)		360.00
Top width (ft)	87.36	Top width (ft)		87.36
Vel Total (ft/s)	1.11	Avg. vel. (ft/s)		1.11
Max Chl Dpth (ft)	6.89	Hydr. Depth (ft)		3.73
Conv. Total (cfs)	25413.1	Conv. (cfs)		25413.1
Length wtd. (ft)	381.00	wetted Per. (ft)		89.51
Min Ch El (ft)	94.43	Shear (lb/sq ft)		0.05
Alpha	1.00	Stream Power (lb/ft s)	1953.91	0.00
0.00				
Frctn Loss (ft)	0.12	Cum volume (acre-ft)		24.97
C & E Loss (ft)	0.00	Cum SA (acres)		6.65

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Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	102.25	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	wt. n-val.		0.045
W.S. Elev (ft)	102.23	Reach Len. (ft)	380.00	381.00
383.00				
Crit w.s. (ft)	97.98	Flow Area (sq ft)		407.13
E.G. slope (ft/ft)	0.000204	Area (sq ft)		407.13
Q Total (cfs)	510.00	Flow (cfs)		510.00
Top width (ft)	91.65	Top width (ft)		91.65
vel Total (ft/s)	1.25	Avg. vel. (ft/s)		1.25
Max Chl Dpth (ft)	7.80	Hydr. Depth (ft)		4.44
Conv. Total (cfs)	35676.4	Conv. (cfs)		35676.4
Length wtd. (ft)	381.00	wetted Per. (ft)		94.18
Min Ch El (ft)	94.43	Shear (lb/sq ft)		0.06
Alpha	1.00	Stream Power (lb/ft s)	1953.91	0.00
0.00				
Frctn Loss (ft)	0.12	Cum volume (acre-ft)		31.53
C & E Loss (ft)	0.00	Cum SA (acres)		7.25

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-115
 REACH: NM-115 RS: 3656

INPUT

Description:

Station	Elevation	Data	num=	148	Sta	Elev	Sta	Elev	Sta	Elev
0	109.85	4.99	109.43	14.98	107.62	19.97	107.3	24.96	106.72	
29.96	106.59	34.95	107.16	39.94	107.48	59.91	107.87	74.89	108.51	
104.85	108.95	114.84	108.93	124.82	109.06	129.81	108.97	139.8	109.2	
224.68	109.17	234.66	109.1	244.65	109.15	264.62	108.98	279.6	109.03	
284.59	108.95	309.56	108.96	314.55	108.86	324.53	108.92	329.53	108.74	
349.5	108.9	364.48	108.83	369.47	108.56	374.46	108.57	379.45	108.32	
384.45	108.3	399.43	107.56	404.42	107.55	409.41	106.92	414.4	105.28	

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419.4	103.59	424.39	101.29	429.38	101.23	434.38	100.15	439.37	98.92
444.36	98.24	449.35	98.23	454.35	97.8	455.48	97.67	459.34	97.22
464.33	96.55	469.33	95.33	474.32	93.38	479.31	93.18	484.3	94.57
489.3	97.02	494.29	99.27	499.28	99.57	504.28	99.98	509.27	100.3
514.26	100.53	515.49	100.6	519.25	100.82	524.25	100.91	529.24	101.57
534.23	102.89	539.23	104.34	544.22	104.69	549.21	105.82	554.2	106.9
559.2	107.49	564.19	107.6	584.16	107.48	599.14	107.8	609.13	107.82
619.11	108.08	629.1	108.12	639.08	107.85	649.07	107.97	664.05	108.51
674.03	108.63	684.02	108.84	694	108.63	743.93	108.67	753.92	108.79
783.87	108.5	863.76	108.67	873.74	108.58	883.73	108.9	903.7	108.69
983.59	108.53	993.57	108.61	1003.56	108.95	1008.55	108.75	1013.54	108.71
1018.54	108.9	1028.52	108.71	1033.52	108.7	1038.51	108.81	1063.47	108.54
1068.46	108.64	1083.44	108.54	1093.43	108.27	1098.42	108.23	1103.41	108.29
1113.4	107.99	1123.39	108.02	1128.38	107.89	1148.35	107.89	1158.34	107.62
1183.3	107.56	1198.28	107.28	1203.27	107.27	1208.26	107.15	1218.25	107.2
1248.21	106.96	1258.19	106.76	1303.13	106.38	1318.11	106.38	1333.08	106.06
1343.07	106.11	1348.06	105.96	1353.06	105.91	1363.04	106.06	1368.03	106.05
1388	106.44	1407.98	106.54	1412.97	106.69	1427.95	106.76	1432.94	106.64
1437.93	106.9	1442.93	106.94	1452.91	107.13	1457.9	107.47	1462.9	107.49
1467.89	107.34	1472.88	107.51	1477.88	107.38	1507.83	107.58	1517.82	107.58
1522.81	107.71	1532.8	107.74	1537.79	107.68	1542.78	107.84	1547.77	107.84
1552.77	108.07	1557.76	108.1	1562.75	108.27	1567.75	108.29	1577.73	109.15
1582.72	109.32	1592.71	109.37	1602.7	109.57				

Manning's n Values num= 3
 Sta n Val Sta n Val
 0 .06 404.42 .045 559.2 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 404.42 559.2 341 341 341 .1 .3
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 404.42 107.55 F
 559.2 1602.7 107.49 F

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	100.62	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.03	wt. n-Val.		0.045
w.s. Elev (ft)	100.58	Reach Len. (ft)	341.00	341.00
341.00				
Crit w.s. (ft)	96.45	Flow Area (sq ft)		247.23
E.G. Slope (ft/ft)	0.000456	Area (sq ft)		247.23
Q Total (cfs)	355.50	Flow (cfs)		355.50
Top width (ft)	82.82	Top width (ft)		82.82
Vel Total (ft/s)	1.44	Avg. Vel. (ft/s)		1.44
Max Chl Dpth (ft)	7.40	Hydr. Depth (ft)		2.99
Conv. Total (cfs)	16639.9	Conv. (cfs)		16639.9
Length wtd. (ft)	341.00	wetted Per. (ft)		84.96
Min ch El (ft)	93.18	Shear (lb/sq ft)		0.08
Alpha	1.00	Stream Power (lb/ft s)	1602.70	0.00

NM115 OUTPUT REPORT.TXT

0.00			
Frctn Loss (ft)	0.26	Cum Volume (acre-ft)	18.85
C & E Loss (ft)	0.00	Cum SA (acres)	5.45

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	101.17	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.04	wt. n-Val.		0.045
W.S. Elev (ft)	101.13	Reach Len. (ft)	341.00	341.00
341.00				
Crit w.s. (ft)	96.85	Flow Area (sq ft)		296.46
E.G. Slope (ft/ft)	0.000486	Area (sq ft)		296.46
Q Total (cfs)	450.30	Flow (cfs)		450.30
Top width (ft)	96.07	Top width (ft)		96.07
Vel Total (ft/s)	1.52	Avg. Vel. (ft/s)		1.52
Max Chl Dpth (ft)	7.95	Hydr. Depth (ft)		3.09
Conv. Total (cfs)	20435.1	Conv. (cfs)		20435.1
Length wtd. (ft)	341.00	wetted Per. (ft)		98.29
Min Ch El (ft)	93.18	Shear (lb/sq ft)		0.09
Alpha	1.00	Stream Power (lb/ft s)	1602.70	0.00
0.00				
Frctn Loss (ft)	0.25	Cum Volume (acre-ft)		21.96
C & E Loss (ft)	0.00	Cum SA (acres)		5.82

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	102.12	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.04	wt. n-Val.		0.045

NM115 OUTPUT REPORT.TXT				
W.S. Elev (ft)	102.08	Reach Len. (ft)	341.00	341.00
341.00 Crit W.S. (ft)	97.53	Flow Area (sq ft)		396.06
E.G. Slope (ft/ft)	0.000449	Area (sq ft)		396.06
Q Total (cfs)	646.90	Flow (cfs)		646.90
Top width (ft)	108.50	Top width (ft)		108.50
Vel Total (ft/s)	1.63	Avg. Vel. (ft/s)		1.63
Max Chl Dpth (ft)	8.90	Hydr. Depth (ft)		3.65
Conv. Total (cfs)	30536.5	Conv. (cfs)		30536.5
Length wtd. (ft)	341.00	wetted Per. (ft)		111.01
Min ch El (ft)	93.18	Shear (lb/sq ft)		0.10
Alpha 0.00	1.00	Stream Power (lb/ft s)	1602.70	0.00
Frctn Loss (ft)	0.22	Cum Volume (acre-ft)		27.95
C & E Loss (ft)	0.00	Cum SA (acres)		6.37

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	100.64	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	wt. n-Val.		0.045
W.S. Elev (ft)	100.61	Reach Len. (ft)	341.00	341.00
341.00 Crit W.S. (ft)	96.46	Flow Area (sq ft)		249.08
E.G. Slope (ft/ft)	0.000460	Area (sq ft)		249.08
Q Total (cfs)	360.00	Flow (cfs)		360.00
Top width (ft)	83.31	Top width (ft)		83.31
Vel Total (ft/s)	1.45	Avg. Vel. (ft/s)		1.45
Max Chl Dpth (ft)	7.43	Hydr. Depth (ft)		2.99
Conv. Total (cfs)	16783.0	Conv. (cfs)		16783.0
Length wtd. (ft)	341.00	wetted Per. (ft)		85.45
Min ch El (ft)	93.18	Shear (lb/sq ft)		0.08
Alpha	1.00	Stream Power (lb/ft s)	1602.70	0.00

NM115 OUTPUT REPORT.TXT

0.00			
Frctn Loss (ft)	0.27	Cum Volume (acre-ft)	18.95
C & E Loss (ft)	0.00	Cum SA (acres)	5.46

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	101.21	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.04	wt. n-Val.		0.045
W.S. Elev (ft)	101.18	Reach Len. (ft)	341.00	341.00
341.00				
Crit w.s. (ft)	96.89	Flow Area (sq ft)		300.98
E.G. Slope (ft/ft)	0.000486	Area (sq ft)		300.98
Q Total (cfs)	460.00	Flow (cfs)		460.00
Top width (ft)	96.64	Top width (ft)		96.64
Vel Total (ft/s)	1.53	Avg. Vel. (ft/s)		1.53
Max Chl Dpth (ft)	8.00	Hydr. Depth (ft)		3.11
Conv. Total (cfs)	20875.2	Conv. (cfs)		20875.2
Length wtd. (ft)	341.00	wetted Per. (ft)		98.87
Min Ch El (ft)	93.18	Shear (lb/sq ft)		0.09
Alpha	1.00	Stream Power (lb/ft s)	1602.70	0.00
0.00				
Frctn Loss (ft)	0.25	Cum Volume (acre-ft)		22.23
C & E Loss (ft)	0.00	Cum SA (acres)		5.84

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	102.13	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.04	wt. n-Val.		0.045

NM115 OUTPUT REPORT.TXT			
W.S. Elev (ft)	102.09	Reach Len. (ft)	341.00
341.00			
Crit W.S. (ft)	97.54	Flow Area (sq ft)	397.28
E.G. slope (ft/ft)	0.000449	Area (sq ft)	397.28
Q Total (cfs)	650.00	Flow (cfs)	650.00
Top width (ft)	108.57	Top width (ft)	108.57
Vel Total (ft/s)	1.64	Avg. Vel. (ft/s)	1.64
Max chl Dpth (ft)	8.91	Hydr. Depth (ft)	3.66
Conv. Total (cfs)	30680.8	Conv. (cfs)	30680.8
Length wtd. (ft)	341.00	wetted Per. (ft)	111.08
Min ch El (ft)	93.18	Shear (lb/sq ft)	0.10
Alpha	1.00	Stream Power (lb/ft s)	1602.70
0.00			
Frctn Loss (ft)	0.22	Cum Volume (acre-ft)	28.02
C & E Loss (ft)	0.00	Cum SA (acres)	6.38

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-115
 REACH: NM-115 RS: 3315

INPUT

Description:

Station	Elevation	Data	num=	128	Station	Elevation	Station	Elevation	Station	Elevation
0	109.58	5	109.23	10	108.59	20	107.71	24.99	106.79	
29.99	106.1	34.99	105.97	39.99	106.19	49.99	107.64	54.99	107.88	
59.99	107.95	74.98	108.54	84.98	108.6	89.98	108.51	94.98	108.28	
104.98	108.03	109.97	107.13	114.97	105.4	119.97	104.03	124.97	103.61	
129.97	101.52	134.97	99.93	139.97	98.83	144.97	98.73	147.37	98.49	
149.96	98.23	154.96	97.63	159.96	96.28	164.96	95.44	169.96	95.41	
174.96	95.31	179.96	97.37	184.96	99.05	189.96	99.09	194.95	99.69	
199.95	100.05	204.95	100.25	207.38	100.26	209.95	100.26	214.95	100.76	
219.95	101.3	224.95	102.21	229.95	102.19	234.94	103.13	239.94	104.32	
244.94	105.56	249.94	106.87	254.94	106.9	259.94	107.22	269.94	107.45	
274.94	107.44	289.93	107.76	304.93	107.73	309.93	107.45	314.93	107.4	
319.92	107.65	329.92	107.92	334.92	108.13	339.92	108.17	344.92	108.36	
349.92	108.24	354.92	107.83	359.91	107.74	374.91	106.98	379.91	106.92	
394.91	106.29	404.9	106.05	489.88	106.63	614.85	107.93	754.82	108.84	
759.82	108.66	764.82	108.62	769.82	108.46	779.81	108.5	784.81	108.35	
809.81	108.36	814.81	108.28	819.81	108.38	824.8	108.25	839.8	108.08	
844.8	107.87	849.8	107.91	854.8	108.34	859.8	108.3	864.79	107.8	
869.79	107.67	874.79	107.66	879.79	107.91	884.79	107.93	889.79	107.75	

NM115 OUTPUT REPORT.TXT

894.79	107.4	904.78	107.25	914.78	106.81	924.78	106.88	934.78	106.71
939.78	106.45	944.78	106.43	949.77	106.55	954.77	106.36	974.77	106.17
979.77	106.31	1004.76	105.9	1014.76	105.8	1019.76	105.87	1024.76	105.7
1029.75	105.66	1034.75	105.81	1039.75	105.51	1054.75	105.24	1064.75	105.21
1069.75	105.43	1074.74	105.49	1079.74	105.43	1084.74	105.56	1099.74	105.54
1124.73	105.96	1134.73	106.2	1144.73	106.26	1149.73	106.45	1154.73	106.5
1164.72	106.44	1174.72	106.7	1184.72	106.76	1189.72	106.71	1199.71	106.88
1209.71	106.89	1234.71	107.38	1269.7	108.11				

Manning's n Values num= 3

Sta	n	Val	Sta	n	Val	Sta	n	Val
0		.06	109.97		.045	249.94		.06

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	109.97	249.94		418	418	417		.1	.3
Ineffective Flow	num=		2						
Sta L	Sta R	Elev	Permanent						
0	109.97	107.13	F						
249.94	1269.7	106.87	F						

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	100.35	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.07	wt. n-Val.		0.045
w.s. Elev (ft)	100.27	Reach Len. (ft)	418.00	418.00
417.00				
Crit w.s. (ft)	97.90	Flow Area (sq ft)		163.31
E.G. Slope (ft/ft)	0.001606	Area (sq ft)		163.31
Q Total (cfs)	355.50	Flow (cfs)		355.50
Top width (ft)	76.18	Top width (ft)		76.18
Vel Total (ft/s)	2.18	Avg. Vel. (ft/s)		2.18
Max Chl Dpth (ft)	4.96	Hydr. Depth (ft)		2.14
Conv. Total (cfs)	8870.7	Conv. (cfs)		8870.7
Length wtd. (ft)	418.00	wetted Per. (ft)		77.40
Min Ch El (ft)	95.31	Shear (lb/sq ft)		0.21
Alpha	1.00	Stream Power (lb/ft s)	1269.70	0.00
0.00				
Frctn Loss (ft)	0.25	Cum Volume (acre-ft)		17.24
C & E Loss (ft)	0.01	Cum SA (acres)		4.82

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

NM115 OUTPUT REPORT.TXT

E.G. Elev (ft)	100.91	Element	Left OB	Channel
Right OB Vel Head (ft)	0.07	wt. n-Val.		0.045
W.S. Elev (ft)	100.83	Reach Len. (ft)	418.00	418.00
417.00 Crit w.s. (ft)	98.24	Flow Area (sq ft)		208.19
E.G. Slope (ft/ft)	0.001296	Area (sq ft)		208.19
Q Total (cfs)	450.30	Flow (cfs)		450.30
Top width (ft)	83.51	Top width (ft)		83.51
Vel Total (ft/s)	2.16	Avg. Vel. (ft/s)		2.16
Max chl Dpth (ft)	5.52	Hydr. Depth (ft)		2.49
Conv. Total (cfs)	12506.1	Conv. (cfs)		12506.1
Length wtd. (ft)	418.00	wetted Per. (ft)		84.85
Min ch El (ft)	95.31	Shear (lb/sq ft)		0.20
Alpha 0.00	1.00	Stream Power (lb/ft s)	1269.70	0.00
Frctn Loss (ft)	0.23	Cum Volume (acre-ft)		19.98
C & E Loss (ft)	0.01	Cum SA (acres)		5.11

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	101.90	Element	Left OB	Channel
Right OB Vel Head (ft)	0.07	wt. n-Val.		0.045
W.S. Elev (ft)	101.83	Reach Len. (ft)	418.00	418.00
417.00 Crit w.s. (ft)	98.89	Flow Area (sq ft)		297.02
E.G. Slope (ft/ft)	0.000955	Area (sq ft)		297.02
Q Total (cfs)	646.90	Flow (cfs)		646.90
Top width (ft)	93.64	Top width (ft)		93.64
Vel Total (ft/s)	2.18	Avg. Vel. (ft/s)		2.18
Max chl Dpth (ft)	6.52	Hydr. Depth (ft)		3.17
Conv. Total (cfs)	20938.1	Conv. (cfs)		20938.1

NM115 OUTPUT REPORT.TXT

Length Wtd. (ft)	418.00	Wetted Per. (ft)	95.22
Min Ch El (ft)	95.31	Shear (lb/sq ft)	0.19
Alpha 0.00	1.00	Stream Power (lb/ft s)	1269.70
Frctn Loss (ft)	0.22	Cum Volume (acre-ft)	25.24
C & E Loss (ft)	0.01	Cum SA (acres)	5.58

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	100.37	Element	Left OB	Channel
Right OB Vel Head (ft)	0.07	wt. n-Val.		0.045
W.S. Elev (ft)	100.29	Reach Len. (ft)	418.00	418.00
417.00 Crit W.S. (ft)	97.91	Flow Area (sq ft)		164.92
E.G. Slope (ft/ft)	0.001602	Area (sq ft)		164.92
Q Total (cfs)	360.00	Flow (cfs)		360.00
Top width (ft)	76.46	Top width (ft)		76.46
Vel Total (ft/s)	2.18	Avg. Vel. (ft/s)		2.18
Max Chl Dpth (ft)	4.98	Hydr. Depth (ft)		2.16
Conv. Total (cfs)	8994.9	Conv. (cfs)		8994.9
Length Wtd. (ft)	418.00	Wetted Per. (ft)		77.68
Min Ch El (ft)	95.31	Shear (lb/sq ft)		0.21
Alpha 0.00	1.00	Stream Power (lb/ft s)	1269.70	0.00
Frctn Loss (ft)	0.25	Cum Volume (acre-ft)		17.33
C & E Loss (ft)	0.01	Cum SA (acres)		4.83

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

NM115 OUTPUT REPORT.TXT

E.G. Elev (ft)	100.96	Element	Left OB	Channel
Right OB Vel Head (ft)	0.07	wt. n-Val.		0.045
W.S. Elev (ft)	100.88	Reach Len. (ft)	418.00	418.00
417.00 Crit w.s. (ft)	98.28	Flow Area (sq ft)		212.24
E.G. Slope (ft/ft)	0.001281	Area (sq ft)		212.24
Q Total (cfs)	460.00	Flow (cfs)		460.00
Top width (ft)	84.11	Top width (ft)		84.11
Vel Total (ft/s)	2.17	Avg. Vel. (ft/s)		2.17
Max chl Dpth (ft)	5.57	Hydr. Depth (ft)		2.52
Conv. Total (cfs)	12852.2	Conv. (cfs)		12852.2
Length wtd. (ft)	418.00	wetted Per. (ft)		85.46
Min ch El (ft)	95.31	Shear (lb/sq ft)		0.20
Alpha 0.00	1.00	Stream Power (lb/ft s)	1269.70	0.00
Frctn Loss (ft)	0.23	Cum Volume (acre-ft)		20.22
C & E Loss (ft)	0.01	Cum SA (acres)		5.13

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	101.92	Element	Left OB	Channel
Right OB Vel Head (ft)	0.07	wt. n-Val.		0.045
W.S. Elev (ft)	101.84	Reach Len. (ft)	418.00	418.00
417.00 Crit w.s. (ft)	98.90	Flow Area (sq ft)		298.08
E.G. Slope (ft/ft)	0.000954	Area (sq ft)		298.08
Q Total (cfs)	650.00	Flow (cfs)		650.00
Top width (ft)	93.73	Top width (ft)		93.73
Vel Total (ft/s)	2.18	Avg. Vel. (ft/s)		2.18
Max chl Dpth (ft)	6.53	Hydr. Depth (ft)		3.18
Conv. Total (cfs)	21048.9	Conv. (cfs)		21048.9

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	100.08	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	Wt. n-Val.		0.045
W.S. Elev (ft)	100.06	Reach Len. (ft)	820.00	820.00
820.00 Crit w.s. (ft)	95.34	Flow Area (sq ft)		276.95
E.G. Slope (ft/ft)	0.000304	Area (sq ft)		276.95
Q Total (cfs)	355.50	Flow (cfs)		355.50
Top width (ft)	80.86	Top width (ft)		80.86
Vel Total (ft/s)	1.28	Avg. Vel. (ft/s)		1.28
Max Chl Dpth (ft)	7.20	Hydr. Depth (ft)		3.42
Conv. Total (cfs)	20401.8	Conv. (cfs)		20401.8
Length wtd. (ft)	820.00	wetted Per. (ft)		83.12
Min Ch El (ft)	92.86	Shear (lb/sq ft)		0.06
Alpha 0.00	1.00	Stream Power (lb/ft s)	1061.85	0.00
Frctn Loss (ft)	0.19	Cum Volume (acre-ft)		15.13
C & E Loss (ft)	0.00	Cum SA (acres)		4.07

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	100.66	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	Wt. n-Val.		0.045
W.S. Elev (ft)	100.63	Reach Len. (ft)	820.00	820.00
820.00 Crit w.s. (ft)	95.68	Flow Area (sq ft)		324.56
E.G. Slope (ft/ft)	0.000308	Area (sq ft)		324.56
Q Total (cfs)	450.30	Flow (cfs)		450.30
Top width (ft)	85.17	Top width (ft)		85.17
Vel Total (ft/s)	1.39	Avg. Vel. (ft/s)		1.39
Max Chl Dpth (ft)	7.77	Hydr. Depth (ft)		3.81
Conv. Total (cfs)	25664.5	Conv. (cfs)		25664.5
Length wtd. (ft)	820.00	wetted Per. (ft)		87.58

NM115 OUTPUT REPORT.TXT

Min Ch El (ft)	92.86	Shear (lb/sq ft)		0.07
Alpha 0.00	1.00	Stream Power (lb/ft s)	1061.85	0.00
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)		17.43
C & E Loss (ft)	0.00	Cum SA (acres)		4.30

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	101.68	Element	Left OB	Channel
Right OB Vel Head (ft)	0.04	wt. n-Val.		0.045
W.S. Elev (ft)	101.64	Reach Len. (ft)	820.00	820.00
820.00 Crit w.s. (ft)	96.28	Flow Area (sq ft)		416.22
E.G. Slope (ft/ft)	0.000322	Area (sq ft)		416.22
Q Total (cfs)	646.90	Flow (cfs)		646.90
Top width (ft)	95.24	Top width (ft)		95.24
Vel Total (ft/s)	1.55	Avg. Vel. (ft/s)		1.55
Max Chl Dpth (ft)	8.78	Hydr. Depth (ft)		4.37
Conv. Total (cfs)	36066.0	Conv. (cfs)		36066.0
Length wtd. (ft)	820.00	wetted Per. (ft)		97.91
Min Ch El (ft)	92.86	Shear (lb/sq ft)		0.09
Alpha 0.00	1.00	Stream Power (lb/ft s)	1061.85	0.00
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)		21.81
C & E Loss (ft)	0.00	Cum SA (acres)		4.67

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	100.11	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	wt. n-Val.		0.045
W.S. Elev (ft)	100.08	Reach Len. (ft)	820.00	820.00
820.00				

NM115 OUTPUT REPORT.TXT				
Crit w.s. (ft)	95.36	Flow Area (sq ft)		278.59
E.G. Slope (ft/ft)	0.000306	Area (sq ft)		278.59
Q Total (cfs)	360.00	Flow (cfs)		360.00
Top width (ft)	81.03	Top width (ft)		81.03
Vel Total (ft/s)	1.29	Avg. Vel. (ft/s)		1.29
Max Chl Dpth (ft)	7.22	Hydr. Depth (ft)		3.44
Conv. Total (cfs)	20574.0	Conv. (cfs)		20574.0
Length wtd. (ft)	820.00	wetted Per. (ft)		83.29
Min Ch El (ft)	92.86	Shear (lb/sq ft)		0.06
Alpha	1.00	Stream Power (lb/ft s)	1061.85	0.00
0.00				
Frctn Loss (ft)	0.19	Cum Volume (acre-ft)		15.20
C & E Loss (ft)	0.00	Cum SA (acres)		4.08

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	100.71	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.03	wt. n-Val.		0.045
W.S. Elev (ft)	100.68	Reach Len. (ft)	820.00	820.00
820.00				
Crit w.s. (ft)	95.71	Flow Area (sq ft)		328.67
E.G. Slope (ft/ft)	0.000310	Area (sq ft)		328.67
Q Total (cfs)	460.00	Flow (cfs)		460.00
Top width (ft)	85.48	Top width (ft)		85.48
Vel Total (ft/s)	1.40	Avg. Vel. (ft/s)		1.40
Max Chl Dpth (ft)	7.82	Hydr. Depth (ft)		3.85
Conv. Total (cfs)	26144.8	Conv. (cfs)		26144.8
Length wtd. (ft)	820.00	wetted Per. (ft)		87.90
Min Ch El (ft)	92.86	Shear (lb/sq ft)		0.07
Alpha	1.00	Stream Power (lb/ft s)	1061.85	0.00
0.00				
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)		17.62
C & E Loss (ft)	0.00	Cum SA (acres)		4.32

NM115 OUTPUT REPORT.TXT

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	101.69	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.04	wt. n-Val.		0.045
W.S. Elev (ft)	101.65	Reach Len. (ft)	820.00	820.00
820.00				
Crit w.s. (ft)	96.28	Flow Area (sq ft)		417.27
E.G. Slope (ft/ft)	0.000322	Area (sq ft)		417.27
Q Total (cfs)	650.00	Flow (cfs)		650.00
Top width (ft)	95.31	Top width (ft)		95.31
Vel Total (ft/s)	1.56	Avg. Vel. (ft/s)		1.56
Max Chl Dpth (ft)	8.79	Hydr. Depth (ft)		4.38
Conv. Total (cfs)	36199.7	Conv. (cfs)		36199.7
Length wtd. (ft)	820.00	wetted Per. (ft)		97.99
Min Ch El (ft)	92.86	Shear (lb/sq ft)		0.09
Alpha	1.00	Stream Power (lb/ft s)	1061.85	0.00
0.00				
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)		21.86
C & E Loss (ft)	0.00	Cum SA (acres)		4.68

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-115

REACH: NM-115

RS: 2077

INPUT

Description:

Station	Elevation	Data	num=	191	Sta	Elev	Sta	Elev	Sta	Elev
0	107.48	54.9	107.92	59.89	107.82	64.88	107.54	69.87	107.51	
74.86	107.35	79.85	107.48	84.85	107.76	94.83	108	114.79	107.89	
119.78	107.94	124.77	107.76	129.76	107.48	144.74	107.29	159.71	107.51	
164.7	107.73	169.69	107.84	179.67	107.91	184.66	107.66	189.65	107.17	
199.64	106.81	214.61	106.46	229.58	106.6	244.55	106.51	254.54	106.6	
264.52	106.62	274.5	106.84	289.47	106.89	299.45	106.66	309.44	106.58	
314.43	106.44	334.39	106.37	339.38	106.48	374.32	106.45	384.3	106.23	
394.28	106.11	399.27	106.32	404.26	106.38	409.25	106.3	414.25	106.33	

NM115 OUTPUT REPORT.TXT

419.24	106.52	424.23	106.34	439.2	106.36	449.18	106.53	454.17	106.54
459.16	106.7	464.15	106.74	469.15	106.58	499.09	106.65	504.08	106.76
509.07	107.4	514.06	107.28	519.05	107.28	529.04	106.86	539.02	106.79
544.01	106.53	573.95	106.21	593.92	106.25	603.9	106.14	608.89	105.71
613.88	105.18	618.87	104.91	628.85	104.81	633.85	104.9	648.82	104.81
658.8	105.25	668.78	105.31	673.77	105.5	683.76	106.35	708.71	107.01
713.7	107.29	718.69	107.22	723.68	106.83	728.67	106.63	733.66	107.16
738.66	107.88	743.65	107.94	753.63	107.83	763.61	107.33	773.59	107.58
778.58	106.81	783.57	105.93	788.56	106.16	793.56	106.1	798.55	105.98
803.54	105.32	808.53	103.94	813.52	102.79	818.51	102.01	823.5	100.53
828.49	99.82	833.48	98.93	836.12	98.38	838.47	97.89	843.46	96.85
848.46	96.28	853.45	95.89	858.44	94.26	863.43	92.6	868.42	92.47
873.41	92.62	878.4	93.41	883.39	94.78	888.38	95.85	893.37	96.02
896.13	96.45	898.36	96.8	903.36	97.89	908.35	99.54	913.34	99.8
918.33	101.37	923.32	103.14	928.31	104.79	933.3	104.92	938.29	105.91
943.28	106.81	948.27	107.76	953.26	108.22	968.24	108.22	973.23	108.43
983.21	108.5	988.2	108.8	998.18	108.84	1008.16	108.43	1013.16	108.34
1028.13	108.42	1033.12	108.28	1048.09	108.4	1053.08	108.34	1058.07	108.45
1068.06	108.55	1078.04	108.16	1083.03	108.14	1088.02	107.95	1102.99	108.05
1142.92	107.67	1157.89	107.61	1167.87	107.75	1187.84	107.73	1232.76	108.22
1252.72	107.65	1282.66	107.63	1292.65	108.02	1327.58	108.16	1342.55	108.07
1367.51	108.34	1372.5	108.33	1392.46	108.55	1402.45	108.32	1417.42	108.46
1422.41	108.71	1447.36	108.77	1452.35	108.85	1462.34	108.69	1467.33	108.71
1472.32	108.89	1477.31	108.74	1487.29	109.24	1492.28	109.28	1497.27	109.17
1502.26	108.85	1507.25	108.73	1517.24	108.66	1522.23	108.53	1532.21	108.5
1542.19	108.67	1582.12	108.75	1587.11	108.88	1597.09	108.86	1607.07	109.11
1617.05	109	1627.04	109.16	1637.02	109.13	1642.01	109.2	1651.99	109.06
1661.97	109.19	1681.94	109.19	1686.93	109.32	1691.92	109.6	1696.91	109.69
1701.9	109.63	1716.87	109.21	1746.82	109.03	1751.81	108.67	1756.8	107.95
1761.79	107.46	1776.76	107	1786.74	107.43	1791.74	107.86	1796.73	108.73
1801.72	109.21								

Manning's n Values	num=	3
Sta n Val Sta	n val Sta n val	
0 .06 773.59	.045 948.27 .06	

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.	Expan.
773.59	948.27	714	712	710	.1	.3	
Ineffective Flow	num=	2					
Sta L Sta R Elev	Permanent						
0 773.59 107.58	F						
948.27 1801.72 107.76	F						

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	99.89	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	wt. n-val.		0.045
w.s. Elev (ft)	99.88	Reach Len. (ft)	714.00	712.00
710.00				
Crit w.s. (ft)	95.01	Flow Area (sq ft)		329.35
E.G. slope (ft/ft)	0.000182	Area (sq ft)		329.35
Q Total (cfs)	355.50	Flow (cfs)		355.50
Top width (ft)	85.48	Top width (ft)		85.48
Vel Total (ft/s)	1.08	Avg. Vel. (ft/s)		1.08
Max chl Dpth (ft)	7.41	Hydr. Depth (ft)		3.85

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Conv. Total (cfs)	26380.0	Conv. (cfs)	26380.0
Length wtd. (ft)	712.00	wetted Per. (ft)	87.18
Min Ch El (ft)	92.47	Shear (lb/sq ft)	0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	1801.72
Frctn Loss (ft)	0.15	Cum Volume (acre-ft)	9.42
C & E Loss (ft)	0.00	Cum SA (acres)	2.51

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	100.46	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-val.		0.045
W.S. Elev (ft)	100.44	Reach Len. (ft)	714.00	712.00
710.00 Crit w.s. (ft)	95.35	Flow Area (sq ft)		378.96
E.G. slope (ft/ft)	0.000199	Area (sq ft)		378.96
Q Total (cfs)	450.30	Flow (cfs)		450.30
Top width (ft)	91.21	Top width (ft)		91.21
vel Total (ft/s)	1.19	Avg. vel. (ft/s)		1.19
Max Chl Dpth (ft)	7.97	Hydr. Depth (ft)		4.15
Conv. Total (cfs)	31916.2	Conv. (cfs)		31916.2
Length wtd. (ft)	712.00	wetted Per. (ft)		93.04
Min Ch El (ft)	92.47	Shear (lb/sq ft)		0.05
Alpha 0.00	1.00	Stream Power (lb/ft s)	1801.72	0.00
Frctn Loss (ft)	0.17	Cum Volume (acre-ft)		10.81
C & E Loss (ft)	0.00	Cum SA (acres)		2.64

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	101.46	Element	Left OB	Channel
Right OB				

NM115 OUTPUT REPORT.TXT				
Vel Head (ft)	0.03	wt. n-val.		0.045
W.S. Elev (ft)	101.43	Reach Len. (ft)	714.00	712.00
710.00 Crit w.s. (ft)	96.03	Flow Area (sq ft)		473.42
E.G. Slope (ft/ft)	0.000216	Area (sq ft)		473.42
Q Total (cfs)	646.90	Flow (cfs)		646.90
Top width (ft)	98.05	Top width (ft)		98.05
Vel Total (ft/s)	1.37	Avg. vel. (ft/s)		1.37
Max Chl Dpth (ft)	8.96	Hydr. Depth (ft)		4.83
Conv. Total (cfs)	44024.4	Conv. (cfs)		44024.4
Length wtd. (ft)	712.00	wetted Per. (ft)		100.17
Min Ch El (ft)	92.47	Shear (lb/sq ft)		0.06
Alpha 0.00	1.00	Stream Power (lb/ft s)	1801.72	0.00
Frctn Loss (ft)	0.20	Cum volume (acre-ft)		13.44
C & E Loss (ft)	0.00	Cum SA (acres)		2.85

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	99.91	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-val.		0.045
W.S. Elev (ft)	99.89	Reach Len. (ft)	714.00	712.00
710.00 Crit w.s. (ft)	95.03	Flow Area (sq ft)		330.91
E.G. slope (ft/ft)	0.000184	Area (sq ft)		330.91
Q Total (cfs)	360.00	Flow (cfs)		360.00
Top width (ft)	85.66	Top width (ft)		85.66
Vel Total (ft/s)	1.09	Avg. vel. (ft/s)		1.09
Max Chl Dpth (ft)	7.42	Hydr. Depth (ft)		3.86
Conv. Total (cfs)	26549.5	Conv. (cfs)		26549.5
Length wtd. (ft)	712.00	wetted Per. (ft)		87.37
Min Ch El (ft)	92.47	Shear (lb/sq ft)		0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	1801.72	0.00

	NM115 OUTPUT REPORT.TXT		
Frctn Loss (ft)	0.15	Cum Volume (acre-ft)	9.46
C & E Loss (ft)	0.00	Cum SA (acres)	2.51

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	100.51	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-val.		0.045
W.S. Elev (ft)	100.48	Reach Len. (ft)	714.00	712.00
710.00 Crit w.s. (ft)	95.38	Flow Area (sq ft)		383.20
E.G. slope (ft/ft)	0.000202	Area (sq ft)		383.20
Q Total (cfs)	460.00	Flow (cfs)		460.00
Top width (ft)	91.68	Top width (ft)		91.68
vel Total (ft/s)	1.20	Avg. vel. (ft/s)		1.20
Max Chl Dpth (ft)	8.01	Hydr. Depth (ft)		4.18
Conv. Total (cfs)	32400.6	Conv. (cfs)		32400.6
Length wtd. (ft)	712.00	wetted Per. (ft)		93.52
Min Ch El (ft)	92.47	Shear (lb/sq ft)		0.05
Alpha 0.00	1.00	Stream Power (lb/ft s)	1801.72	0.00
Frctn Loss (ft)	0.17	Cum volume (acre-ft)		10.92
C & E Loss (ft)	0.00	Cum SA (acres)		2.65

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	101.47	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	wt. n-val.		0.045
W.S. Elev (ft)	101.44	Reach Len. (ft)	714.00	712.00
710.00 Crit w.s. (ft)	96.04	Flow Area (sq ft)		474.45
E.G. slope (ft/ft)	0.000217	Area (sq ft)		474.45
Q Total (cfs)	650.00	Flow (cfs)		650.00

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Top width (ft)	98.12	Top width (ft)	98.12
Vel Total (ft/s)	1.37	Avg. Vel. (ft/s)	1.37
Max Chl Dpth (ft)	8.97	Hydr. Depth (ft)	4.84
Conv. Total (cfs)	44164.1	Conv. (cfs)	44164.1
Length wtd. (ft)	712.00	wetted Per. (ft)	100.24
Min Ch El (ft)	92.47	Shear (lb/sq ft)	0.06
Alpha 0.00	1.00	Stream Power (lb/ft s)	1801.72
Frctn Loss (ft)	0.20	cum volume (acre-ft)	13.47
C & E Loss (ft)	0.00	cum SA (acres)	2.86

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-115
REACH: NM-115

RS: 1366

INPUT

Description:

Station Elevation Data		num= 169									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	105.32	4.93	105.31	9.87	105.18	14.8	105.26	29.6	105.12		
34.54	105.22	39.47	105.02	49.34	105.01	54.27	104.92	74.01	105.02		
103.61	104.99	108.54	104.87	123.35	105.02	128.28	104.98	133.21	104.82		
148.02	105	157.88	104.92	162.82	104.77	177.62	104.79	187.49	104.59		
192.42	104.82	202.29	104.79	212.16	104.61	232.01	104.78	246.98	104.74		
251.97	104.61	266.95	104.8	286.92	104.62	296.9	104.88	306.88	104.7		
311.88	104.85	321.86	104.8	326.85	104.88	331.84	104.8	356.8	104.86		
376.77	105.07	401.73	105.14	411.71	105.35	416.71	105.28	421.7	105.08		
426.69	105.02	431.68	105.18	441.67	105.29	451.65	105.16	466.62	105.17		
476.61	105.32	486.59	105.15	511.55	105.27	531.52	105.25	541.5	105.14		
566.46	105.29	571.45	105.38	581.44	105.25	586.43	105.29	591.42	105.05		
596.41	105.36	616.38	105.31	626.36	105.39	631.36	105.24	636.35	105.24		
656.32	105.69	661.31	105.68	666.3	105.5	671.29	105.49	676.28	105.74		
686.27	106.39	691.26	106.45	706.23	106.93	746.17	107.06	756.15	107.19		
761.15	107.52	766.14	107.6	771.13	107.44	786.1	107.39	796.09	107.49		
806.07	107.37	816.06	106.82	821.05	106.66	826.04	105.77	831.03	104.12		
836.02	103.02	841.02	102.69	846.01	101.91	846.36	101.85	851	100.99		
855.99	99.06	860.98	96.64	865.97	95.73	870.97	93.51	875.96	92.89		
880.95	92.77	885.94	92.83	890.93	92.97	895.93	94.18	900.92	96.79		
905.91	97.64	906.36	97.91	910.9	100.58	915.89	102	920.89	102.68		
925.88	102.77	930.87	103.5	935.86	104.52	940.85	105.85	945.84	106.35		
950.84	106.83	955.83	107.15	960.82	107.16	965.81	107.28	975.8	107.72		
1000.76	107.75	1005.75	107.67	1015.73	107.77	1020.72	107.9	1030.71	107.93		
1040.69	107.38	1075.63	107.18	1105.58	107.1	1170.48	107.06	1180.46	107.22		
1230.38	107.11	1245.36	107.19	1270.32	107.13	1275.31	107.02	1285.29	107.24		
1310.25	107.3	1325.23	107.18	1355.18	107.32	1400.1	107.29	1430.06	107.33		
1435.05	107.17	1474.98	107.33	1479.97	107.17	1519.91	107.49	1534.88	107.41		
1554.85	107.54	1559.84	107.42	1599.78	107.61	1609.76	107.51	1624.74	107.76		

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1634.72	108.03	1654.69	108.21	1664.67	108.45	1709.6	108.46	1714.59	108.53
1719.58	108.47	1724.57	108.57	1734.56	108.5	1744.54	108.6	1754.53	108.47
1759.52	108.32	1764.51	108.27	1779.48	108.35	1804.44	108.15	1814.43	108.18
1829.4	108.07	1834.4	108.2	1839.39	108.19	1844.38	108.29	1854.36	108.1
1889.31	108.1	1904.28	108.17	1914.26	108.35	1929.24	108.13	1939.22	108.32
1944.22	108.33	1959.19	107.95	1989.14	108.06	2029.08	107.87		

Manning's n Values

num=	3
Sta n Val	Sta n Val
0 .06	821.05 .045
	950.84 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

821.05	950.84	383	383	383	.1	.3
Ineffective Flow num= 2						
Sta L	Sta R	Elev	Permanent			
0	821.05	106.66	F			
950.84	2029.08	106.83	F			

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	99.74	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.03	wt. n-Val.		0.045
W.S. Elev (ft)	99.71	Reach Len. (ft)	383.00	383.00
383.00				
Crit w.s. (ft)	94.90	Flow Area (sq ft)		256.16
E.G. Slope (ft/ft)	0.000243	Area (sq ft)		256.16
Q Total (cfs)	355.50	Flow (cfs)		355.50
Top width (ft)	55.13	Top width (ft)		55.13
Vel Total (ft/s)	1.39	Avg. Vel. (ft/s)		1.39
Max Chl Dpth (ft)	6.94	Hydr. Depth (ft)		4.65
Conv. Total (cfs)	22816.5	Conv. (cfs)		22816.5
Length wtd. (ft)	383.00	wetted Per. (ft)		57.82
Min Ch El (ft)	92.77	Shear (lb/sq ft)		0.07
Alpha	1.00	Stream Power (lb/ft s)	2029.08	0.00
0.00				
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)		4.64
C & E Loss (ft)	0.00	Cum SA (acres)		1.36

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	100.29	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.04	wt. n-Val.		0.045

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W.S. Elev (ft)	100.25	Reach Len. (ft)	383.00	383.00
383.00 Crit w.s. (ft)	95.21	Flow Area (sq ft)		286.39
E.G. Slope (ft/ft)	0.000284	Area (sq ft)		286.39
Q Total (cfs)	450.30	Flow (cfs)		450.30
Top width (ft)	57.43	Top width (ft)		57.43
Vel Total (ft/s)	1.57	Avg. Vel. (ft/s)		1.57
Max Chl Dpth (ft)	7.48	Hydr. Depth (ft)		4.99
Conv. Total (cfs)	26699.2	Conv. (cfs)		26699.2
Length wtd. (ft)	383.00	wetted Per. (ft)		60.37
Min Ch El (ft)	92.77	Shear (lb/sq ft)		0.08
Alpha	1.00	Stream Power (lb/ft s)	2029.08	0.00
0.00 Frctn Loss (ft)	0.15	Cum Volume (acre-ft)		5.37
C & E Loss (ft)	0.00	Cum SA (acres)		1.43

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	101.26	Element	Left OB	Channel
Right OB Vel Head (ft)	0.05	wt. n-val.		0.045
W.S. Elev (ft)	101.21	Reach Len. (ft)	383.00	383.00
383.00 Crit w.s. (ft)	95.77	Flow Area (sq ft)		343.79
E.G. Slope (ft/ft)	0.000364	Area (sq ft)		343.79
Q Total (cfs)	646.90	Flow (cfs)		646.90
Top width (ft)	63.29	Top width (ft)		63.29
Vel Total (ft/s)	1.88	Avg. Vel. (ft/s)		1.88
Max Chl Dpth (ft)	8.44	Hydr. Depth (ft)		5.43
Conv. Total (cfs)	33919.0	Conv. (cfs)		33919.0
Length wtd. (ft)	383.00	wetted Per. (ft)		66.56
Min Ch El (ft)	92.77	Shear (lb/sq ft)		0.12
Alpha	1.00	Stream Power (lb/ft s)	2029.08	0.00
0.00 Frctn Loss (ft)	0.17	Cum Volume (acre-ft)		6.76

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C & E Loss (ft) 0.00 Cum SA (acres) 1.54

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	99.76	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	wt. n-Val.		0.045
W.S. Elev (ft)	99.73	Reach Len. (ft)	383.00	383.00
383.00 Crit w.s. (ft)	94.92	Flow Area (sq ft)		257.04
E.G. slope (ft/ft)	0.000247	Area (sq ft)		257.04
Q Total (cfs)	360.00	Flow (cfs)		360.00
Top width (ft)	55.19	Top width (ft)		55.19
Vel Total (ft/s)	1.40	Avg. Vel. (ft/s)		1.40
Max Chl Dpth (ft)	6.96	Hydr. Depth (ft)		4.66
Conv. Total (cfs)	22926.3	Conv. (cfs)		22926.3
Length wtd. (ft)	383.00	wetted Per. (ft)		57.90
Min Ch El (ft)	92.77	Shear (lb/sq ft)		0.07
Alpha 0.00	1.00	Stream Power (lb/ft s)	2029.08	0.00
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)		4.66
C & E Loss (ft)	0.00	Cum SA (acres)		1.36

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	100.33	Element	Left OB	Channel
Right OB Vel Head (ft)	0.04	wt. n-Val.		0.045
W.S. Elev (ft)	100.29	Reach Len. (ft)	383.00	383.00
383.00 Crit w.s. (ft)	95.24	Flow Area (sq ft)		288.87
E.G. slope (ft/ft)	0.000290	Area (sq ft)		288.87
Q Total (cfs)	460.00	Flow (cfs)		460.00

		NM115 OUTPUT REPORT.TXT	
Top width (ft)	57.61	Top width (ft)	57.61
Vel Total (ft/s)	1.59	Avg. Vel. (ft/s)	1.59
Max Chl Dpth (ft)	7.52	Hydr. Depth (ft)	5.01
Conv. Total (cfs)	27024.9	Conv. (cfs)	27024.9
Length wtd. (ft)	383.00	Wetted Per. (ft)	60.58
Min Ch El (ft)	92.77	Shear (lb/sq ft)	0.09
Alpha	1.00	Stream Power (lb/ft s)	2029.08
0.00			
Frctn Loss (ft)	0.15	Cum Volume (acre-ft)	5.43
C & E Loss (ft)	0.00	Cum SA (acres)	1.43

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	101.27	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.06	wt. n-Val.		0.045
W.S. Elev (ft)	101.22	Reach Len. (ft)	383.00	383.00
383.00				
Crit w.s. (ft)	95.78	Flow Area (sq ft)		344.39
E.G. Slope (ft/ft)	0.000366	Area (sq ft)		344.39
Q Total (cfs)	650.00	Flow (cfs)		650.00
Top width (ft)	63.37	Top width (ft)		63.37
Vel Total (ft/s)	1.89	Avg. Vel. (ft/s)		1.89
Max Chl Dpth (ft)	8.45	Hydr. Depth (ft)		5.43
Conv. Total (cfs)	33988.3	Conv. (cfs)		33988.3
Length wtd. (ft)	383.00	wetted Per. (ft)		66.65
Min Ch El (ft)	92.77	Shear (lb/sq ft)		0.12
Alpha	1.00	Stream Power (lb/ft s)	2029.08	0.00
0.00				
Frctn Loss (ft)	0.18	Cum Volume (acre-ft)		6.78
C & E Loss (ft)	0.00	Cum SA (acres)		1.54

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

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CROSS SECTION

RIVER: N-NM-115
 REACH: NM-115

RS: 982

INPUT

Description:

Station Elevation Data		num= 196		Station Elevation Data		num= 196		Station Elevation Data		num= 196	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	106.3	4.99	106.16	14.96	106.27	24.94	106.17	29.93	105.97		
49.88	105.83	59.85	105.97	69.83	105.75	79.8	105.92	94.77	105.8		
109.73	105.91	124.69	105.76	134.67	105.73	144.64	105.53	159.61	105.67		
164.59	105.79	169.58	105.75	179.56	105.91	184.54	105.86	189.53	105.71		
209.48	105.4	239.4	105.49	269.33	105.6	279.3	105.51	284.29	105.58		
289.28	105.45	294.26	105.57	314.21	105.61	319.2	105.44	334.16	105.64		
339.15	105.55	359.1	105.8	374.06	105.87	379.05	105.81	384.03	106.03		
394.01	105.98	399	105.88	413.96	105.97	423.93	105.78	438.89	105.84		
443.88	105.69	463.83	105.86	478.79	105.86	488.77	106.05	523.68	105.91		
538.64	105.92	548.61	106.07	553.6	105.96	578.54	106.06	593.5	106.16		
598.49	106.02	603.47	106.34	618.43	106.53	623.42	107.06	628.41	107.18		
633.4	107.12	638.38	107.29	643.37	107.26	648.36	106.93	653.35	106.89		
658.33	106.59	663.32	106.47	668.31	106.21	678.28	106.31	683.27	106.71		
693.24	106.63	703.22	107.03	708.21	107.48	723.17	107.63	743.12	107.56		
753.09	107.29	778.03	107.13	783.01	107	797.98	105.86	802.96	105.76		
807.95	105.76	812.94	106.1	817.93	106.86	822.91	107.25	827.9	107.29		
832.89	106.7	837.87	105.15	842.86	104.23	847.85	103.28	852.84	101.42		
852.98	101.38	857.82	99.93	862.81	99.33	867.8	98.92	872.79	98.13		
877.77	97.18	882.76	95.53	887.75	94.36	892.73	93.87	897.72	92.91		
902.71	93.63	907.7	95.16	912.68	95.69	912.98	95.75	917.67	96.79		
922.66	97.45	927.65	98.38	932.63	98.99	937.62	101.01	942.61	102.93		
947.59	104.53	952.58	105.09	957.57	107.31	962.56	108.7	967.54	108.7		
972.53	108.54	982.51	108.49	992.48	108.22	1007.44	108.06	1012.43	107.87		
1022.4	107.97	1032.38	107.84	1037.37	107.85	1062.3	107.58	1082.25	107.71		
1092.23	107.59	1097.21	107.74	1107.19	107.78	1112.17	107.72	1117.16	107.94		
1127.14	107.86	1132.12	107.74	1142.1	107.83	1162.05	107.69	1177.01	107.79		
1206.93	107.58	1216.91	107.69	1241.84	107.55	1261.79	107.68	1271.77	107.39		
1281.74	107.22	1286.73	107.3	1291.72	107.54	1301.69	107.82	1311.67	107.57		
1341.59	107.41	1346.58	107.45	1351.56	107.21	1366.53	107.46	1376.5	107.22		
1386.48	107.22	1396.45	107.38	1401.44	107.38	1406.42	107.26	1416.4	107.35		
1426.37	107.16	1431.36	107.25	1436.35	107.11	1441.34	107.33	1466.27	107.18		
1476.25	107.41	1486.22	107.31	1491.21	107.41	1511.16	107.31	1521.13	107.41		
1526.12	107.2	1531.11	107.12	1541.08	107.39	1556.04	107.4	1571	107.56		
1585.97	107.51	1595.94	107.6	1620.88	107.44	1635.84	107.73	1655.79	107.66		
1665.76	107.22	1675.74	107.4	1680.73	107.32	1690.7	107.59	1700.67	107.63		
1705.66	107.73	1715.64	107.59	1745.56	107.53	1750.55	107.4	1755.53	107.4		
1760.52	107.57	1775.48	107.42	1790.45	107.54	1795.43	107.35	1810.39	107.41		
1815.38	107.63	1820.37	107.64	1830.34	107.34	1860.27	107.38	1885.2	107.18		
1895.18	107.35	1925.1	107.4	1935.08	107.19	2009.89	107.22	2019.86	107.43		
2029.83	107.25										

Manning's n Values		num= 3	
Sta	n Val	Sta	n Val
0	.06	832.89	.045
		957.57	.06

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	832.89	957.57		468	468	469		.1	.3
Ineffective Flow			num=	2					
	Sta L	Sta R	Elev	Permanent					
	0	832.89	106.7	F					
	957.57	2029.83	107.31	F					

CROSS SECTION OUTPUT Profile #EX 10Y

NM115 OUTPUT REPORT.TXT

E.G. Elev (ft)	99.61	Element	Left OB	Channel
Right OB Vel Head (ft)	0.04	wt. n-val.		0.045
W.S. Elev (ft)	99.56	Reach Len. (ft)	468.00	468.00
469.00 Crit W.S. (ft)	96.02	Flow Area (sq ft)		233.65
E.G. Slope (ft/ft)	0.000549	Area (sq ft)		233.65
Q Total (cfs)	387.20	Flow (cfs)		387.20
Top width (ft)	73.17	Top width (ft)		73.17
Vel Total (ft/s)	1.66	Avg. Vel. (ft/s)		1.66
Max Chl Dpth (ft)	6.65	Hydr. Depth (ft)		3.19
Conv. Total (cfs)	16519.2	Conv. (cfs)		16519.2
Length wtd. (ft)	468.00	wetted Per. (ft)		74.58
Min Ch El (ft)	92.91	Shear (lb/sq ft)		0.11
Alpha 0.00	1.00	Stream Power (lb/ft s)	2029.83	0.00
Frctn Loss (ft)	0.27	Cum Volume (acre-ft)		2.49
C & E Loss (ft)	0.00	Cum SA (acres)		0.79

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	100.14	Element	Left OB	Channel
Right OB Vel Head (ft)	0.05	wt. n-val.		0.045
W.S. Elev (ft)	100.09	Reach Len. (ft)	468.00	468.00
469.00 Crit W.S. (ft)	96.34	Flow Area (sq ft)		273.31
E.G. Slope (ft/ft)	0.000572	Area (sq ft)		273.31
Q Total (cfs)	491.10	Flow (cfs)		491.10
Top width (ft)	78.03	Top width (ft)		78.03
Vel Total (ft/s)	1.80	Avg. Vel. (ft/s)		1.80
Max Chl Dpth (ft)	7.18	Hydr. Depth (ft)		3.50
Conv. Total (cfs)	20541.7	Conv. (cfs)		20541.7
Length wtd. (ft)	468.00	wetted Per. (ft)		79.59

NM115 OUTPUT REPORT.TXT				
Min Ch El (ft)	92.91	Shear (lb/sq ft)		0.12
Alpha 0.00	1.00	Stream Power (lb/ft s)	2029.83	0.00
Frctn Loss (ft)	0.27	Cum Volume (acre-ft)		2.91
C & E Loss (ft)	0.00	Cum SA (acres)		0.83

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	101.09	Element	Left OB	Channel
Right OB Vel Head (ft)	0.06	wt. n-Val.		0.045
W.S. Elev (ft)	101.02	Reach Len. (ft)	468.00	468.00
469.00 Crit w.s. (ft)	96.90	Flow Area (sq ft)		349.08
E.G. Slope (ft/ft)	0.000576	Area (sq ft)		349.08
Q Total (cfs)	707.70	Flow (cfs)		707.70
Top width (ft)	83.49	Top width (ft)		83.49
Vel Total (ft/s)	2.03	Avg. Vel. (ft/s)		2.03
Max Chl Dpth (ft)	8.11	Hydr. Depth (ft)		4.18
Conv. Total (cfs)	29477.6	Conv. (cfs)		29477.6
Length wtd. (ft)	468.00	wetted Per. (ft)		85.36
Min Ch El (ft)	92.91	Shear (lb/sq ft)		0.15
Alpha 0.00	1.00	Stream Power (lb/ft s)	2029.83	0.00
Frctn Loss (ft)	0.28	Cum Volume (acre-ft)		3.72
C & E Loss (ft)	0.00	Cum SA (acres)		0.89

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	99.62	Element	Left OB	Channel
Right OB Vel Head (ft)	0.04	wt. n-Val.		0.045
W.S. Elev (ft)	99.58	Reach Len. (ft)	468.00	468.00
469.00 Crit w.s. (ft)	96.03	Flow Area (sq ft)		234.75

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E.G. Slope (ft/ft)	0.000550	Area (sq ft)		234.75
Q Total (cfs)	390.00	Flow (cfs)		390.00
Top width (ft)	73.33	Top width (ft)		73.33
Vel Total (ft/s)	1.66	Avg. Vel. (ft/s)		1.66
Max Chl Dpth (ft)	6.67	Hydr. Depth (ft)		3.20
Conv. Total (cfs)	16624.1	Conv. (cfs)		16624.1
Length wtd. (ft)	468.00	wetted Per. (ft)		74.74
Min Ch El (ft)	92.91	Shear (lb/sq ft)		0.11
Alpha 0.00	1.00	Stream Power (lb/ft s)	2029.83	0.00
Frctn Loss (ft)	0.27	Cum Volume (acre-ft)		2.50
C & E Loss (ft)	0.00	Cum SA (acres)		0.79

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	100.18	Element	Left OB	Channel
Right OB Vel Head (ft)	0.05	wt. n-Val.		0.045
w.s. Elev (ft)	100.13	Reach Len. (ft)	468.00	468.00
469.00 Crit w.s. (ft)	96.36	Flow Area (sq ft)		276.59
E.G. Slope (ft/ft)	0.000572	Area (sq ft)		276.59
Q Total (cfs)	500.00	Flow (cfs)		500.00
Top width (ft)	78.28	Top width (ft)		78.28
Vel Total (ft/s)	1.81	Avg. Vel. (ft/s)		1.81
Max Chl Dpth (ft)	7.22	Hydr. Depth (ft)		3.53
Conv. Total (cfs)	20909.6	Conv. (cfs)		20909.6
Length wtd. (ft)	468.00	wetted Per. (ft)		79.85
Min Ch El (ft)	92.91	Shear (lb/sq ft)		0.12
Alpha 0.00	1.00	Stream Power (lb/ft s)	2029.83	0.00
Frctn Loss (ft)	0.27	Cum Volume (acre-ft)		2.94
C & E Loss (ft)	0.00	Cum SA (acres)		0.84

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Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	101.10	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.06	wt. n-Val.		0.045
W.S. Elev (ft)	101.03	Reach Len. (ft)	468.00	468.00
469.00				
Crit w.s. (ft)	96.90	Flow Area (sq ft)		349.85
E.G. Slope (ft/ft)	0.000576	Area (sq ft)		349.85
Q Total (cfs)	710.00	Flow (cfs)		710.00
Top width (ft)	83.54	Top width (ft)		83.54
Vel Total (ft/s)	2.03	Avg. Vel. (ft/s)		2.03
Max chl Dpth (ft)	8.12	Hydr. Depth (ft)		4.19
Conv. Total (cfs)	29572.7	Conv. (cfs)		29572.7
Length wtd. (ft)	468.00	wetted Per. (ft)		85.42
Min ch El (ft)	92.91	shear (lb/sq ft)		0.15
Alpha	1.00	Stream Power (lb/ft s)	2029.83	0.00
0.00				
Frctn Loss (ft)	0.28	Cum Volume (acre-ft)		3.72
C & E Loss (ft)	0.00	Cum SA (acres)		0.89

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-115
 REACH: NM-115 RS: 514

INPUT

Description:

Station	Elevation	Data	num=	195	Sta	Elev	Sta	Elev	Sta	Elev
0	107.24	9.81	107.94	24.52	107.63	39.23	107.65	63.76	107.9	
78.47	107.78	83.37	107.6	88.28	107.78	122.61	107.68	147.13	107.79	
162.03	107.64	172.02	107.38	182.01	107.35	192	107.44	206.99	107.26	
211.99	107.1	216.98	107.07	226.98	107.31	236.97	107.32	246.96	107.07	
251.96	107.21	261.95	107.74	271.94	107.76	281.93	107.54	301.92	107.7	
321.9	107.58	331.9	107.82	341.89	107.73	351.88	108.01	366.87	108.04	
376.86	107.78	391.85	107.96	401.84	107.91	416.83	107.61	421.83	107.61	
426.82	107.5	431.82	107.87	436.81	107.63	441.81	107.61	451.8	107.79	
466.79	107.81	471.79	107.71	486.78	107.74	496.77	107.33	501.76	107.04	

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506.76	107.05	516.75	107.29	526.75	107.16	531.74	107.21	541.73	107.71
561.72	107.81	566.71	107.52	581.7	107.33	591.7	107.32	601.69	106.75
606.68	106.28	611.68	106.1	616.68	105.62	621.67	105.38	631.66	105.24
646.65	105.28	661.64	105.71	666.64	105.95	681.63	106.17	691.62	106.41
701.61	106.48	711.6	106.74	741.58	106.74	746.58	106.67	751.57	106.48
756.57	106.39	796.54	106.53	806.53	106.34	811.53	106.06	816.52	106.05
821.52	106.17	826.51	106.73	831.51	106.83	836.51	107.17	841.5	106.88
846.5	106.43	851.5	104.94	856.49	103.41	861	103.15	861.49	103.12
866.48	101.41	871.48	99.73	876.48	98	881.47	97.82	886.47	96.3
891.46	95.23	896.46	95.09	901.46	95.06	906.45	94.48	911.45	93.53
916.44	94.25	921	95.82	921.44	95.97	926.44	95.99	931.43	96.29
936.43	97.28	941.43	98.95	946.42	99.02	951.42	101.08	956.41	103.78
961.41	105.83	966.41	105.97	971.4	107.56	976.4	108.06	981.4	107.08
986.39	106.96	991.39	106.22	996.38	105.76	1001.38	105.62	1016.37	105.82
1031.36	105.7	1051.34	105.79	1061.33	106.08	1071.33	106.01	1081.32	106.23
1086.31	105.93	1091.31	105.76	1156.26	105.41	1161.26	105.28	1166.25	105.26
1176.25	105.54	1181.24	105.57	1191.23	105.29	1196.23	105.26	1201.23	105.35
1221.21	105.03	1226.21	105.09	1231.2	105.25	1236.2	105.3	1246.19	105.26
1256.18	105.44	1271.17	105.36	1276.17	105.5	1316.14	105.71	1321.13	105.62
1326.13	105.27	1341.12	105.32	1361.1	105.2	1366.1	105.02	1386.08	105.12
1401.07	105.29	1416.06	105.24	1421.06	105.39	1426.05	105.23	1436.05	105.24
1441.04	105.41	1461.03	105.38	1466.02	105.51	1486.01	105.35	1491	105.21
1505.99	105.27	1510.99	105.4	1530.97	105.37	1550.96	105.6	1565.95	105.48
1580.94	105.75	1620.91	105.66	1640.89	105.5	1650.88	105.56	1680.86	105.33
1700.84	105.59	1705.84	105.41	1725.82	105.43	1730.82	105.51	1745.81	105.46
1755.8	105.81	1760.8	105.74	1765.79	105.5	1790.78	105.46	1795.77	105.62
1800.77	105.64	1805.76	105.92	1810.76	106.1	1815.76	106.16	1840.74	105.84
1890.7	106.18	1900.69	106.09	1910.68	106.17	1920.68	105.86	1925.67	105.44
1940.66	105.21	1955.65	105.49	1965.64	105.13	1975.63	105.06	1995.62	105.21
2000.61	105.38	2005.61	105.66	2015.6	105.58	2020.6	105.45	2030.59	105.45

Manning's n Values

num=	3				
Sta	n Val	Sta	n Val	Sta	n Val
0	.06	841.5	.045	971.4	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.	Expan.
841.5	971.4	514	514	514	.1	.3	
Ineffective Flow	num=	2					
Sta L	Sta R	Elev	Permanent				
0	841.5	106.88	F				
971.4	2030.59	107.56	F				

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	99.34	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.04	wt. n-val.		0.045
w.s. Elev (ft)	99.29	Reach Len. (ft)		
Crit w.s. (ft)	96.43	Flow Area (sq ft)		229.02
E.G. Slope (ft/ft)	0.000600	Area (sq ft)		229.02
Q Total (cfs)	387.20	Flow (cfs)		387.20
Top width (ft)	74.34	Top width (ft)		74.34
vel Total (ft/s)	1.69	Avg. vel. (ft/s)		1.69
Max Chl Dpth (ft)	5.76	Hydr. Depth (ft)		3.08

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Conv. Total (cfs)	15806.3	Conv. (cfs)	15806.3
Length wtd. (ft)		Wetted Per. (ft)	75.79
Min Ch El (ft)	93.53	Shear (lb/sq ft)	0.11
Alpha	1.00	Stream Power (lb/ft s)	2030.59
0.00		Cum Volume (acre-ft)	0.00
Frctn Loss (ft)		Cum SA (acres)	
C & E Loss (ft)			

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	99.86	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.05	wt. n-Val.		0.045
w.S. Elev (ft)	99.81	Reach Len. (ft)		
Crit w.S. (ft)	96.67	Flow Area (sq ft)		268.16
E.G. Slope (ft/ft)	0.000600	Area (sq ft)		268.16
Q Total (cfs)	491.10	Flow (cfs)		491.10
Top width (ft)	77.09	Top width (ft)		77.09
Vel Total (ft/s)	1.83	Avg. Vel. (ft/s)		1.83
Max Chl Dpth (ft)	6.28	Hydr. Depth (ft)		3.48
Conv. Total (cfs)	20044.4	Conv. (cfs)		20044.4
Length wtd. (ft)		wetted Per. (ft)		78.74
Min Ch El (ft)	93.53	Shear (lb/sq ft)		0.13
Alpha	1.00	Stream Power (lb/ft s)	2030.59	0.00
0.00		Cum Volume (acre-ft)		
Frctn Loss (ft)		Cum SA (acres)		
C & E Loss (ft)				

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	100.81	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.07	wt. n-Val.		0.045

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W.S. Elev (ft)	100.75	Reach Len. (ft)	
Crit w.s. (ft)	97.11	Flow Area (sq ft)	342.72
E.G. Slope (ft/ft)	0.000601	Area (sq ft)	342.72
Q Total (cfs)	707.70	Flow (cfs)	707.70
Top width (ft)	82.15	Top width (ft)	82.15
Vel Total (ft/s)	2.06	Avg. Vel. (ft/s)	2.06
Max Chl Dpth (ft)	7.22	Hydr. Depth (ft)	4.17
Conv. Total (cfs)	28864.7	Conv. (cfs)	28864.7
Length wtd. (ft)		wetted Per. (ft)	84.13
Min Ch El (ft)	93.53	Shear (lb/sq ft)	0.15
Alpha 0.00	1.00	Stream Power (lb/ft s)	2030.59
Frctn Loss (ft)		Cum Volume (acre-ft)	0.00
C & E Loss (ft)		Cum SA (acres)	

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	99.35	Element	Left OB	Channel
Right OB Vel Head (ft)	0.04	wt. n-val.		0.045
W.S. Elev (ft)	99.31	Reach Len. (ft)		
Crit w.s. (ft)	96.43	Flow Area (sq ft)		230.12
E.G. Slope (ft/ft)	0.000600	Area (sq ft)		230.12
Q Total (cfs)	390.00	Flow (cfs)		390.00
Top width (ft)	74.41	Top width (ft)		74.41
Vel Total (ft/s)	1.69	Avg. Vel. (ft/s)		1.69
Max Chl Dpth (ft)	5.78	Hydr. Depth (ft)		3.09
Conv. Total (cfs)	15921.1	Conv. (cfs)		15921.1
Length wtd. (ft)		wetted Per. (ft)		75.88
Min Ch El (ft)	93.53	Shear (lb/sq ft)		0.11
Alpha 0.00	1.00	Stream Power (lb/ft s)	2030.59	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)		

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C & E Loss (ft)

Cum SA (acres)

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	99.90	Element	Left OB	Channel
Right OB Vel Head (ft)	0.05	wt. n-Val.		0.045
w.s. Elev (ft)	99.85	Reach Len. (ft)		
Crit w.s. (ft)	96.69	Flow Area (sq ft)		271.40
E.G. slope (ft/ft)	0.000600	Area (sq ft)		271.40
Q Total (cfs)	500.00	Flow (cfs)		500.00
Top width (ft)	77.32	Top width (ft)		77.32
Vel Total (ft/s)	1.84	Avg. Vel. (ft/s)		1.84
Max Chl Dpth (ft)	6.32	Hydr. Depth (ft)		3.51
Conv. Total (cfs)	20407.6	Conv. (cfs)		20407.6
Length wtd. (ft)		wetted Per. (ft)		78.98
Min Ch El (ft)	93.53	Shear (lb/sq ft)		0.13
Alpha 0.00	1.00	Stream Power (lb/ft s)	2030.59	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)		
C & E Loss (ft)		Cum SA (acres)		

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	100.82	Element	Left OB	Channel
Right OB Vel Head (ft)	0.07	wt. n-Val.		0.045
w.s. Elev (ft)	100.75	Reach Len. (ft)		
Crit w.s. (ft)	97.11	Flow Area (sq ft)		343.48
E.G. slope (ft/ft)	0.000601	Area (sq ft)		343.48
Q Total (cfs)	710.00	Flow (cfs)		710.00

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Top width (ft)	82.20	Top width (ft)		82.20
Vel Total (ft/s)	2.07	Avg. Vel. (ft/s)		2.07
Max Chl Dpth (ft)	7.22	Hydr. Depth (ft)		4.18
Conv. Total (cfs)	28958.6	Conv. (cfs)		28958.6
Length wtd. (ft)		Wetted Per. (ft)		84.19
Min ch El (ft)	93.53	Shear (lb/sq ft)		0.15
Alpha	1.00	Stream Power (lb/ft s)	2030.59	0.00
0.00		Cum Volume (acre-ft)		
Frctn Loss (ft)		Cum SA (acres)		
C & E Loss (ft)				

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

SUMMARY OF MANNING'S N VALUES

River:N-NM-115

Reach	River Sta.	n1	n2	n3
NM-115	15505	.06	.045	.06
NM-115	15088	.06	.045	.06
NM-115	14595	.06	.045	.06
NM-115	14243	.06	.045	.06
NM-115	13853	.06	.045	.06
NM-115	13531	.06	.045	.06
NM-115	13177	.06	.045	.06
NM-115	13028	.06	.045	.06
NM-115	12775	.06	.045	.06
NM-115	12605	.06	.045	.06
NM-115	12224	.06	.045	.06
NM-115	11908	.06	.045	.06
NM-115	11608	.06	.045	.06
NM-115	11070	.06	.045	.06
NM-115	10378	.06	.045	.06
NM-115	9746	.06	.045	.06
NM-115	9251	.06	.045	.06
NM-115	8949	.06	.045	.06
NM-115	8418	.06	.045	.06
NM-115	7926	.06	.045	.06
NM-115	7728	.06	.045	.06
NM-115	7179	.06	.045	.06
NM-115	6641	.06	.045	.06
NM-115	6348	.06	.045	.06
NM-115	5795	.06	.045	.06
NM-115	5322	.06	.045	.06
NM-115	5052	.06	.045	.06
NM-115	4521	.06	.045	.06
NM-115	4037	.06	.045	.06
NM-115	3656	.06	.045	.06
NM-115	3315	.06	.045	.06

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NM-115	2898	.06	.045	.06
NM-115	2077	.06	.045	.06
NM-115	1366	.06	.045	.06
NM-115	982	.06	.045	.06
NM-115	514	.06	.045	.06

SUMMARY OF REACH LENGTHS

River: N-NM-115

Reach	River Sta.	Left	Channel	Right
NM-115	15505	417	417	417
NM-115	15088	493	493	493
NM-115	14595	351	351	351
NM-115	14243	390	390	390
NM-115	13853	322	322	322
NM-115	13531	354	354	354
NM-115	13177	148	148	148
NM-115	13028	253	253	253
NM-115	12775	171	171	171
NM-115	12605	381	381	381
NM-115	12224	316	316	316
NM-115	11908	300	300	300
NM-115	11608	540	539	538
NM-115	11070	692	692	692
NM-115	10378	630	632	633
NM-115	9746	495	496	496
NM-115	9251	302	302	302
NM-115	8949	530	530	530
NM-115	8418	492	492	493
NM-115	7926	198	198	198
NM-115	7728	550	549	548
NM-115	7179	540	538	537
NM-115	6641	290	293	296
NM-115	6348	555	553	552
NM-115	5795	473	473	473
NM-115	5322	270	270	270
NM-115	5052	468	530	593
NM-115	4521	546	484	423
NM-115	4037	380	381	383
NM-115	3656	341	341	341
NM-115	3315	418	418	417
NM-115	2898	820	820	820
NM-115	2077	714	712	710
NM-115	1366	383	383	383
NM-115	982	468	468	469
NM-115	514	514	514	514

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS

River: N-NM-115

Reach	River Sta.	Contr.	Expan.
NM-115	15505	.1	.3
NM-115	15088	.1	.3

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NM-115	14595	.1	.3
NM-115	14243	.1	.3
NM-115	13853	.1	.3
NM-115	13531	.1	.3
NM-115	13177	.1	.3
NM-115	13028	.1	.3
NM-115	12775	.1	.3
NM-115	12605	.1	.3
NM-115	12224	.1	.3
NM-115	11908	.1	.3
NM-115	11608	.1	.3
NM-115	11070	.1	.3
NM-115	10378	.1	.3
NM-115	9746	.1	.3
NM-115	9251	.1	.3
NM-115	8949	.1	.3
NM-115	8418	.1	.3
NM-115	7926	.1	.3
NM-115	7728	.1	.3
NM-115	7179	.1	.3
NM-115	6641	.1	.3
NM-115	6348	.1	.3
NM-115	5795	.1	.3
NM-115	5322	.1	.3
NM-115	5052	.1	.3
NM-115	4521	.1	.3
NM-115	4037	.1	.3
NM-115	3656	.1	.3
NM-115	3315	.1	.3
NM-115	2898	.1	.3
NM-115	2077	.1	.3
NM-115	1366	.1	.3
NM-115	982	.1	.3
NM-115	514	.1	.3

Profile Output Table - Table 1

Reach Vel Chnl (ft/s)	River Sta Flow Area (sq ft)	Profile Top width (ft)	Q Total Volume (acre-ft)	W.S. Elev (ft)	E.G. Elev (ft)	Min Ch El (ft)
NM-115	514	EX 10Y	387.20	99.29	99.34	93.53
1.69	229.02	74.34				
NM-115	514	EX 25Y	491.10	99.81	99.86	93.53
1.83	268.16	77.09				
NM-115	514	EX 100Y	707.70	100.75	100.81	93.53
2.06	342.72	82.15				
NM-115	514	ULT 10Y	390.00	99.31	99.35	93.53
1.69	230.12	74.41				
NM-115	514	ULT 25Y	500.00	99.85	99.90	93.53
1.84	271.40	77.32				
NM-115	514	ULT 100Y	710.00	100.75	100.82	93.53
2.07	343.48	82.20				
NM-115	982	EX 10Y	387.20	99.56	99.61	92.91
1.66	233.65	73.17	2.49			
NM-115	982	EX 25Y	491.10	100.09	100.14	92.91
1.80	273.31	78.03	2.91			

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NM-115	982	EX 100Y	707.70	101.02	101.09	92.91
2.03	349.08	83.49	3.72			
NM-115	982	ULT 10Y	390.00	99.58	99.62	92.91
1.66	234.75	73.33	2.50			
NM-115	982	ULT 25Y	500.00	100.13	100.18	92.91
1.81	276.59	78.28	2.94			
NM-115	982	ULT 100Y	710.00	101.03	101.10	92.91
2.03	349.85	83.54	3.72			
NM-115	1366	EX 10Y	355.50	99.71	99.74	92.77
1.39	256.16	55.13	4.64			
NM-115	1366	EX 25Y	450.30	100.25	100.29	92.77
1.57	286.39	57.43	5.37			
NM-115	1366	EX 100Y	646.90	101.21	101.26	92.77
1.88	343.79	63.29	6.76			
NM-115	1366	ULT 10Y	360.00	99.73	99.76	92.77
1.40	257.04	55.19	4.66			
NM-115	1366	ULT 25Y	460.00	100.29	100.33	92.77
1.59	288.87	57.61	5.43			
NM-115	1366	ULT 100Y	650.00	101.22	101.27	92.77
1.89	344.39	63.37	6.78			
NM-115	2077	EX 10Y	355.50	99.88	99.89	92.47
1.08	329.35	85.48	9.42			
NM-115	2077	EX 25Y	450.30	100.44	100.46	92.47
1.19	378.96	91.21	10.81			
NM-115	2077	EX 100Y	646.90	101.43	101.46	92.47
1.37	473.42	98.05	13.44			
NM-115	2077	ULT 10Y	360.00	99.89	99.91	92.47
1.09	330.91	85.66	9.46			
NM-115	2077	ULT 25Y	460.00	100.48	100.51	92.47
1.20	383.20	91.68	10.92			
NM-115	2077	ULT 100Y	650.00	101.44	101.47	92.47
1.37	474.45	98.12	13.47			
NM-115	2898	EX 10Y	355.50	100.06	100.08	92.86
1.28	276.95	80.86	15.13			
NM-115	2898	EX 25Y	450.30	100.63	100.66	92.86
1.39	324.56	85.17	17.43			
NM-115	2898	EX 100Y	646.90	101.64	101.68	92.86
1.55	416.22	95.24	21.81			
NM-115	2898	ULT 10Y	360.00	100.08	100.11	92.86
1.29	278.59	81.03	15.20			
NM-115	2898	ULT 25Y	460.00	100.68	100.71	92.86
1.40	328.67	85.48	17.62			
NM-115	2898	ULT 100Y	650.00	101.65	101.69	92.86
1.56	417.27	95.31	21.86			
NM-115	3315	EX 10Y	355.50	100.27	100.35	95.31
2.18	163.31	76.18	17.24			
NM-115	3315	EX 25Y	450.30	100.83	100.91	95.31
2.16	208.19	83.51	19.98			
NM-115	3315	EX 100Y	646.90	101.83	101.90	95.31
2.18	297.02	93.64	25.24			
NM-115	3315	ULT 10Y	360.00	100.29	100.37	95.31
2.18	164.92	76.46	17.33			
NM-115	3315	ULT 25Y	460.00	100.88	100.96	95.31
2.17	212.24	84.11	20.22			
NM-115	3315	ULT 100Y	650.00	101.84	101.92	95.31

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2.18	298.08					
NM-115	3656	EX 10Y	355.50	100.58	100.62	93.18
1.44	247.23	82.82	18.85			
NM-115	3656	EX 25Y	450.30	101.13	101.17	93.18
1.52	296.46	96.07	21.96			
NM-115	3656	EX 100Y	646.90	102.08	102.12	93.18
1.63	396.06	108.50	27.95			
NM-115	3656	ULT 10Y	360.00	100.61	100.64	93.18
1.45	249.08	83.31	18.95			
NM-115	3656	ULT 25Y	460.00	101.18	101.21	93.18
1.53	300.98	96.64	22.23			
NM-115	3656	ULT 100Y	650.00	102.09	102.13	93.18
1.64	397.28	108.57	28.02			
NM-115	4037	EX 10Y	280.20	100.72	100.73	94.43
1.02	274.08	84.82	21.13			
NM-115	4037	EX 25Y	355.10	101.27	101.29	94.43
1.10	321.38	87.16	24.66			
NM-115	4037	EX 100Y	508.60	102.22	102.24	94.43
1.25	406.09	91.60	31.46			
NM-115	4037	ULT 10Y	290.00	100.74	100.76	94.43
1.05	276.16	84.92	21.25			
NM-115	4037	ULT 25Y	360.00	101.32	101.33	94.43
1.11	325.47	87.36	24.97			
NM-115	4037	ULT 100Y	510.00	102.23	102.25	94.43
1.25	407.13	91.65	31.53			
NM-115	4521	EX 10Y	280.20	100.80	100.81	94.42
0.89	316.59	86.85	24.41			
NM-115	4521	EX 25Y	355.10	101.35	101.37	94.42
0.97	365.13	89.22	28.48			
NM-115	4521	EX 100Y	508.60	102.31	102.33	94.42
1.13	452.06	93.40	36.23			
NM-115	4521	ULT 10Y	290.00	100.83	100.84	94.42
0.91	319.06	86.98	24.55			
NM-115	4521	ULT 25Y	360.00	101.40	101.41	94.42
0.97	369.24	89.41	28.83			
NM-115	4521	ULT 100Y	510.00	102.32	102.34	94.42
1.13	453.10	93.46	36.31			
NM-115	5052	EX 10Y	280.20	100.89	100.91	94.54
1.14	244.98	77.94	27.83			
NM-115	5052	EX 25Y	355.10	101.45	101.47	94.54
1.22	290.39	87.15	32.46			
NM-115	5052	EX 100Y	508.60	102.40	102.43	94.54
1.35	377.74	95.10	41.27			
NM-115	5052	ULT 10Y	290.00	100.92	100.95	94.54
1.17	247.51	78.21	28.00			
NM-115	5052	ULT 25Y	360.00	101.49	101.52	94.54
1.22	294.35	87.59	32.86			
NM-115	5052	ULT 100Y	510.00	102.41	102.44	94.54
1.35	378.79	95.17	41.37			
NM-115	5322	EX 10Y	280.20	100.97	100.99	94.91
1.08	258.37	92.05	29.39			
NM-115	5322	EX 25Y	355.10	101.52	101.54	94.91
1.14	310.37	95.22	34.33			

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NM-115	5322	EX 100Y	508.60	102.47	102.50	94.91
1.26	403.29	99.99	43.69			
NM-115	5322	ULT 10Y	290.00	101.00	101.02	94.91
1.11	261.62	92.31	29.58			
NM-115	5322	ULT 25Y	360.00	101.57	101.59	94.91
1.14	314.60	95.46	34.75			
NM-115	5322	ULT 100Y	510.00	102.49	102.51	94.91
1.26	404.37	100.04	43.80			
NM-115	5795	EX 10Y	280.20	101.12	101.15	95.41
1.25	224.97	86.00	32.01			
NM-115	5795	EX 25Y	355.10	101.66	101.69	95.41
1.31	272.09	88.65	37.49			
NM-115	5795	EX 100Y	508.60	102.60	102.63	95.41
1.42	357.31	93.15	47.82			
NM-115	5795	ULT 10Y	290.00	101.16	101.19	95.41
1.27	228.37	86.22	32.24			
NM-115	5795	ULT 25Y	360.00	101.70	101.73	95.41
1.31	275.85	88.85	37.96			
NM-115	5795	ULT 100Y	510.00	102.61	102.64	95.41
1.42	358.28	93.20	47.94			
NM-115	6348	EX 10Y	280.20	101.33	101.35	95.23
1.14	244.89	90.74	34.99			
NM-115	6348	EX 25Y	355.10	101.85	101.87	95.23
1.21	293.63	95.70	41.08			
NM-115	6348	EX 100Y	508.60	102.77	102.79	95.23
1.32	384.21	101.01	52.53			
NM-115	6348	ULT 10Y	290.00	101.37	101.39	95.23
1.17	248.90	91.16	35.27			
NM-115	6348	ULT 25Y	360.00	101.89	101.91	95.23
1.21	297.46	96.08	41.59			
NM-115	6348	ULT 100Y	510.00	102.78	102.80	95.23
1.32	385.22	101.06	52.66			
NM-115	6641	EX 10Y	280.20	101.40	101.42	94.56
1.27	221.06	49.05	36.56			
NM-115	6641	EX 25Y	355.10	101.93	101.96	94.56
1.43	248.21	54.39	42.90			
NM-115	6641	EX 100Y	508.60	102.84	102.89	94.56
1.69	301.80	61.90	54.84			
NM-115	6641	ULT 10Y	290.00	101.44	101.47	94.56
1.30	223.34	49.30	36.86			
NM-115	6641	ULT 25Y	360.00	101.96	102.00	94.56
1.44	250.39	54.84	43.44			
NM-115	6641	ULT 100Y	510.00	102.85	102.90	94.56
1.69	302.41	61.98	54.97			
NM-115	7179	EX 10Y	280.20	101.53	101.55	95.38
1.18	237.73	75.06	39.39			
NM-115	7179	EX 25Y	355.10	102.08	102.11	95.38
1.27	280.39	79.96	46.17			
NM-115	7179	EX 100Y	508.60	103.02	103.05	95.38
1.42	358.57	85.85	58.92			
NM-115	7179	ULT 10Y	290.00	101.58	101.61	95.38
1.20	241.59	75.65	39.73			
NM-115	7179	ULT 25Y	360.00	102.12	102.15	95.38
1.27	283.61	80.21	46.73			
NM-115	7179	ULT 100Y	510.00	103.03	103.06	95.38

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85.91 59.06

1.42	359.42					
NM-115	7728	EX 10Y	280.20	101.74	101.78	95.02
1.67	167.44	57.09	41.95			
NM-115	7728	EX 25Y	355.10	102.29	102.34	95.02
1.78	199.98	62.00	49.19			
NM-115	7728	EX 100Y	508.60	103.24	103.29	95.02
1.88	270.62	82.09	62.88			
NM-115	7728	ULT 10Y	290.00	101.80	101.84	95.02
1.70	170.64	57.59	42.32			
NM-115	7728	ULT 25Y	360.00	102.33	102.38	95.02
1.78	202.40	62.35	49.80			
NM-115	7728	ULT 100Y	510.00	103.25	103.30	95.02
1.88	271.40	82.18	63.04			
NM-115	7926	EX 10Y	280.20	101.87	101.92	95.39
1.62	172.60	64.13	42.72			
NM-115	7926	EX 25Y	355.10	102.42	102.46	95.39
1.70	209.28	70.46	50.12			
NM-115	7926	EX 100Y	508.60	103.37	103.42	95.39
1.81	281.48	83.83	64.14			
NM-115	7926	ULT 10Y	290.00	101.93	101.97	95.39
1.64	176.34	64.81	43.11			
NM-115	7926	ULT 25Y	360.00	102.46	102.50	95.39
1.70	211.97	70.84	50.74			
NM-115	7926	ULT 100Y	510.00	103.38	103.43	95.39
1.81	282.24	83.92	64.29			
NM-115	8418	EX 10Y	280.20	102.11	102.13	95.62
1.21	231.51	74.82	45.00			
NM-115	8418	EX 25Y	355.10	102.65	102.68	95.62
1.30	273.57	79.78	52.85			
NM-115	8418	EX 100Y	508.60	103.60	103.63	95.62
1.44	352.60	87.35	67.72			
NM-115	8418	ULT 10Y	290.00	102.17	102.19	95.62
1.23	236.14	75.59	45.44			
NM-115	8418	ULT 25Y	360.00	102.69	102.71	95.62
1.30	276.51	80.04	53.50			
NM-115	8418	ULT 100Y	510.00	103.61	103.64	95.62
1.44	353.37	87.42	67.88			
NM-115	8949	EX 10Y	280.20	102.26	102.27	95.14
1.11	253.30	76.25	47.95			
NM-115	8949	EX 25Y	355.10	102.80	102.82	95.14
1.20	296.88	82.28	56.32			
NM-115	8949	EX 100Y	508.60	103.75	103.78	95.14
1.34	378.39	89.23	72.16			
NM-115	8949	ULT 10Y	290.00	102.32	102.34	95.14
1.12	258.29	77.66	48.45			
NM-115	8949	ULT 25Y	360.00	102.84	102.86	95.14
1.20	299.88	82.56	57.00			
NM-115	8949	ULT 100Y	510.00	103.76	103.79	95.14
1.35	379.16	89.28	72.34			
NM-115	9251	EX 10Y	280.20	102.30	102.32	94.63
1.00	280.32	51.04	49.80			
NM-115	9251	EX 25Y	355.10	102.85	102.88	94.63
1.15	308.87	52.72	58.42			

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NM-115	9251	EX 100Y	508.60	103.81	103.84	94.63
1.41	360.56	55.62	74.72			
NM-115	9251	ULT 10Y	290.00	102.37	102.39	94.63
1.02	283.71	51.24	50.33			
NM-115	9251	ULT 25Y	360.00	102.89	102.91	94.63
1.16	310.80	52.83	59.12			
NM-115	9251	ULT 100Y	510.00	103.82	103.85	94.63
1.41	361.05	55.64	74.91			
NM-115	9746	EX 10Y	148.70	102.37	102.38	96.71
0.71	210.60	90.64	52.60			
NM-115	9746	EX 25Y	188.90	102.93	102.94	96.71
0.72	263.98	99.49	61.68			
NM-115	9746	EX 100Y	268.00	103.90	103.91	96.71
0.74	363.96	106.47	78.85			
NM-115	9746	ULT 10Y	150.00	102.44	102.45	96.71
0.69	216.74	91.55	53.18			
NM-115	9746	ULT 25Y	190.00	102.97	102.98	96.71
0.71	267.64	99.81	62.41			
NM-115	9746	ULT 100Y	270.00	103.91	103.92	96.71
0.74	364.92	106.53	79.04			
NM-115	10378	EX 10Y	148.70	102.50	102.51	96.83
0.96	154.10	68.25	55.24			
NM-115	10378	EX 25Y	188.90	103.04	103.05	96.83
0.97	195.05	78.30	65.01			
NM-115	10378	EX 100Y	268.00	103.98	104.00	96.83
0.98	272.71	86.49	83.47			
NM-115	10378	ULT 10Y	150.00	102.56	102.57	96.83
0.95	158.46	72.26	55.90			
NM-115	10378	ULT 25Y	190.00	103.07	103.09	96.83
0.96	197.68	78.59	65.79			
NM-115	10378	ULT 100Y	270.00	103.99	104.01	96.83
0.99	273.53	86.58	83.67			
NM-115	11070	EX 10Y	148.70	102.70	102.71	97.82
0.95	156.27	67.18	57.71			
NM-115	11070	EX 25Y	188.90	103.22	103.23	97.82
0.97	193.95	75.49	68.10			
NM-115	11070	EX 100Y	268.00	104.12	104.14	97.82
1.01	264.82	81.66	87.74			
NM-115	11070	ULT 10Y	150.00	102.75	102.77	97.82
0.94	160.19	68.37	58.43			
NM-115	11070	ULT 25Y	190.00	103.25	103.26	97.82
0.97	196.16	75.78	68.92			
NM-115	11070	ULT 100Y	270.00	104.13	104.15	97.82
1.02	265.66	81.73	87.95			
NM-115	11608	EX 10Y	148.70	102.89	102.91	97.91
1.19	124.51	59.62	59.44			
NM-115	11608	EX 25Y	188.90	103.39	103.41	97.91
1.22	155.45	63.76	70.26			
NM-115	11608	EX 100Y	268.00	104.25	104.28	97.91
1.26	213.42	70.48	90.70			
NM-115	11608	ULT 10Y	150.00	102.94	102.96	97.91
1.18	127.46	60.20	60.21			
NM-115	11608	ULT 25Y	190.00	103.41	103.43	97.91
1.21	157.09	63.95	71.10			
NM-115	11608	ULT 100Y	270.00	104.26	104.29	97.91

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70.60 90.92

1.26	214.20					
NM-115	11908	EX 10Y	148.70	102.95	102.96	97.78
0.72	207.54	54.28	60.59			
NM-115	11908	EX 25Y	188.90	103.45	103.46	97.78
0.80	235.09	55.95	71.61			
NM-115	11908	EX 100Y	268.00	104.32	104.33	97.78
0.94	284.69	58.85	92.41			
NM-115	11908	ULT 10Y	150.00	103.00	103.01	97.78
0.71	210.12	54.43	61.37			
NM-115	11908	ULT 25Y	190.00	103.48	103.49	97.78
0.80	236.49	56.03	72.46			
NM-115	11908	ULT 100Y	270.00	104.33	104.34	97.78
0.95	285.36	58.89	92.64			
NM-115	12224	EX 10Y	148.70	102.99	103.00	98.47
0.92	162.40	64.49	61.93			
NM-115	12224	EX 25Y	188.90	103.49	103.51	98.47
0.97	195.56	67.63	73.17			
NM-115	12224	EX 100Y	268.00	104.36	104.37	98.47
1.05	256.46	72.90	94.37			
NM-115	12224	ULT 10Y	150.00	103.04	103.05	98.47
0.91	165.40	64.84	62.74			
NM-115	12224	ULT 25Y	190.00	103.52	103.53	98.47
0.96	197.23	67.78	74.03			
NM-115	12224	ULT 100Y	270.00	104.37	104.39	98.47
1.05	257.31	72.97	94.61			
NM-115	12605	EX 10Y	148.70	103.08	103.09	98.01
0.97	153.09	59.08	63.31			
NM-115	12605	EX 25Y	188.90	103.58	103.59	98.01
1.03	183.64	63.71	74.83			
NM-115	12605	EX 100Y	268.00	104.44	104.46	98.01
1.11	241.24	72.20	96.55			
NM-115	12605	ULT 10Y	150.00	103.12	103.14	98.01
0.96	155.67	59.49	64.14			
NM-115	12605	ULT 25Y	190.00	103.60	103.62	98.01
1.03	185.14	63.86	75.70			
NM-115	12605	ULT 100Y	270.00	104.45	104.47	98.01
1.12	242.11	72.40	96.79			
NM-115	12775	EX 10Y	148.70	103.13	103.18	99.13
1.66	89.36	40.52	63.79			
NM-115	12775	EX 25Y	188.90	103.63	103.67	99.13
1.71	110.20	44.10	75.40			
NM-115	12775	EX 100Y	268.00	104.48	104.53	99.13
1.78	150.51	50.19	97.32			
NM-115	12775	ULT 10Y	150.00	103.18	103.22	99.13
1.65	91.06	40.82	64.62			
NM-115	12775	ULT 25Y	190.00	103.65	103.69	99.13
1.71	111.21	44.27	76.29			
NM-115	12775	ULT 100Y	270.00	104.49	104.54	99.13
1.79	151.13	50.27	97.57			
NM-115	13028	EX 10Y	148.70	103.41	103.46	99.91
1.89	78.81	40.96	64.27			
NM-115	13028	EX 25Y	188.90	103.87	103.93	99.91
1.91	99.06	46.62	76.01			

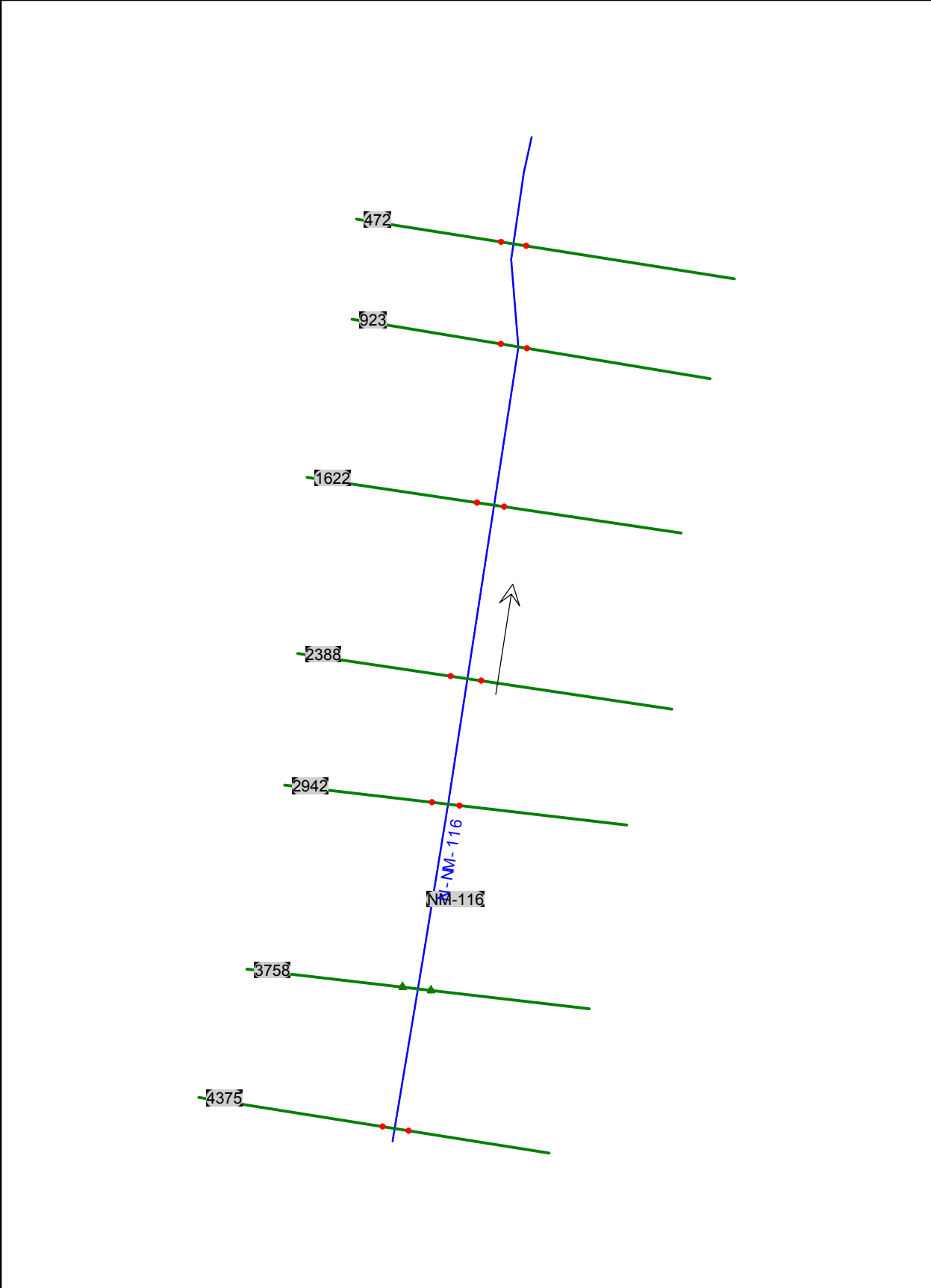
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NM-115	13028	EX 100Y	268.00	104.69	104.75	99.91
1.89	142.02	60.87	98.17			
NM-115	13028	ULT 10Y	150.00	103.44	103.50	99.91
1.87	80.16	41.30	65.12			
NM-115	13028	ULT 25Y	190.00	103.89	103.95	99.91
1.90	99.98	46.85	76.90			
NM-115	13028	ULT 100Y	270.00	104.71	104.76	99.91
1.89	142.81	61.09	98.42			
NM-115	13177	EX 10Y	148.70	103.56	103.59	98.23
1.39	107.03	43.67	64.59			
NM-115	13177	EX 25Y	188.90	104.02	104.05	98.23
1.47	128.20	48.85	76.40			
NM-115	13177	EX 100Y	268.00	104.82	104.86	98.23
1.57	170.94	57.26	98.70			
NM-115	13177	ULT 10Y	150.00	103.59	103.62	98.23
1.38	108.33	44.00	65.44			
NM-115	13177	ULT 25Y	190.00	104.04	104.07	98.23
1.47	129.10	49.07	77.29			
NM-115	13177	ULT 100Y	270.00	104.84	104.88	98.23
1.57	171.70	57.39	98.95			
NM-115	13531	EX 10Y	148.70	103.72	103.73	98.76
0.91	163.02	73.83	65.69			
NM-115	13531	EX 25Y	188.90	104.17	104.18	98.76
0.96	197.33	77.25	77.72			
NM-115	13531	EX 100Y	268.00	104.96	104.98	98.76
1.03	260.82	82.87	100.46			
NM-115	13531	ULT 10Y	150.00	103.74	103.76	98.76
0.91	165.03	74.04	66.55			
NM-115	13531	ULT 25Y	190.00	104.19	104.20	98.76
0.96	198.66	77.37	78.62			
NM-115	13531	ULT 100Y	270.00	104.98	104.99	98.76
1.03	261.95	82.97	100.72			
NM-115	13853	EX 10Y	148.70	103.80	103.82	99.78
0.93	160.59	73.52	66.88			
NM-115	13853	EX 25Y	188.90	104.25	104.27	99.78
0.97	194.66	78.52	79.17			
NM-115	13853	EX 100Y	268.00	105.03	105.05	99.78
1.04	258.71	85.14	102.38			
NM-115	13853	ULT 10Y	150.00	103.83	103.84	99.78
0.92	162.48	73.86	67.76			
NM-115	13853	ULT 25Y	190.00	104.27	104.28	99.78
0.97	195.96	78.66	80.08			
NM-115	13853	ULT 100Y	270.00	105.05	105.06	99.78
1.04	259.89	85.25	102.65			
NM-115	14243	EX 10Y	148.70	103.92	103.94	97.88
0.97	153.42	72.72	68.29			
NM-115	14243	EX 25Y	188.90	104.36	104.38	97.88
1.02	186.07	76.69	80.87			
NM-115	14243	EX 100Y	268.00	105.13	105.15	97.88
1.09	246.87	81.70	104.64			
NM-115	14243	ULT 10Y	150.00	103.95	103.96	97.88
0.97	155.16	72.94	69.18			
NM-115	14243	ULT 25Y	190.00	104.38	104.39	97.88
1.01	187.28	76.81	81.79			
NM-115	14243	ULT 100Y	270.00	105.14	105.16	97.88

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1.09	248.01	81.79	104.92			
NM-115	14595	EX 10Y	148.70	104.07	104.09	99.20
1.21	123.17	65.22	69.40			
NM-115	14595	EX 25Y	188.90	104.49	104.52	99.20
1.23	153.28	75.54	82.24			
NM-115	14595	EX 100Y	268.00	105.24	105.26	99.20
1.26	213.33	84.43	106.49			
NM-115	14595	ULT 10Y	150.00	104.09	104.11	99.20
1.20	124.61	65.92	70.31			
NM-115	14595	ULT 25Y	190.00	104.51	104.53	99.20
1.23	154.39	75.87	83.17			
NM-115	14595	ULT 100Y	270.00	105.25	105.28	99.20
1.26	214.50	84.55	106.78			
NM-115	15088	EX 10Y	148.70	104.21	104.21	99.15
0.71	209.60	82.68	71.29			
NM-115	15088	EX 25Y	188.90	104.63	104.64	99.15
0.77	245.14	85.27	84.50			
NM-115	15088	EX 100Y	268.00	105.36	105.37	99.15
0.87	309.10	89.58	109.45			
NM-115	15088	ULT 10Y	150.00	104.23	104.24	99.15
0.71	211.33	82.81	72.21			
NM-115	15088	ULT 25Y	190.00	104.64	104.65	99.15
0.77	246.34	85.35	85.44			
NM-115	15088	ULT 100Y	270.00	105.38	105.39	99.15
0.87	310.35	89.66	109.75			
NM-115	15505	EX 10Y	148.70	104.26	104.27	98.35
0.67	222.56	84.72	73.35			
NM-115	15505	EX 25Y	188.90	104.68	104.69	98.35
0.73	259.04	87.44	86.91			
NM-115	15505	EX 100Y	268.00	105.42	105.43	98.35
0.83	324.51	91.39	112.48			
NM-115	15505	ULT 10Y	150.00	104.28	104.29	98.35
0.67	224.30	84.86	74.30			
NM-115	15505	ULT 25Y	190.00	104.70	104.71	98.35
0.73	260.25	87.53	87.86			
NM-115	15505	ULT 100Y	270.00	105.43	105.44	98.35
0.83	325.80	91.46	112.80			

APPENDIX D
HEC-RAS HYDRAULIC OUTPUT
NM-116 BASE CONDITION

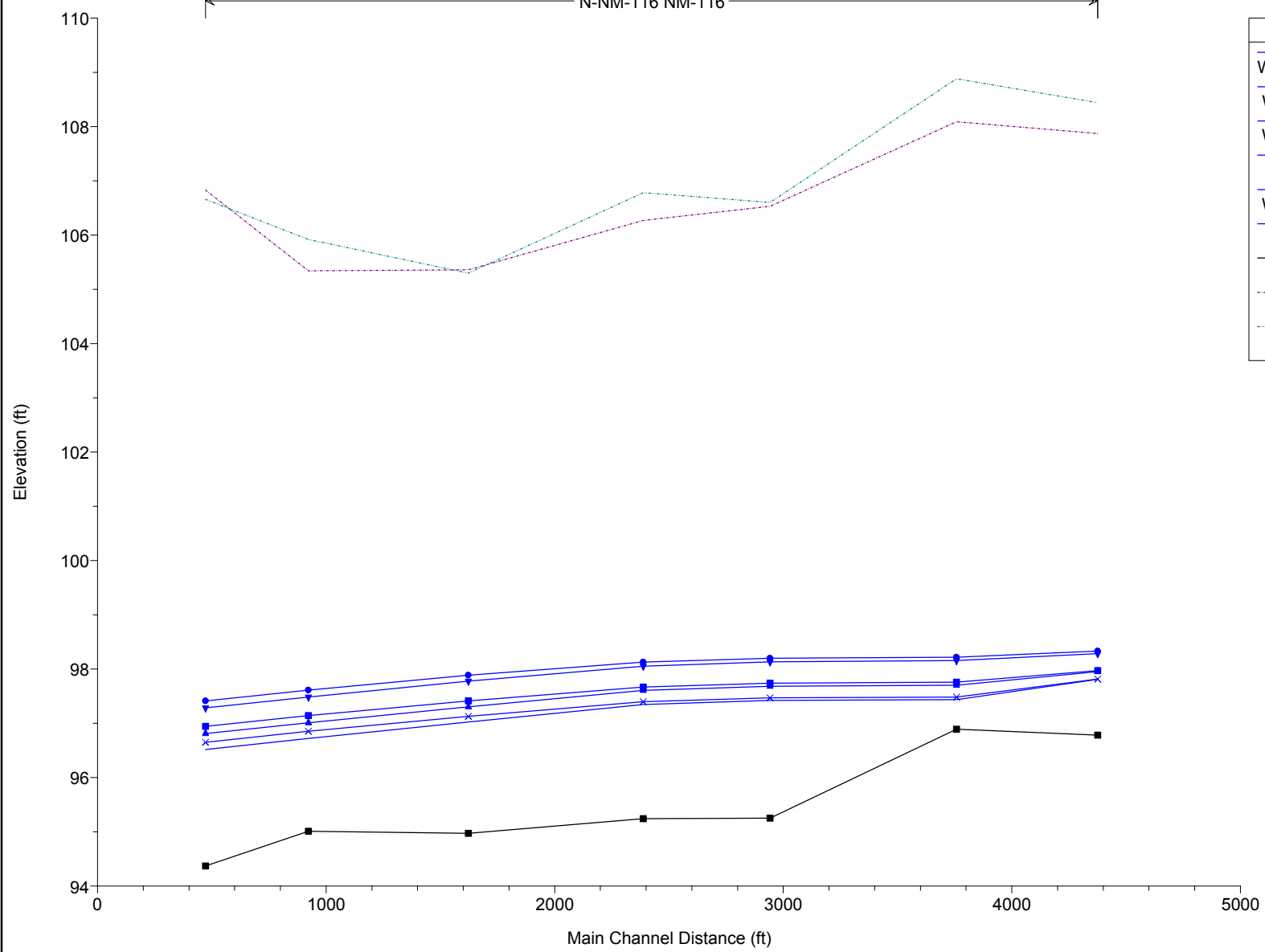


HEC-RAS Plan: BASE River: N-NM-116 Reach: NM-116

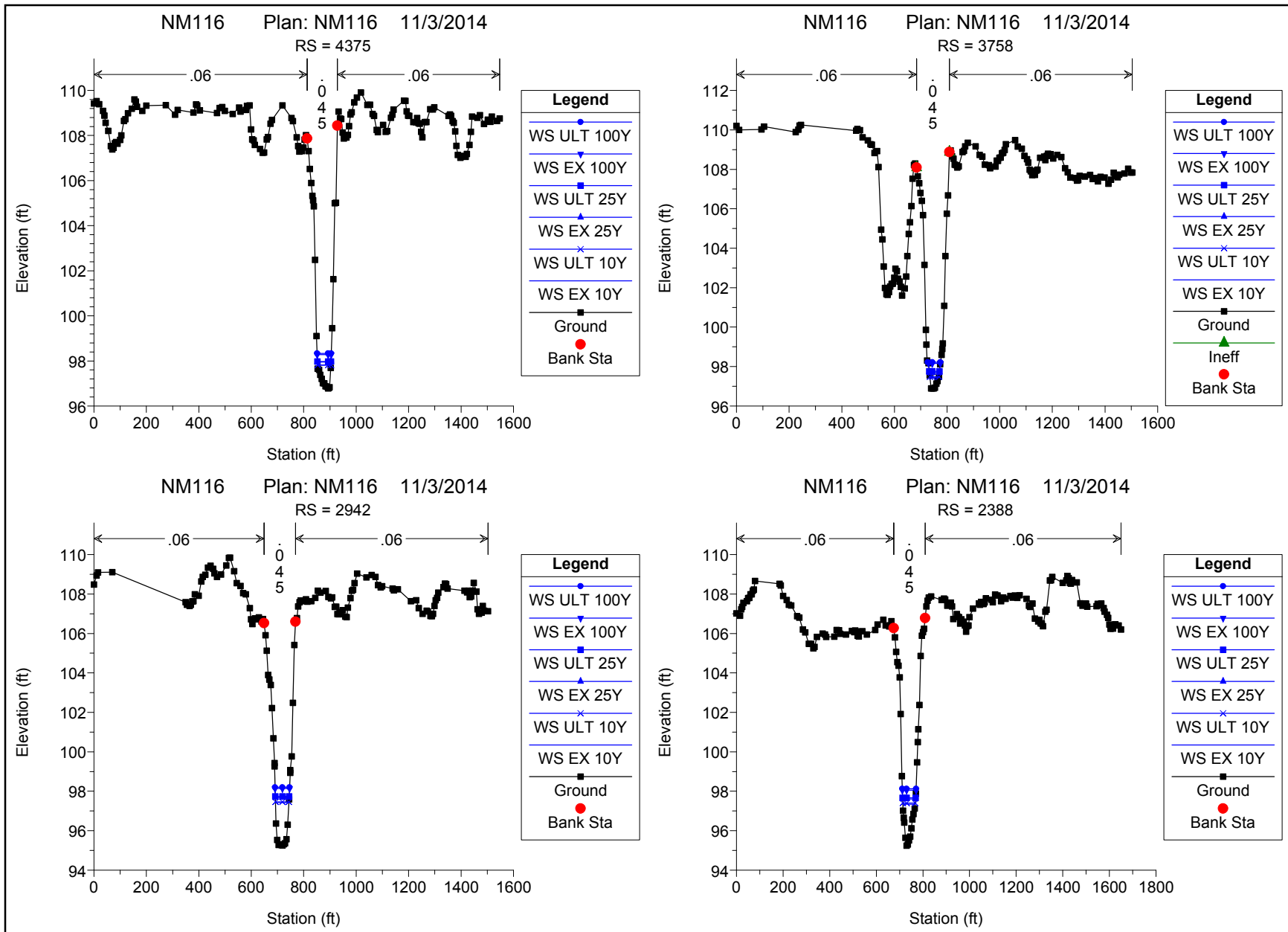
Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
NM-116	472	EX 10Y	70.60	94.37	96.52	95.12	96.53	0.000400	0.85	83.11	56.73	0.12
NM-116	472	EX 25Y	92.70	94.37	96.81	95.23	96.82	0.000400	0.93	100.03	59.88	0.13
NM-116	472	EX 100Y	136.80	94.37	97.28	95.41	97.30	0.000401	1.06	129.56	63.72	0.13
NM-116	472	ULT 10Y	80.40	94.37	96.65	95.17	96.66	0.000401	0.89	90.76	58.20	0.13
NM-116	472	ULT 25Y	104.00	94.37	96.94	95.28	96.96	0.000400	0.96	108.23	61.34	0.13
NM-116	472	ULT 100Y	149.90	94.37	97.41	95.46	97.43	0.000400	1.09	137.63	64.51	0.13
NM-116	923	EX 10Y	70.60	95.01	96.72		96.74	0.000523	0.96	73.22	50.28	0.14
NM-116	923	EX 25Y	92.70	95.01	97.01		97.03	0.000512	1.06	87.85	51.73	0.14
NM-116	923	EX 100Y	136.80	95.01	97.49		97.51	0.000520	1.21	113.18	54.88	0.15
NM-116	923	ULT 10Y	80.40	95.01	96.85		96.87	0.000517	1.01	79.88	50.94	0.14
NM-116	923	ULT 25Y	104.00	95.01	97.14		97.16	0.000508	1.10	94.84	52.40	0.14
NM-116	923	ULT 100Y	149.90	95.01	97.61		97.64	0.000523	1.25	120.15	55.82	0.15
NM-116	1622	EX 10Y	59.10	94.97	97.02		97.03	0.000339	0.78	76.24	52.55	0.11
NM-116	1622	EX 25Y	76.00	94.97	97.30		97.31	0.000321	0.83	91.02	53.87	0.11
NM-116	1622	EX 100Y	108.90	94.97	97.78		97.79	0.000302	0.93	117.07	56.13	0.11
NM-116	1622	ULT 10Y	59.10	94.97	97.13		97.14	0.000272	0.72	81.79	53.05	0.10
NM-116	1622	ULT 25Y	76.00	94.97	97.41		97.42	0.000263	0.78	97.09	54.41	0.10
NM-116	1622	ULT 100Y	108.90	94.97	97.89		97.90	0.000258	0.88	123.34	56.66	0.11
NM-116	2388	EX 10Y	59.10	95.24	97.35		97.36	0.000554	0.90	65.67	52.43	0.14
NM-116	2388	EX 25Y	76.00	95.24	97.61		97.62	0.000515	0.96	79.52	54.87	0.14
NM-116	2388	EX 100Y	108.90	95.24	98.05		98.07	0.000457	1.04	104.97	58.49	0.14
NM-116	2388	ULT 10Y	59.10	95.24	97.40		97.41	0.000490	0.86	68.36	52.91	0.13
NM-116	2388	ULT 25Y	76.00	95.24	97.67		97.68	0.000453	0.92	83.01	55.46	0.13
NM-116	2388	ULT 100Y	108.90	95.24	98.13		98.14	0.000403	1.00	109.33	58.94	0.13
NM-116	2942	EX 10Y	13.10	95.25	97.42		97.42	0.000009	0.14	91.29	51.12	0.02
NM-116	2942	EX 25Y	16.80	95.25	97.68		97.68	0.000010	0.16	104.84	52.53	0.02
NM-116	2942	EX 100Y	23.90	95.25	98.13		98.13	0.000010	0.19	129.02	54.83	0.02
NM-116	2942	ULT 10Y	13.10	95.25	97.47		97.47	0.000008	0.14	93.58	51.37	0.02
NM-116	2942	ULT 25Y	16.80	95.25	97.74		97.74	0.000009	0.16	107.79	52.82	0.02
NM-116	2942	ULT 100Y	23.90	95.25	98.20		98.20	0.000009	0.18	132.70	55.18	0.02
NM-116	3758	EX 10Y	13.10	96.89	97.44	97.16	97.45	0.003480	1.03	12.72	33.03	0.29
NM-116	3758	EX 25Y	16.80	96.89	97.70	97.21	97.71	0.001070	0.76	22.22	37.88	0.17
NM-116	3758	EX 100Y	23.90	96.89	98.15	97.28	98.16	0.000357	0.58	40.95	45.18	0.11
NM-116	3758	ULT 10Y	13.10	96.89	97.48	97.16	97.50	0.002530	0.92	14.22	34.39	0.25
NM-116	3758	ULT 25Y	16.80	96.89	97.76	97.21	97.77	0.000818	0.69	24.31	38.75	0.15
NM-116	3758	ULT 100Y	23.90	96.89	98.22	97.28	98.22	0.000305	0.54	43.97	47.91	0.10
NM-116	4375	EX 10Y	13.10	96.78	97.81		97.81	0.000223	0.38	34.47	50.77	0.08
NM-116	4375	EX 25Y	16.80	96.78	97.95		97.95	0.000199	0.40	41.69	51.65	0.08
NM-116	4375	EX 100Y	23.90	96.78	98.28		98.29	0.000132	0.40	59.21	53.75	0.07
NM-116	4375	ULT 10Y	13.10	96.78	97.82		97.82	0.000217	0.38	34.77	50.80	0.08
NM-116	4375	ULT 25Y	16.80	96.78	97.97		97.97	0.000184	0.39	42.75	51.78	0.08
NM-116	4375	ULT 100Y	23.90	96.78	98.33		98.33	0.000116	0.39	61.78	54.05	0.06

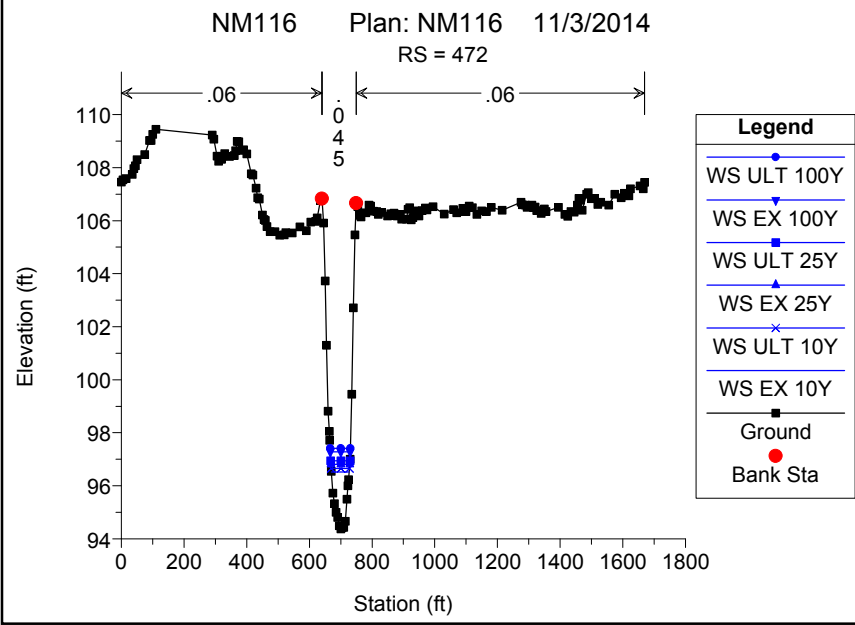
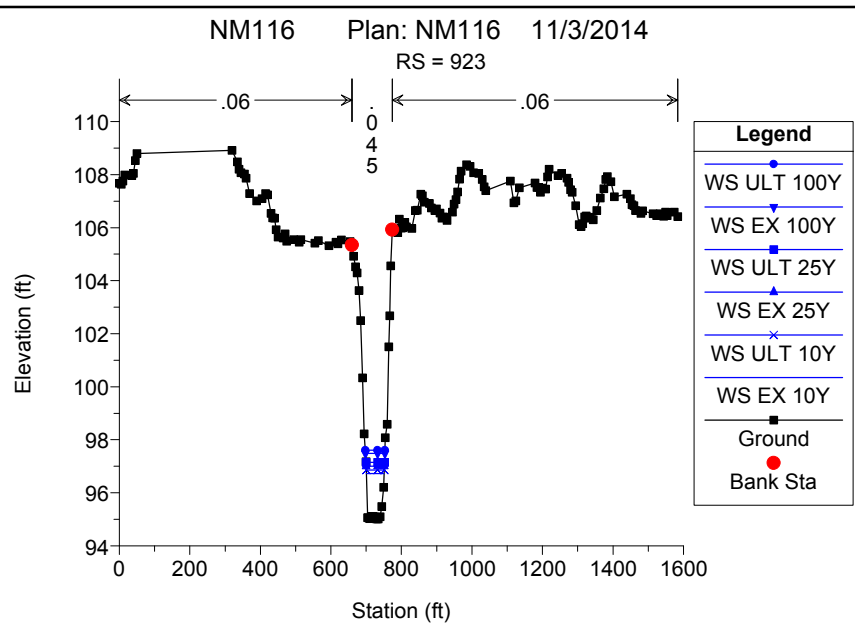
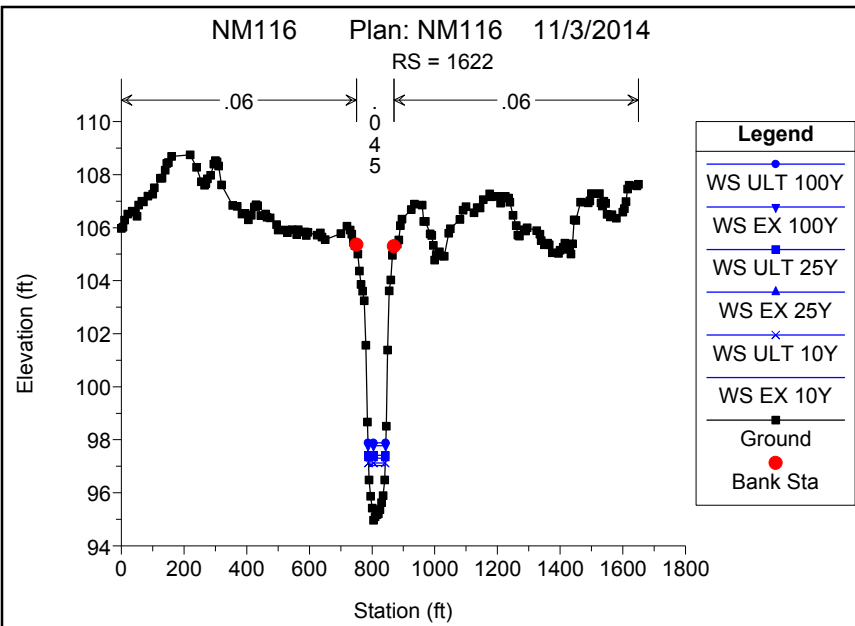
NM116 Plan: NM116 11/3/2014

N-NM-116 NM-116



Legend	
WS ULT 100Y	●
WS EX 100Y	▼
WS ULT 25Y	■
WS EX 25Y	▲
WS ULT 10Y	×
WS EX 10Y	□
Ground	■
LOB	- - -
ROB	· · ·





NM116 OUTPUT REPORT.TXT

HEC-RAS Version 4.1.0 Jan 2010
U.S. Army Corps of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

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X      X  XXXXXX   XXXX      XXXX      XX      XXXX
X      X  X       X      X      X      X  X      X
X      X  X       X       X      X      X  X      X
XXXXXXXX XXXX     X       XXX  XXXX     XXXXXX   XXXX
X      X  X       X       X      X      X  X      X
X      X  X       X      X      X      X  X      X
X      X  XXXXXX   XXXX     X      X      X      XXXXXX
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PROJECT DATA

Project Title: NM116
Project File : NM116.prj
Run Date and Time: 11/3/2014 8:42:19 AM

Project in English units

PLAN DATA

Plan Title: NM116
Plan File : K:\2014PROJECTS\COE_MDP_TEDSI\MODEL\APPENDIX C -
HYDRAULICS\NM116\NM116.p01

Geometry Title: NM116
Geometry File : K:\2014PROJECTS\COE_MDP_TEDSI\MODEL\APPENDIX C -
HYDRAULICS\NM116\NM116.g01

Flow Title : NM116 FLOW
Flow File : K:\2014PROJECTS\COE_MDP_TEDSI\MODEL\APPENDIX C -
HYDRAULICS\NM116\NM116.f01

Plan Summary Information:

Number of: Cross Sections	=	7	Multiple Openings	=	0
Culverts	=	0	Inline Structures	=	0
Bridges	=	0	Lateral Structures	=	0

Computational Information

Water surface calculation tolerance	=	0.01
Critical depth calculation tolerance	=	0.01
Maximum number of iterations	=	20
Maximum difference tolerance	=	0.3
Flow tolerance factor	=	0.001

Computation Options

Critical depth computed only where necessary
Conveyance Calculation Method: At breaks in n values only
Friction Slope Method: Average Conveyance
Computational Flow Regime: Subcritical Flow

NM116 OUTPUT REPORT.TXT

FLOW DATA

Flow Title: NM116 FLOW
 Flow File : K:\2014PROJECTS\COE_MDP_TEDSI\MODEL\APPENDIX C -
 HYDRAULICS\NM116\NM116.f01

Flow Data (cfs)

River EX 100Y	Reach ULT 10Y	RS ULT 25Y	EX 10Y ULT 100Y	EX 25Y
N-NM-116 23.9	NM-116 13.1	4375 16.8	13.1 23.9	16.8
N-NM-116 108.9	NM-116 59.1	2388 76	59.1 108.9	76
N-NM-116 136.8	NM-116 80.4	923 104	70.6 149.9	92.7

Boundary Conditions

River Downstream	Reach	Profile	Upstream
N-NM-116 Normal S = 0.0004	NM-116	EX 10Y	
N-NM-116 Normal S = 0.0004	NM-116	EX 25Y	
N-NM-116 Normal S = 0.0004	NM-116	EX 100Y	
N-NM-116 Normal S = 0.0004	NM-116	ULT 10Y	

GEOMETRY DATA

Geometry Title: NM116
 Geometry File : K:\2014PROJECTS\COE_MDP_TEDSI\MODEL\APPENDIX C -
 HYDRAULICS\NM116\NM116.g01

CROSS SECTION

RIVER: N-NM-116
 REACH: NM-116 RS: 4375

INPUT

Description:

Station	Elevation	Data	num=	153	Sta	Elev	Sta	Elev	Sta	Elev
0	109.42	9.98	109.53	19.96	109.39	34.93	109.09	39.92	108.88	
44.91	108.56	54.89	108.21	64.87	107.53	69.86	107.38	74.85	107.46	
79.84	107.66	84.83	107.71	89.83	107.64	99.81	107.8	104.8	108	
114.78	108.65	119.77	108.72	129.75	108.99	144.72	109.19	154.7	109.6	
159.69	109.5	164.68	109.27	184.64	109.09	199.61	109.32	274.47	109.35	
309.4	108.92	319.38	109.13	379.26	109.02	389.24	109.38	394.23	109.34	
404.21	109.11	469.09	109	479.07	109.22	489.05	109.26	499.03	109.09	

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528.97	108.96	553.92	109.24	558.91	109.06	578.87	109.13	583.86	109.31
593.85	109.34	598.84	108.27	603.83	107.82	608.82	107.78	613.81	107.58
633.77	107.4	643.75	107.23	648.74	107.24	658.72	107.83	663.71	107.93
673.69	108.52	678.68	108.69	718.6	109.34	753.53	108.78	758.52	108.64
773.5	107.92	778.49	107.53	783.48	107.29	793.46	107.31	798.45	107.47
803.44	107.81	808.43	108.01	813.42	107.87	818.41	107.31	823.4	106.52
828.39	105.89	833.38	105.32	835.57	105.12	838.37	104.86	843.36	102.48
848.35	99.1	853.34	97.66	858.33	97.61	863.32	97.38	868.31	97.2
873.3	97.01	878.29	97	883.28	96.88	888.27	96.85	893.26	96.78
895.57	96.8	898.25	96.83	903.24	97.69	908.23	99.45	913.22	101.63
918.21	105	923.2	105.02	928.19	108.44	933.19	109.06	938.18	108.75
943.17	108.73	948.16	108.13	953.15	107.87	963.13	107.91	968.12	108.03
973.11	108.42	978.1	108.93	983.09	109.03	993.07	109.47	1003.05	109.68
1018.02	109.91	1042.97	109.36	1052.95	109.37	1062.93	108.96	1067.92	108.87
1077.9	108.25	1082.89	108.15	1102.86	108.47	1112.84	108.16	1117.83	108.19
1132.8	108.79	1137.79	108.92	1142.78	109.15	1182.7	109.55	1187.69	109.54
1192.68	109.07	1197.67	108.88	1202.66	108.87	1217.63	108.6	1227.61	108.59
1232.6	108.77	1237.59	108.54	1242.58	108.52	1247.57	108.16	1252.56	107.92
1262.54	108.6	1267.54	108.6	1282.51	109.17	1292.49	109.16	1297.48	109.25
1352.37	108.87	1357.36	108.93	1362.35	108.87	1367.34	108.64	1372.33	108.56
1377.32	108.18	1382.31	107.54	1387.3	107.14	1397.28	107.01	1402.27	107.1
1417.24	107.05	1422.23	107.18	1432.22	107.58	1437.21	108.16	1442.2	108.84
1462.16	108.79	1472.14	108.9	1487.11	108.51	1502.08	108.7	1512.06	108.61
1517.05	108.84	1537.01	108.65	1546.99	108.75				

Manning's n Values num= 3
 Sta n Val Sta n Val
 0 .06 813.42 .045 928.19 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 813.42 928.19 613 617 621 .1 .3

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	97.81	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-Val.		0.045
w.s. Elev (ft)	97.81	Reach Len. (ft)	613.00	617.00
621.00 Crit w.s. (ft)		Flow Area (sq ft)		34.47
E.G. Slope (ft/ft)	0.000223	Area (sq ft)		34.47
Q Total (cfs)	13.10	Flow (cfs)		13.10
Top width (ft)	50.77	Top width (ft)		50.77
Vel Total (ft/s)	0.38	Avg. Vel. (ft/s)		0.38
Max chl Dpth (ft)	1.03	Hydr. Depth (ft)		0.68
Conv. Total (cfs)	877.9	Conv. (cfs)		877.9
Length wtd. (ft)	617.00	wetted Per. (ft)		50.90
Min ch El (ft)	96.78	Shear (lb/sq ft)		0.01
Alpha	1.00	Stream Power (lb/ft s)	1546.99	0.00
0.00 Frctn Loss (ft)	0.35	Cum Volume (acre-ft)		5.56

C & E Loss (ft)

NM116 OUTPUT REPORT.TXT
0.00 Cum SA (acres)

4.34

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	97.95	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-val.		0.045
W.S. Elev (ft)	97.95	Reach Len. (ft)	613.00	617.00
621.00 Crit w.s. (ft)		Flow Area (sq ft)		41.69
E.G. slope (ft/ft)	0.000199	Area (sq ft)		41.69
Q Total (cfs)	16.80	Flow (cfs)		16.80
Top width (ft)	51.65	Top width (ft)		51.65
Vel Total (ft/s)	0.40	Avg. Vel. (ft/s)		0.40
Max Chl Dpth (ft)	1.17	Hydr. Depth (ft)		0.81
Conv. Total (cfs)	1190.9	Conv. (cfs)		1190.9
Length wtd. (ft)	617.00	wetted Per. (ft)		51.83
Min Ch El (ft)	96.78	Shear (lb/sq ft)		0.01
Alpha 0.00	1.00	Stream Power (lb/ft s)	1546.99	0.00
Frctn Loss (ft)	0.24	Cum Volume (acre-ft)		6.72
C & E Loss (ft)	0.00	Cum SA (acres)		4.54

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	98.29	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-val.		0.045
W.S. Elev (ft)	98.28	Reach Len. (ft)	613.00	617.00
621.00 Crit w.s. (ft)		Flow Area (sq ft)		59.21
E.G. slope (ft/ft)	0.000132	Area (sq ft)		59.21
Q Total (cfs)	23.90	Flow (cfs)		23.90

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Top width (ft)	53.75	Top width (ft)	53.75
Vel Total (ft/s)	0.40	Avg. Vel. (ft/s)	0.40
Max Chl Dpth (ft)	1.50	Hydr. Depth (ft)	1.10
Conv. Total (cfs)	2078.0	Conv. (cfs)	2078.0
Length wtd. (ft)	617.00	wetted Per. (ft)	54.03
Min Ch El (ft)	96.78	Shear (lb/sq ft)	0.01
Alpha 0.00	1.00	Stream Power (lb/ft s)	1546.99
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)	8.85
C & E Loss (ft)	0.00	Cum SA (acres)	4.87

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	97.82	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-Val.		0.045
W.S. Elev (ft)	97.82	Reach Len. (ft)	613.00	617.00
621.00 Crit W.S. (ft)		Flow Area (sq ft)		34.77
E.G. Slope (ft/ft)	0.000217	Area (sq ft)		34.77
Q Total (cfs)	13.10	Flow (cfs)		13.10
Top width (ft)	50.80	Top width (ft)		50.80
Vel Total (ft/s)	0.38	Avg. Vel. (ft/s)		0.38
Max Chl Dpth (ft)	1.04	Hydr. Depth (ft)		0.68
Conv. Total (cfs)	890.2	Conv. (cfs)		890.2
Length wtd. (ft)	617.00	wetted Per. (ft)		50.94
Min Ch El (ft)	96.78	Shear (lb/sq ft)		0.01
Alpha 0.00	1.00	Stream Power (lb/ft s)	1546.99	0.00
Frctn Loss (ft)	0.32	Cum Volume (acre-ft)		5.89
C & E Loss (ft)	0.00	Cum SA (acres)		4.40

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance)

NM116 OUTPUT REPORT.TXT

is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 25Y

		Element	Left OB	Channel
E.G. Elev (ft)	97.97			
Right OB				
Vel Head (ft)	0.00	wt. n-val.		0.045
W.S. Elev (ft)	97.97	Reach Len. (ft)	613.00	617.00
621.00				
Crit w.s. (ft)		Flow Area (sq ft)		42.75
E.G. Slope (ft/ft)	0.000184	Area (sq ft)		42.75
Q Total (cfs)	16.80	Flow (cfs)		16.80
Top width (ft)	51.78	Top width (ft)		51.78
Vel Total (ft/s)	0.39	Avg. Vel. (ft/s)		0.39
Max Chl Dpth (ft)	1.19	Hydr. Depth (ft)		0.83
Conv. Total (cfs)	1239.6	Conv. (cfs)		1239.6
Length wtd. (ft)	617.00	wetted Per. (ft)		51.96
Min Ch El (ft)	96.78	Shear (lb/sq ft)		0.01
Alpha	1.00	Stream Power (lb/ft s)	1546.99	0.00
0.00				
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)		7.10
C & E Loss (ft)	0.00	Cum SA (acres)		4.60

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 100Y

		Element	Left OB	Channel
E.G. Elev (ft)	98.33			
Right OB				
Vel Head (ft)	0.00	wt. n-val.		0.045
W.S. Elev (ft)	98.33	Reach Len. (ft)	613.00	617.00
621.00				
Crit w.s. (ft)		Flow Area (sq ft)		61.78
E.G. Slope (ft/ft)	0.000116	Area (sq ft)		61.78
Q Total (cfs)	23.90	Flow (cfs)		23.90
Top width (ft)	54.05	Top width (ft)		54.05
Vel Total (ft/s)	0.39	Avg. Vel. (ft/s)		0.39
Max Chl Dpth (ft)	1.55	Hydr. Depth (ft)		1.14

NM116 OUTPUT REPORT.TXT

Conv. Total (cfs)	2221.9	Conv. (cfs)	2221.9
Length wtd. (ft)	617.00	wetted Per. (ft)	54.34
Min Ch El (ft)	96.78	Shear (lb/sq ft)	0.01
Alpha 0.00	1.00	Stream Power (lb/ft s)	1546.99
Frctn Loss (ft)	0.11	Cum Volume (acre-ft)	9.28
C & E Loss (ft)	0.00	Cum SA (acres)	4.96

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: N-NM-116
REACH: NM-116 RS: 3758

INPUT

Description:

Station	Elevation	Data	num=	144					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	110.2	9.99	110	94.88	110.02	104.87	110.17	224.72	109.89
234.71	110.01	239.7	110.21	244.69	110.25	454.43	109.96	459.42	110.05
469.41	109.99	479.4	109.62	499.37	109.47	509.36	109.27	514.36	109.25
524.34	108.83	534.33	108.92	539.32	108.12	549.31	104.94	554.3	104.45
559.3	103.07	564.29	101.99	569.29	101.67	574.28	101.63	579.27	101.78
584.27	102.06	589.26	102.19	594.25	102.2	599.25	102.5	604.24	102.96
609.24	102.84	614.23	102.46	619.22	102.31	624.22	102.05	629.21	101.6
639.2	101.96	644.19	102.57	649.19	103.6	654.18	104.73	659.17	105.32
664.17	106.13	669.16	107.52	674.15	108.22	679.15	108.3	684.14	108.09
689.14	107.65	694.13	107.29	699.12	106.8	704.12	106.4	709.11	105.68
714.1	103.16	719.1	99.86	721.52	99.11	724.09	98.3	729.09	98.17
734.08	97.56	739.07	96.89	744.07	96.89	749.06	96.89	754.05	96.93
759.05	97.14	764.04	97.27	769.04	97.48	774.03	98.12	779.02	98.6
781.59	98.89	784.02	99.17	789.01	101.08	794	103.6	799	105.75
803.99	106.68	808.99	108.88	813.98	108.96	818.97	108.66	823.97	108.54
828.96	108.23	833.95	108.21	838.95	108.09	843.94	108.15	858.92	108.88
863.92	108.93	868.91	109.16	878.9	109.35	908.86	109.16	923.84	108.73
933.83	108.65	943.82	108.24	958.8	108.21	963.79	108.05	983.77	108.14
988.76	108.44	993.75	108.43	998.75	108.59	1003.74	108.6	1008.74	108.82
1013.73	108.84	1018.72	108.98	1023.72	109.27	1058.67	109.48	1068.66	109.15
1083.64	109.04	1093.63	108.68	1103.62	108.51	1108.61	108.34	1113.6	107.98
1118.6	107.9	1123.59	107.7	1128.58	107.78	1133.58	107.72	1138.57	107.93
1143.56	107.98	1153.55	108.59	1168.53	108.64	1173.53	108.46	1178.52	108.68
1183.51	108.79	1193.5	108.77	1203.49	108.55	1218.47	108.73	1233.45	108.62
1248.43	108.05	1258.42	107.85	1268.41	107.58	1288.38	107.56	1293.38	107.43
1298.37	107.45	1303.36	107.67	1323.34	107.63	1343.31	107.72	1353.3	107.51
1363.29	107.56	1373.27	107.39	1383.26	107.62	1398.24	107.58	1413.22	107.27
1423.21	107.47	1433.2	107.82	1438.19	107.66	1448.18	107.59	1453.17	107.73
1473.15	107.79	1488.13	108.03	1498.12	107.84	1503.11	107.84		

Manning's n Values	num=	3	
Sta	n Val	Sta	n Val
0	.06	684.14	.045
		808.99	.06

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Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.	Expan.
684.14	808.99	816	816	816	.1	.3	
Ineffective Flow	num=	2					
Sta L	Sta R	Elev	Permanent				
0	684.14	108.09	F				
808.99	1503.11	108.88	F				

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	97.45	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	wt. n-Val.		0.045
W.S. Elev (ft)	97.44	Reach Len. (ft)	816.00	816.00
816.00				
Crit w.s. (ft)	97.16	Flow Area (sq ft)		12.72
E.G. Slope (ft/ft)	0.003480	Area (sq ft)		12.72
Q Total (cfs)	13.10	Flow (cfs)		13.10
Top width (ft)	33.03	Top width (ft)		33.03
Vel Total (ft/s)	1.03	Avg. Vel. (ft/s)		1.03
Max Chl Dpth (ft)	0.55	Hydr. Depth (ft)		0.39
Conv. Total (cfs)	222.1	Conv. (cfs)		222.1
Length wtd. (ft)	816.00	wetted Per. (ft)		33.08
Min Ch El (ft)	96.89	Shear (lb/sq ft)		0.08
Alpha	1.00	Stream Power (lb/ft s)	1503.11	0.00
0.00				
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)		5.23
C & E Loss (ft)	0.00	Cum SA (acres)		3.75

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	97.71	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	97.70	Reach Len. (ft)	816.00	816.00
816.00				
Crit w.s. (ft)	97.21	Flow Area (sq ft)		22.22
E.G. Slope (ft/ft)	0.001070	Area (sq ft)		22.22

NM116 OUTPUT REPORT.TXT			
Q Total (cfs)	16.80	Flow (cfs)	16.80
Top width (ft)	37.88	Top width (ft)	37.88
Vel Total (ft/s)	0.76	Avg. Vel. (ft/s)	0.76
Max Chl Dpth (ft)	0.81	Hydr. Depth (ft)	0.59
Conv. Total (cfs)	513.6	Conv. (cfs)	513.6
Length wtd. (ft)	816.00	wetted Per. (ft)	37.95
Min Ch El (ft)	96.89	Shear (lb/sq ft)	0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	1503.11
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	6.27
C & E Loss (ft)	0.00	Cum SA (acres)	3.91

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	98.16	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.045
w.s. Elev (ft)	98.15	Reach Len. (ft)	816.00	816.00
816.00 Crit w.s. (ft)	97.28	Flow Area (sq ft)		40.95
E.G. Slope (ft/ft)	0.000357	Area (sq ft)		40.95
Q Total (cfs)	23.90	Flow (cfs)		23.90
Top width (ft)	45.18	Top width (ft)		45.18
Vel Total (ft/s)	0.58	Avg. Vel. (ft/s)		0.58
Max Chl Dpth (ft)	1.26	Hydr. Depth (ft)		0.91
Conv. Total (cfs)	1264.2	Conv. (cfs)		1264.2
Length wtd. (ft)	816.00	wetted Per. (ft)		45.31
Min Ch El (ft)	96.89	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	1503.11	0.00
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)		8.14
C & E Loss (ft)	0.00	Cum SA (acres)		4.17

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Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	97.50	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	97.48	Reach Len. (ft)	816.00	816.00
816.00				
Crit w.s. (ft)	97.16	Flow Area (sq ft)		14.22
E.G. Slope (ft/ft)	0.002530	Area (sq ft)		14.22
Q Total (cfs)	13.10	Flow (cfs)		13.10
Top width (ft)	34.39	Top width (ft)		34.39
Vel Total (ft/s)	0.92	Avg. Vel. (ft/s)		0.92
Max Chl Dpth (ft)	0.59	Hydr. Depth (ft)		0.41
Conv. Total (cfs)	260.5	Conv. (cfs)		260.5
Length wtd. (ft)	816.00	wetted Per. (ft)		34.44
Min Ch El (ft)	96.89	Shear (lb/sq ft)		0.07
Alpha	1.00	Stream Power (lb/ft s)	1503.11	0.00
0.00				
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)		5.54
C & E Loss (ft)	0.00	Cum SA (acres)		3.80

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	97.77	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	97.76	Reach Len. (ft)	816.00	816.00
816.00				
Crit w.s. (ft)	97.21	Flow Area (sq ft)		24.31
E.G. Slope (ft/ft)	0.000818	Area (sq ft)		24.31

NM116 OUTPUT REPORT.TXT				
Q Total (cfs)	16.80	Flow (cfs)		16.80
Top width (ft)	38.75	Top width (ft)		38.75
Vel Total (ft/s)	0.69	Avg. Vel. (ft/s)		0.69
Max Chl Dpth (ft)	0.87	Hydr. Depth (ft)		0.63
Conv. Total (cfs)	587.6	Conv. (cfs)		587.6
Length wtd. (ft)	816.00	wetted Per. (ft)		38.83
Min Ch El (ft)	96.89	Shear (lb/sq ft)		0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	1503.11	0.00
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)		6.63
C & E Loss (ft)	0.00	Cum SA (acres)		3.96

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	98.22	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-Val.		0.045
w.s. Elev (ft)	98.22	Reach Len. (ft)	816.00	816.00
816.00 Crit w.s. (ft)	97.28	Flow Area (sq ft)		43.97
E.G. Slope (ft/ft)	0.000305	Area (sq ft)		43.97
Q Total (cfs)	23.90	Flow (cfs)		23.90
Top width (ft)	47.91	Top width (ft)		47.91
Vel Total (ft/s)	0.54	Avg. Vel. (ft/s)		0.54
Max Chl Dpth (ft)	1.33	Hydr. Depth (ft)		0.92
Conv. Total (cfs)	1368.8	Conv. (cfs)		1368.8
Length wtd. (ft)	816.00	wetted Per. (ft)		48.05
Min Ch El (ft)	96.89	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	1503.11	0.00
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)		8.53
C & E Loss (ft)	0.00	Cum SA (acres)		4.23

NM116 OUTPUT REPORT.TXT

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: N-NM-116
 REACH: NM-116 RS: 2942

INPUT

Description:

Station	Elevation	Data	num=	133	Station	Elevation	Station	Elevation	Station	Elevation
0	108.48	9.99	108.94	14.98	109.09	69.91	109.11	349.56	107.59	
354.56	107.45	364.54	107.39	369.54	107.45	374.53	107.62	379.52	107.64	
384.52	107.98	399.5	107.91	409.49	108.64	414.48	108.86	424.47	108.97	
434.46	109.34	444.44	109.43	454.43	109.27	459.42	109.05	469.41	108.87	
484.39	108.99	504.37	109.44	514.36	109.83	519.35	109.84	534.33	109.15	
544.32	108.55	559.3	108.41	569.29	108.04	579.27	107.99	594.25	107.28	
599.25	106.72	604.24	106.48	614.23	106.77	619.22	106.72	629.21	106.82	
639.2	106.61	644.19	106.73	649.19	106.53	654.18	105.91	659.17	105.12	
664.17	103.9	669.16	103.67	674.15	103.39	679.15	102.22	684.14	100.69	
688.55	99.43	689.14	99.26	694.13	96.36	699.12	95.53	704.12	95.28	
709.11	95.29	714.1	95.28	719.1	95.25	724.09	95.31	729.09	95.36	
734.08	95.57	739.07	96.3	744.07	97.59	748.61	98.93	749.06	99.07	
754.05	99.77	759.05	102.48	764.04	105.41	769.04	106.6	774.03	106.78	
779.02	107.37	784.02	107.59	789.01	107.67	799	107.64	808.99	107.73	
813.98	107.61	828.96	107.63	843.94	107.8	853.93	108.17	863.92	108.07	
883.89	108.15	893.88	107.85	903.87	107.78	908.86	107.83	918.85	107.35	
923.84	107.36	928.84	106.98	933.83	106.97	938.82	107.08	948.81	107.18	
958.8	106.85	963.79	106.83	968.79	107.31	978.77	107.79	983.77	108.16	
988.76	108.22	993.75	108.55	1003.74	109.04	1038.7	108.84	1058.67	108.96	
1073.65	108.86	1083.64	108.46	1093.63	108.33	1098.62	108.4	1138.57	108.27	
1143.57	108.19	1158.55	108.24	1208.48	107.63	1228.46	107.68	1238.45	107.29	
1253.43	107	1268.41	107.15	1273.4	107.12	1283.39	106.89	1288.38	106.87	
1293.38	106.99	1298.37	107.39	1303.36	107.68	1308.36	107.8	1313.35	108.07	
1333.33	108.35	1338.32	108.53	1343.31	108.5	1348.31	108.27	1413.22	108.16	
1423.21	108.08	1428.21	108.17	1433.2	107.84	1438.19	107.88	1443.19	108.17	
1448.18	108.57	1458.17	108.12	1463.16	107.23	1468.15	106.99	1478.14	107.06	
1483.14	107.39	1488.13	107.15	1503.11	107.13					

Manning's n	Values	num=	3
Sta	n Val	Sta	n Val
0	.06	649.19	.045
		769.04	.06

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	649.19	769.04		557	554	551		.1	.3

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	97.42	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-Val.		0.045
w.s. Elev (ft)	97.42	Reach Len. (ft)	557.00	554.00
551.00				
Crit w.s. (ft)		Flow Area (sq ft)		91.29

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E.G. Slope (ft/ft)	0.000009	Area (sq ft)	91.29
Q Total (cfs)	13.10	Flow (cfs)	13.10
Top width (ft)	51.12	Top width (ft)	51.12
Vel Total (ft/s)	0.14	Avg. Vel. (ft/s)	0.14
Max Chl Dpth (ft)	2.17	Hydr. Depth (ft)	1.79
Conv. Total (cfs)	4405.3	Conv. (cfs)	4405.3
Length wtd. (ft)	554.00	wetted Per. (ft)	51.68
Min ch El (ft)	95.25	Shear (lb/sq ft)	0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	1503.11
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)	4.25
C & E Loss (ft)	0.00	Cum SA (acres)	2.96

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	97.68	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-Val.		0.045
W.S. Elev (ft)	97.68	Reach Len. (ft)	557.00	554.00
551.00 Crit w.s. (ft)		Flow Area (sq ft)		104.84
E.G. Slope (ft/ft)	0.000010	Area (sq ft)		104.84
Q Total (cfs)	16.80	Flow (cfs)		16.80
Top width (ft)	52.53	Top width (ft)		52.53
Vel Total (ft/s)	0.16	Avg. Vel. (ft/s)		0.16
Max Chl Dpth (ft)	2.43	Hydr. Depth (ft)		2.00
Conv. Total (cfs)	5441.3	Conv. (cfs)		5441.3
Length wtd. (ft)	554.00	wetted Per. (ft)		53.20
Min ch El (ft)	95.25	Shear (lb/sq ft)		0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	1503.11	0.00
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)		5.08
C & E Loss (ft)	0.00	Cum SA (acres)		3.06

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Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	98.13	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-Val.		0.045
W.S. Elev (ft)	98.13	Reach Len. (ft)	557.00	554.00
551.00 Crit w.s. (ft)		Flow Area (sq ft)		129.02
E.G. Slope (ft/ft)	0.000010	Area (sq ft)		129.02
Q Total (cfs)	23.90	Flow (cfs)		23.90
Top width (ft)	54.83	Top width (ft)		54.83
Vel Total (ft/s)	0.19	Avg. vel. (ft/s)		0.19
Max Chl Dpth (ft)	2.88	Hydr. Depth (ft)		2.35
Conv. Total (cfs)	7459.0	Conv. (cfs)		7459.0
Length wtd. (ft)	554.00	wetted Per. (ft)		55.69
Min Ch El (ft)	95.25	Shear (lb/sq ft)		0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	1503.11	0.00
Frctn Loss (ft)	0.06	Cum volume (acre-ft)		6.54
C & E Loss (ft)	0.00	Cum SA (acres)		3.23

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	97.47	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-Val.		0.045
W.S. Elev (ft)	97.47	Reach Len. (ft)	557.00	554.00
551.00 Crit w.s. (ft)		Flow Area (sq ft)		93.58
E.G. Slope (ft/ft)	0.000008	Area (sq ft)		93.58
Q Total (cfs)	13.10	Flow (cfs)		13.10
Top width (ft)	51.37	Top width (ft)		51.37

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Vel Total (ft/s)	0.14	Avg. Vel. (ft/s)	0.14
Max Chl Dpth (ft)	2.22	Hydr. Depth (ft)	1.82
Conv. Total (cfs)	4575.3	Conv. (cfs)	4575.3
Length Wtd. (ft)	554.00	wetted Per. (ft)	51.95
Min Ch El (ft)	95.25	Shear (lb/sq ft)	0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	1503.11
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)	4.53
C & E Loss (ft)	0.00	Cum SA (acres)	2.99

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	97.74	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-Val.		0.045
W.S. Elev (ft)	97.74	Reach Len. (ft)	557.00	554.00
551.00 Crit w.s. (ft)		Flow Area (sq ft)		107.79
E.G. Slope (ft/ft)	0.000009	Area (sq ft)		107.79
Q Total (cfs)	16.80	Flow (cfs)		16.80
Top width (ft)	52.82	Top width (ft)		52.82
Vel Total (ft/s)	0.16	Avg. Vel. (ft/s)		0.16
Max Chl Dpth (ft)	2.49	Hydr. Depth (ft)		2.04
Conv. Total (cfs)	5677.0	Conv. (cfs)		5677.0
Length wtd. (ft)	554.00	wetted Per. (ft)		53.51
Min Ch El (ft)	95.25	Shear (lb/sq ft)		0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	1503.11	0.00
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)		5.39
C & E Loss (ft)	0.00	Cum SA (acres)		3.10

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

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CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	98.20	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-val.		0.045
W.S. Elev (ft)	98.20	Reach Len. (ft)	557.00	554.00
551.00				
Crit w.s. (ft)		Flow Area (sq ft)		132.70
E.G. slope (ft/ft)	0.000009	Area (sq ft)		132.70
Q Total (cfs)	23.90	Flow (cfs)		23.90
Top width (ft)	55.18	Top width (ft)		55.18
vel Total (ft/s)	0.18	Avg. vel. (ft/s)		0.18
Max chl Dpth (ft)	2.95	Hydr. Depth (ft)		2.40
Conv. Total (cfs)	7782.5	Conv. (cfs)		7782.5
Length wtd. (ft)	554.00	wetted Per. (ft)		56.06
Min Ch El (ft)	95.25	Shear (lb/sq ft)		0.00
Alpha	1.00	Stream Power (lb/ft s)	1503.11	0.00
0.00				
Frctn Loss (ft)	0.06	Cum volume (acre-ft)		6.87
C & E Loss (ft)	0.00	Cum SA (acres)		3.27

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: N-NM-116
 REACH: NM-116 RS: 2388

INPUT

Description:

Station	Elevation	Data	num=	164	Station	Elevation	Station	Elevation	Station	Elevation
0	107.02	15	106.9	20	107.23	25	107.34	30	107.55	
45	107.64	50	107.79	55	107.8	60	107.99	65	107.98	
70	108.17	75	108.23	80	108.66	184.99	108.51	189.99	108.43	
199.99	107.9	214.99	107.7	224.99	107.45	234.99	107.42	259.99	106.87	
269.99	106.8	284.99	106.2	294.99	106.06	309.99	105.48	319.99	105.48	
329.99	105.25	334.99	105.32	344.99	105.83	369.99	106	379.99	105.94	
384.99	105.82	419.99	105.84	429.99	106.17	439.99	106.16	444.99	105.98	
469.98	105.94	494.98	106.13	504.98	106.07	509.98	106.15	514.98	106.1	
519.98	105.89	524.98	105.85	539.98	106.12	559.98	105.94	594.98	106.18	
604.98	106.45	629.98	106.69	639.98	106.41	654.98	106.35	659.98	106.41	
664.98	106.62	674.98	106.27	679.98	105.8	684.98	105.07	689.98	104.54	
694.98	104.36	699.98	103.77	704.98	101.92	709.98	98.77	714.98	97.02	

NM116 OUTPUT REPORT.TXT

718.03	96.65	719.98	96.41	724.98	95.64	729.98	95.24	734.98	95.3
739.98	95.51	744.98	95.7	749.97	96.12	754.97	96.57	759.97	96.85
764.97	97.12	769.97	97.88	774.97	99.47	778.03	100.49	779.97	101.14
784.97	102.37	789.97	104.86	794.97	105.88	799.97	106.07	804.97	106.24
809.97	106.78	814.97	107.37	819.97	107.66	824.97	107.82	834.97	107.88
879.97	107.69	889.97	107.77	894.97	107.72	904.97	107.41	914.97	107.46
919.97	107.56	924.97	107.37	929.97	106.73	944.97	106.98	949.97	106.85
954.97	106.83	959.97	106.5	964.97	106.72	974.97	106.6	979.97	106.41
984.97	106.09	989.97	106.37	994.97	106.41	999.97	106.83	1014.97	107.26
1039.97	107.52	1044.97	107.45	1049.97	107.6	1059.96	107.49	1064.96	107.57
1069.96	107.78	1094.96	107.71	1099.96	107.59	1109.96	107.97	1119.96	107.93
1134.96	107.64	1144.96	107.82	1154.96	107.75	1174.96	107.9	1184.96	107.81
1194.96	107.92	1204.96	107.8	1214.96	107.94	1244.96	107.75	1254.96	107.41
1259.96	107.35	1269.96	107.51	1279.96	106.75	1294.96	106.61	1299.96	106.69
1304.96	106.51	1309.96	106.5	1314.96	106.37	1324.96	107.1	1329.96	107.2
1344.96	108.68	1349.96	108.7	1354.96	108.87	1399.95	108.56	1414.95	108.69
1419.95	108.92	1424.95	108.81	1429.95	108.56	1434.95	108.53	1439.95	108.71
1459.95	108.59	1474.95	107.53	1484.95	107.4	1499.95	107.51	1504.95	107.36
1544.95	107.38	1549.95	107.5	1554.95	107.43	1564.95	107.51	1574.95	107.29
1579.95	107.1	1589.95	106.95	1594.95	106.79	1599.95	106.45	1604.95	106.23
1614.95	106.25	1624.95	106.46	1639.95	106.41	1649.95	106.2		

Manning's n Values num= 3
 Sta n Val Sta n Val
 0 .06 674.98 .045 809.97 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 674.98 809.97 766 766 766 .1 .3

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	97.36	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	wt. n-Val.		0.045
w.s. Elev (ft)	97.35	Reach Len. (ft)	766.00	766.00
766.00		Flow Area (sq ft)		65.67
Crit w.s. (ft)		Area (sq ft)		65.67
E.G. Slope (ft/ft)	0.000554	Flow (cfs)		59.10
Q Total (cfs)	59.10	Top width (ft)		52.43
Top width (ft)	52.43	Avg. Vel. (ft/s)		0.90
Vel Total (ft/s)	0.90	Hydr. Depth (ft)		1.25
Max Chl Dpth (ft)	2.11	Conv. (cfs)		2511.8
Conv. Total (cfs)	2511.8	wetted Per. (ft)		52.68
Length wtd. (ft)	766.00	Shear (lb/sq ft)		0.04
Min Ch El (ft)	95.24	Stream Power (lb/ft s)	1649.95	0.00
Alpha	1.00	Cum Volume (acre-ft)		3.26
0.00		Cum SA (acres)		2.30
Frctn Loss (ft)	0.33			
C & E Loss (ft)	0.00			

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CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	97.62	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.		0.045
W.S. Elev (ft)	97.61	Reach Len. (ft)	766.00	766.00
766.00 Crit w.s. (ft)		Flow Area (sq ft)		79.52
E.G. Slope (ft/ft)	0.000515	Area (sq ft)		79.52
Q Total (cfs)	76.00	Flow (cfs)		76.00
Top width (ft)	54.87	Top width (ft)		54.87
Vel Total (ft/s)	0.96	Avg. Vel. (ft/s)		0.96
Max Chl Dpth (ft)	2.37	Hydr. Depth (ft)		1.45
Conv. Total (cfs)	3350.5	Conv. (cfs)		3350.5
Length wtd. (ft)	766.00	wetted Per. (ft)		55.18
Min Ch El (ft)	95.24	Shear (lb/sq ft)		0.05
Alpha 0.00	1.00	Stream Power (lb/ft s)	1649.95	0.00
Frctn Loss (ft)	0.31	Cum Volume (acre-ft)		3.91
C & E Loss (ft)	0.00	Cum SA (acres)		2.38

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	98.07	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	Wt. n-Val.		0.045
W.S. Elev (ft)	98.05	Reach Len. (ft)	766.00	766.00
766.00 Crit w.s. (ft)		Flow Area (sq ft)		104.97
E.G. Slope (ft/ft)	0.000457	Area (sq ft)		104.97
Q Total (cfs)	108.90	Flow (cfs)		108.90
Top width (ft)	58.49	Top width (ft)		58.49
Vel Total (ft/s)	1.04	Avg. Vel. (ft/s)		1.04
Max Chl Dpth (ft)	2.81	Hydr. Depth (ft)		1.79
Conv. Total (cfs)	5093.3	Conv. (cfs)		5093.3
Length wtd. (ft)	766.00	wetted Per. (ft)		58.92

NM116 OUTPUT REPORT.TXT				
Min Ch El (ft)	95.24	Shear (lb/sq ft)		0.05
Alpha 0.00	1.00	Stream Power (lb/ft s)	1649.95	0.00
Frctn Loss (ft)	0.28	Cum Volume (acre-ft)		5.06
C & E Loss (ft)	0.00	Cum SA (acres)		2.51

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	97.41	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.045
w.s. Elev (ft)	97.40	Reach Len. (ft)	766.00	766.00
766.00 Crit w.s. (ft)		Flow Area (sq ft)		68.36
E.G. Slope (ft/ft)	0.000490	Area (sq ft)		68.36
Q Total (cfs)	59.10	Flow (cfs)		59.10
Top width (ft)	52.91	Top width (ft)		52.91
Vel Total (ft/s)	0.86	Avg. Vel. (ft/s)		0.86
Max Chl Dpth (ft)	2.16	Hydr. Depth (ft)		1.29
Conv. Total (cfs)	2669.0	Conv. (cfs)		2669.0
Length wtd. (ft)	766.00	wetted Per. (ft)		53.17
Min Ch El (ft)	95.24	Shear (lb/sq ft)		0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	1649.95	0.00
Frctn Loss (ft)	0.27	Cum Volume (acre-ft)		3.50
C & E Loss (ft)	0.00	Cum SA (acres)		2.33

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	97.68	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.045
w.s. Elev (ft)	97.67	Reach Len. (ft)	766.00	766.00
766.00 Crit w.s. (ft)		Flow Area (sq ft)		83.01
E.G. Slope (ft/ft)	0.000453	Area (sq ft)		83.01
Q Total (cfs)	76.00	Flow (cfs)		76.00
Top width (ft)	55.46	Top width (ft)		55.46

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Vel Total (ft/s)	0.92	Avg. Vel. (ft/s)		0.92
Max Chl Dpth (ft)	2.43	Hydr. Depth (ft)		1.50
Conv. Total (cfs)	3572.6	Conv. (cfs)		3572.6
Length Wtd. (ft)	766.00	wetted Per. (ft)		55.79
Min Ch El (ft)	95.24	Shear (lb/sq ft)		0.04
Alpha	1.00	Stream Power (lb/ft s)	1649.95	0.00
0.00				
Frctn Loss (ft)	0.26	Cum Volume (acre-ft)		4.17
C & E Loss (ft)	0.00	Cum SA (acres)		2.41

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	98.14	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	wt. n-Val.		0.045
W.S. Elev (ft)	98.13	Reach Len. (ft)	766.00	766.00
766.00				
Crit W.S. (ft)		Flow Area (sq ft)		109.33
E.G. Slope (ft/ft)	0.000403	Area (sq ft)		109.33
Q Total (cfs)	108.90	Flow (cfs)		108.90
Top width (ft)	58.94	Top width (ft)		58.94
Vel Total (ft/s)	1.00	Avg. Vel. (ft/s)		1.00
Max Chl Dpth (ft)	2.89	Hydr. Depth (ft)		1.85
Conv. Total (cfs)	5422.1	Conv. (cfs)		5422.1
Length Wtd. (ft)	766.00	wetted Per. (ft)		59.39
Min Ch El (ft)	95.24	Shear (lb/sq ft)		0.05
Alpha	1.00	Stream Power (lb/ft s)	1649.95	0.00
0.00				
Frctn Loss (ft)	0.24	Cum Volume (acre-ft)		5.33
C & E Loss (ft)	0.00	Cum SA (acres)		2.54

CROSS SECTION

RIVER: N-NM-116
 REACH: NM-116

RS: 1622

INPUT

NM116 OUTPUT REPORT.TXT

Description:

Station Elevation Data		num= 166		Sta Elev		Sta Elev		Sta Elev	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	105.97	5	106.02	10	106.28	20	106.51	35	106.62
45	106.59	50	106.43	55	106.85	65	106.99	70	106.97
85	107.19	100	107.26	105	107.5	125	107.86	130	107.87
140	108.17	145	108.42	150	108.46	159.99	108.68	219.99	108.74
239.99	108.28	254.99	107.73	264.99	107.6	269.99	107.66	274.99	107.84
284.99	107.97	294.99	108.4	299.99	108.53	304.99	108.48	309.99	108.32
319.99	107.61	354.99	106.84	369.99	106.8	384.99	106.51	394.99	106.54
404.99	106.3	414.99	106.46	424.99	106.78	429.99	106.86	434.99	106.83
444.99	106.45	459.98	106.51	464.98	106.39	474.98	106.37	494.98	106.11
499.98	105.91	524.98	105.91	529.98	105.81	544.98	105.92	559.98	105.74
564.98	105.92	584.98	105.84	589.98	105.7	594.98	105.82	624.98	105.72
634.98	105.8	639.98	105.65	649.98	105.55	699.98	105.78	719.98	106.06
729.98	105.91	734.98	105.75	739.98	105.45	744.98	105.33	749.97	105.36
754.97	105	759.97	104.37	764.97	103.86	769.97	103.61	774.97	103.24
779.97	101.57	784.97	98.67	789.97	96.49	794.97	95.87	799.97	95.42
804.97	94.97	809.97	95.1	814.97	95.18	819.97	95.21	824.97	95.36
829.97	95.63	834.97	95.9	839.97	96.49	844.97	98.51	849.97	101.39
854.97	103.62	859.97	104.03	864.97	104.96	869.97	105.3	879.97	105.38
884.97	105.54	889.97	106.08	894.97	106.32	924.97	106.68	934.97	106.89
959.97	106.85	964.97	106.23	969.97	106.24	984.97	105.76	989.97	105.7
994.97	105.33	999.97	104.78	1004.97	104.98	1014.97	105.09	1019.97	104.93
1029.97	104.92	1044.97	105.79	1049.97	105.96	1079.96	106.31	1089.96	106.66
1099.96	106.79	1124.96	106.56	1134.96	106.75	1144.96	106.74	1154.96	107.06
1174.96	107.27	1179.96	107.16	1199.96	107.18	1209.96	106.92	1224.96	107.18
1234.96	107.12	1239.96	106.96	1249.96	106.46	1259.96	106.08	1264.96	105.72
1269.96	105.68	1284.96	105.92	1289.96	105.87	1294.96	106	1324.96	105.88
1334.96	105.75	1339.96	105.51	1349.96	105.36	1359.96	105.41	1364.96	105.36
1374.96	105.05	1394.95	105.03	1399.95	105.15	1409.95	105.26	1414.95	105.42
1424.95	105.18	1429.95	105.18	1434.95	105	1439.95	105.39	1444.95	106.29
1449.95	106.27	1464.95	106.96	1489.95	106.93	1494.95	107.01	1499.95	107.29
1524.95	107.28	1529.95	106.94	1534.95	106.82	1539.95	107	1544.95	106.91
1549.95	106.5	1559.95	106.4	1564.95	106.49	1579.95	106.36	1599.95	106.59
1604.95	106.72	1609.95	106.98	1614.95	107.46	1619.95	107.6	1644.95	107.57
1649.95	107.64								

Manning's n Values		num= 3	
Sta	n Val	Sta	n Val
0	.06	749.97	.045
		869.97	.06

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.	Expan.
	749.97	869.97		701	699	.1	.3

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	97.03	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	wt. n-val.		0.045
W.S. Elev (ft)	97.02	Reach Len. (ft)	701.00	699.00
697.00				
Crit w.s. (ft)		Flow Area (sq ft)		76.24
E.G. Slope (ft/ft)	0.000339	Area (sq ft)		76.24
Q Total (cfs)	59.10	Flow (cfs)		59.10
Top width (ft)	52.55	Top width (ft)		52.55
Vel Total (ft/s)	0.78	Avg. Vel. (ft/s)		0.78

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Max Chl Dpth (ft)	2.05	Hydr. Depth (ft)		1.45
Conv. Total (cfs)	3212.1	Conv. (cfs)		3212.1
Length wtd. (ft)	699.00	Wetted Per. (ft)		52.90
Min Ch El (ft)	94.97	Shear (lb/sq ft)		0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	1649.95	0.00
Frctn Loss (ft)	0.30	Cum Volume (acre-ft)		2.01
C & E Loss (ft)	0.00	Cum SA (acres)		1.38

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	97.31	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	97.30	Reach Len. (ft)	701.00	699.00
697.00 Crit W.S. (ft)		Flow Area (sq ft)		91.02
E.G. Slope (ft/ft)	0.000321	Area (sq ft)		91.02
Q Total (cfs)	76.00	Flow (cfs)		76.00
Top width (ft)	53.87	Top width (ft)		53.87
Vel Total (ft/s)	0.83	Avg. Vel. (ft/s)		0.83
Max Chl Dpth (ft)	2.33	Hydr. Depth (ft)		1.69
Conv. Total (cfs)	4239.7	Conv. (cfs)		4239.7
Length wtd. (ft)	699.00	Wetted Per. (ft)		54.33
Min Ch El (ft)	94.97	Shear (lb/sq ft)		0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	1649.95	0.00
Frctn Loss (ft)	0.29	Cum Volume (acre-ft)		2.41
C & E Loss (ft)	0.00	Cum SA (acres)		1.43

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	97.79	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	97.78	Reach Len. (ft)	701.00	699.00
697.00				

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Crit w.s. (ft)		Flow Area (sq ft)	117.07
E.G. Slope (ft/ft)	0.000302	Area (sq ft)	117.07
Q Total (cfs)	108.90	Flow (cfs)	108.90
Top width (ft)	56.13	Top width (ft)	56.13
Vel Total (ft/s)	0.93	Avg. Vel. (ft/s)	0.93
Max Chl Dpth (ft)	2.81	Hydr. Depth (ft)	2.09
Conv. Total (cfs)	6262.0	Conv. (cfs)	6262.0
Length wtd. (ft)	699.00	wetted Per. (ft)	56.78
Min Ch El (ft)	94.97	Shear (lb/sq ft)	0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	1649.95
Frctn Loss (ft)	0.28	Cum Volume (acre-ft)	3.10
C & E Loss (ft)	0.00	Cum SA (acres)	1.50

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	97.14	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-val.		0.045
W.S. Elev (ft)	97.13	Reach Len. (ft)	701.00	699.00
697.00 Crit w.s. (ft)		Flow Area (sq ft)		81.79
E.G. Slope (ft/ft)	0.000272	Area (sq ft)		81.79
Q Total (cfs)	59.10	Flow (cfs)		59.10
Top width (ft)	53.05	Top width (ft)		53.05
Vel Total (ft/s)	0.72	Avg. Vel. (ft/s)		0.72
Max Chl Dpth (ft)	2.16	Hydr. Depth (ft)		1.54
Conv. Total (cfs)	3586.6	Conv. (cfs)		3586.6
Length wtd. (ft)	699.00	wetted Per. (ft)		53.44
Min Ch El (ft)	94.97	Shear (lb/sq ft)		0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	1649.95	0.00
Frctn Loss (ft)	0.27	Cum Volume (acre-ft)		2.18
C & E Loss (ft)	0.00	Cum SA (acres)		1.40

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	97.42	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	97.41	Reach Len. (ft)	701.00	699.00
697.00 Crit w.s. (ft)		Flow Area (sq ft)		97.09
E.G. Slope (ft/ft)	0.000263	Area (sq ft)		97.09
Q Total (cfs)	76.00	Flow (cfs)		76.00
Top width (ft)	54.41	Top width (ft)		54.41
Vel Total (ft/s)	0.78	Avg. Vel. (ft/s)		0.78
Max Chl Dpth (ft)	2.44	Hydr. Depth (ft)		1.78
Conv. Total (cfs)	4687.4	Conv. (cfs)		4687.4
Length wtd. (ft)	699.00	wetted Per. (ft)		54.91
Min Ch El (ft)	94.97	Shear (lb/sq ft)		0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	1649.95	0.00
Frctn Loss (ft)	0.26	Cum Volume (acre-ft)		2.59
C & E Loss (ft)	0.00	Cum SA (acres)		1.45

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	97.90	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	97.89	Reach Len. (ft)	701.00	699.00
697.00 Crit w.s. (ft)		Flow Area (sq ft)		123.34
E.G. Slope (ft/ft)	0.000258	Area (sq ft)		123.34
Q Total (cfs)	108.90	Flow (cfs)		108.90
Top width (ft)	56.66	Top width (ft)		56.66
Vel Total (ft/s)	0.88	Avg. Vel. (ft/s)		0.88
Max Chl Dpth (ft)	2.92	Hydr. Depth (ft)		2.18
Conv. Total (cfs)	6785.0	Conv. (cfs)		6785.0
Length wtd. (ft)	699.00	wetted Per. (ft)		57.36
Min Ch El (ft)	94.97	Shear (lb/sq ft)		0.03

NM116 OUTPUT REPORT.TXT

Alpha 1.00 Stream Power (lb/ft s) 1649.95 0.00
 Frctn Loss (ft) 0.26 Cum Volume (acre-ft) 3.29
 C & E Loss (ft) 0.00 Cum SA (acres) 1.53

CROSS SECTION

RIVER: N-NM-116
 REACH: NM-116 RS: 923

INPUT
 Description:

Station Elevation Data		num= 146		Sta Elev		Sta Elev		Sta Elev		Sta Elev	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	107.67	5	107.64	9.99	107.75	14.99	107.98	34.98	107.96		
39.98	108.05	44.97	108.53	49.97	108.79	319.81	108.92	334.8	108.48		
339.8	108.2	344.79	108.07	354.79	108.02	359.78	107.86	369.78	107.29		
389.77	107.01	404.76	107.09	414.75	107.28	419.75	107.24	429.74	106.54		
434.74	106.37	439.74	106.36	444.73	105.92	449.73	105.64	464.72	105.61		
469.72	105.77	474.72	105.49	494.7	105.55	509.69	105.45	514.69	105.55		
554.67	105.41	564.66	105.51	594.64	105.32	614.63	105.45	619.63	105.39		
629.62	105.53	654.61	105.48	659.61	105.34	664.6	104.92	669.6	104.52		
674.6	104.29	679.59	103.63	684.59	102.5	689.59	100.33	694.58	98.22		
699.58	97.17	704.58	95.06	704.81	95.06	709.58	95.03	714.57	95.11		
719.57	95.11	724.57	95.09	729.56	95.01	734.56	95.01	739.56	95.1		
744.55	95.48	749.55	96.21	754.55	98.08	759.55	98.58	764.54	101.51		
766.47	102.68	769.54	104.56	774.54	105.92	784.53	105.91	789.53	105.81		
794.52	106.32	799.52	105.98	804.52	106	809.52	106.2	814.51	106.03		
829.5	105.97	839.5	106.64	844.49	106.66	854.49	107.26	859.49	107.2		
864.48	106.96	879.47	106.91	884.47	106.74	894.47	106.64	899.46	106.7		
909.46	106.55	914.45	106.35	919.45	106.4	929.44	106.27	944.44	106.58		
949.43	106.89	954.43	107.05	959.43	107.34	964.42	107.83	969.42	108.13		
984.41	108.37	994.41	108.31	1004.4	108.07	1019.39	108.05	1029.38	107.81		
1034.38	107.54	1039.38	107.39	1109.34	107.76	1119.33	106.94	1124.33	107.01		
1134.32	107.5	1179.29	107.68	1184.29	107.52	1189.29	107.51	1194.29	107.33		
1199.28	107.49	1209.28	107.46	1214.27	107.91	1219.27	108.2	1244.26	107.96		
1254.25	108.05	1269.24	107.87	1274.24	107.71	1279.23	107.43	1284.23	107.33		
1294.22	106.83	1304.22	106.11	1309.22	106.04	1314.21	106.15	1319.21	106.4		
1324.21	106.44	1329.2	106.36	1334.2	106.39	1344.19	106.3	1354.19	106.65		
1364.18	107.12	1374.18	107.47	1379.17	107.82	1384.17	107.93	1394.16	107.73		
1404.16	107.17	1439.14	107.26	1449.13	107.09	1454.13	106.86	1459.13	106.83		
1464.12	106.65	1479.11	106.54	1484.11	106.63	1514.09	106.52	1524.09	106.45		
1534.08	106.53	1544.07	106.43	1549.07	106.58	1554.07	106.45	1574.06	106.59		
1584.05	106.42										

Manning's n Values		num= 3		Sta n Val	
Sta	n Val	Sta	n Val	Sta	n Val
0	.06	659.61	.045	774.54	.06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 659.61 774.54 450 451 452 .1 .3

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft) 96.74 Element Left OB Channel
 Right OB
 Vel Head (ft) 0.01 wt. n-val. 0.045
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W.S. Elev (ft)	96.72	Reach Len. (ft)	450.00	451.00
452.00 Crit W.S. (ft)		Flow Area (sq ft)		73.22
E.G. Slope (ft/ft)	0.000523	Area (sq ft)		73.22
Q Total (cfs)	70.60	Flow (cfs)		70.60
Top width (ft)	50.28	Top width (ft)		50.28
Vel Total (ft/s)	0.96	Avg. Vel. (ft/s)		0.96
Max Chl Dpth (ft)	1.71	Hydr. Depth (ft)		1.46
Conv. Total (cfs)	3085.7	Conv. (cfs)		3085.7
Length wtd. (ft)	451.00	wetted Per. (ft)		50.78
Min Ch El (ft)	95.01	Shear (lb/sq ft)		0.05
Alpha	1.00	Stream Power (lb/ft s)	1584.05	0.00
0.00 Frctn Loss (ft)	0.21	Cum Volume (acre-ft)		0.81
C & E Loss (ft)	0.00	Cum SA (acres)		0.55

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	97.03	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-Val.		0.045
W.S. Elev (ft)	97.01	Reach Len. (ft)	450.00	451.00
452.00 Crit W.S. (ft)		Flow Area (sq ft)		87.85
E.G. Slope (ft/ft)	0.000512	Area (sq ft)		87.85
Q Total (cfs)	92.70	Flow (cfs)		92.70
Top width (ft)	51.73	Top width (ft)		51.73
Vel Total (ft/s)	1.06	Avg. Vel. (ft/s)		1.06
Max Chl Dpth (ft)	2.00	Hydr. Depth (ft)		1.70
Conv. Total (cfs)	4097.5	Conv. (cfs)		4097.5
Length wtd. (ft)	451.00	wetted Per. (ft)		52.34
Min Ch El (ft)	95.01	Shear (lb/sq ft)		0.05
Alpha	1.00	Stream Power (lb/ft s)	1584.05	0.00
0.00 Frctn Loss (ft)	0.20	Cum Volume (acre-ft)		0.97
C & E Loss (ft)	0.00	Cum SA (acres)		0.58

NM116 OUTPUT REPORT.TXT

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	97.51	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-Val.		0.045
W.S. Elev (ft)	97.49	Reach Len. (ft)	450.00	451.00
452.00 Crit w.s. (ft)		Flow Area (sq ft)		113.18
E.G. slope (ft/ft)	0.000520	Area (sq ft)		113.18
Q Total (cfs)	136.80	Flow (cfs)		136.80
Top width (ft)	54.88	Top width (ft)		54.88
Vel Total (ft/s)	1.21	Avg. Vel. (ft/s)		1.21
Max Chl Dpth (ft)	2.48	Hydr. Depth (ft)		2.06
Conv. Total (cfs)	5999.2	Conv. (cfs)		5999.2
Length wtd. (ft)	451.00	wetted Per. (ft)		55.64
Min Ch El (ft)	95.01	Shear (lb/sq ft)		0.07
Alpha 0.00	1.00	Stream Power (lb/ft s)	1584.05	0.00
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)		1.26
C & E Loss (ft)	0.00	Cum SA (acres)		0.61

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	96.87	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-Val.		0.045
W.S. Elev (ft)	96.85	Reach Len. (ft)	450.00	451.00
452.00 Crit w.s. (ft)		Flow Area (sq ft)		79.88
E.G. slope (ft/ft)	0.000517	Area (sq ft)		79.88
Q Total (cfs)	80.40	Flow (cfs)		80.40
Top width (ft)	50.94	Top width (ft)		50.94
Vel Total (ft/s)	1.01	Avg. Vel. (ft/s)		1.01
Max Chl Dpth (ft)	1.84	Hydr. Depth (ft)		1.57
Conv. Total (cfs)	3534.5	Conv. (cfs)		3534.5
Length wtd. (ft)	451.00	wetted Per. (ft)		51.49

NM116 OUTPUT REPORT.TXT

Min Ch El (ft)	95.01	Shear (lb/sq ft)		0.05
Alpha 0.00	1.00	Stream Power (lb/ft s)	1584.05	0.00
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)		0.88
C & E Loss (ft)	0.00	Cum SA (acres)		0.57

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	97.16	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-Val.		0.045
W.S. Elev (ft)	97.14	Reach Len. (ft)	450.00	451.00
452.00 Crit w.s. (ft)		Flow Area (sq ft)		94.84
E.G. Slope (ft/ft)	0.000508	Area (sq ft)		94.84
Q Total (cfs)	104.00	Flow (cfs)		104.00
Top width (ft)	52.40	Top width (ft)		52.40
Vel Total (ft/s)	1.10	Avg. Vel. (ft/s)		1.10
Max Chl Dpth (ft)	2.13	Hydr. Depth (ft)		1.81
Conv. Total (cfs)	4612.0	Conv. (cfs)		4612.0
Length wtd. (ft)	451.00	wetted Per. (ft)		53.06
Min Ch El (ft)	95.01	Shear (lb/sq ft)		0.06
Alpha 0.00	1.00	Stream Power (lb/ft s)	1584.05	0.00
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)		1.05
C & E Loss (ft)	0.00	Cum SA (acres)		0.59

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	97.64	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-Val.		0.045
W.S. Elev (ft)	97.61	Reach Len. (ft)	450.00	451.00
452.00 Crit w.s. (ft)		Flow Area (sq ft)		120.15
E.G. Slope (ft/ft)	0.000523	Area (sq ft)		120.15
Q Total (cfs)	149.90	Flow (cfs)		149.90

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Top width (ft)	55.82	Top width (ft)	55.82
Vel Total (ft/s)	1.25	Avg. Vel. (ft/s)	1.25
Max Chl Dpth (ft)	2.60	Hydr. Depth (ft)	2.15
Conv. Total (cfs)	6552.0	Conv. (cfs)	6552.0
Length wtd. (ft)	451.00	Wetted Per. (ft)	56.62
Min ch El (ft)	95.01	Shear (lb/sq ft)	0.07
Alpha 0.00	1.00	Stream Power (lb/ft s)	1584.05
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	1.33
C & E Loss (ft)	0.00	Cum SA (acres)	0.62

CROSS SECTION

RIVER: N-NM-116
 REACH: NM-116

RS: 472

INPUT

Description:

Station	Elevation	Data	num=	148
Sta	Elev	Sta	Elev	Sta
0	107.45	5	107.54	15
44.99	108.07	49.99	108.3	74.99
99.98	109.25	109.98	109.45	289.95
309.95	108.24	319.95	108.31	329.95
364.94	108.64	369.94	108.99	374.94
399.94	108.52	414.94	107.77	419.93
439.93	106.82	449.93	106.21	454.93
474.93	105.58	489.92	105.58	504.92
544.91	105.53	569.91	105.76	589.91
624.9	106.1	634.9	106.76	639.9
654.9	101.3	659.9	98.81	663.34
674.89	95.72	679.89	95.33	684.89
699.89	94.37	704.89	94.42	709.89
723.34	96	724.89	96.23	729.89
744.88	105.46	749.88	106.66	754.88
779.88	106.29	789.88	106.58	794.88
819.87	106.24	829.87	106.31	849.87
869.86	106.28	879.86	106.17	889.86
914.86	106.43	919.86	106.49	924.86
949.85	106.18	959.85	106.38	969.85
1029.84	106.25	1059.84	106.42	1069.83
1099.83	106.34	1109.83	106.55	1119.83
1164.82	106.34	1179.82	106.5	1214.81
1289.8	106.59	1294.8	106.5	1309.8
1324.79	106.38	1339.79	106.27	1349.79
1414.78	106.24	1424.78	106.16	1434.78
1459.77	106.84	1464.77	106.77	1469.77
1499.77	106.83	1509.76	106.84	1519.76
1574.75	106.99	1594.75	106.86	1604.75
1654.74	107.31	1664.74	107.2	1669.74
				107.44

Manning's n Values

num= 3

NM116 OUTPUT REPORT.TXT

Sta n Val Sta n Val Sta n Val
 0 .06 639.9 .045 749.88 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 639.9 749.88 478 472 466 .1 .3

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	96.53	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	96.52	Reach Len. (ft)		
Crit W.S. (ft)	95.12	Flow Area (sq ft)		83.11
E.G. Slope (ft/ft)	0.000400	Area (sq ft)		83.11
Q Total (cfs)	70.60	Flow (cfs)		70.60
Top width (ft)	56.73	Top width (ft)		56.73
Vel Total (ft/s)	0.85	Avg. Vel. (ft/s)		0.85
Max Chl Dpth (ft)	2.15	Hydr. Depth (ft)		1.46
Conv. Total (cfs)	3529.2	Conv. (cfs)		3529.2
Length wtd. (ft)		wetted Per. (ft)		56.99
Min Ch El (ft)	94.37	Shear (lb/sq ft)		0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	1669.74	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)		
C & E Loss (ft)		Cum SA (acres)		

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	96.82	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	96.81	Reach Len. (ft)		
Crit W.S. (ft)	95.23	Flow Area (sq ft)		100.03
E.G. Slope (ft/ft)	0.000400	Area (sq ft)		100.03
Q Total (cfs)	92.70	Flow (cfs)		92.70
Top width (ft)	59.88	Top width (ft)		59.88
Vel Total (ft/s)	0.93	Avg. Vel. (ft/s)		0.93
Max Chl Dpth (ft)	2.44	Hydr. Depth (ft)		1.67

NM116 OUTPUT REPORT.TXT

Conv. Total (cfs)	4634.3	Conv. (cfs)	4634.3
Length wtd. (ft)		Wetted Per. (ft)	60.20
Min Ch El (ft)	94.37	Shear (lb/sq ft)	0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	1669.74
Frctn Loss (ft)		Cum Volume (acre-ft)	0.00
C & E Loss (ft)		Cum SA (acres)	

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	97.30	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-val.		0.045
w.s. Elev (ft)	97.28	Reach Len. (ft)		
Crit w.s. (ft)	95.41	Flow Area (sq ft)		129.56
E.G. Slope (ft/ft)	0.000401	Area (sq ft)		129.56
Q Total (cfs)	136.80	Flow (cfs)		136.80
Top width (ft)	63.72	Top width (ft)		63.72
Vel Total (ft/s)	1.06	Avg. Vel. (ft/s)		1.06
Max Chl Dpth (ft)	2.91	Hydr. Depth (ft)		2.03
Conv. Total (cfs)	6834.1	Conv. (cfs)		6834.1
Length wtd. (ft)		wetted Per. (ft)		64.17
Min Ch El (ft)	94.37	Shear (lb/sq ft)		0.05
Alpha 0.00	1.00	Stream Power (lb/ft s)	1669.74	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)		
C & E Loss (ft)		Cum SA (acres)		

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	96.66	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-val.		0.045
w.s. Elev (ft)	96.65	Reach Len. (ft)		
Crit w.s. (ft)	95.17	Flow Area (sq ft)		90.76
E.G. slope (ft/ft)	0.000401	Area (sq ft)		90.76

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Q Total (cfs)	80.40	Flow (cfs)	80.40
Top width (ft)	58.20	Top width (ft)	58.20
Vel Total (ft/s)	0.89	Avg. Vel. (ft/s)	0.89
Max Chl Dpth (ft)	2.28	Hydr. Depth (ft)	1.56
Conv. Total (cfs)	4017.5	Conv. (cfs)	4017.5
Length wtd. (ft)		Wetted Per. (ft)	58.48
Min Ch El (ft)	94.37	Shear (lb/sq ft)	0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	1669.74
Frctn Loss (ft)		Cum Volume (acre-ft)	0.00
C & E Loss (ft)		Cum SA (acres)	

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	96.96	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.045
w.s. Elev (ft)	96.94	Reach Len. (ft)		
Crit w.s. (ft)	95.28	Flow Area (sq ft)		108.23
E.G. Slope (ft/ft)	0.000400	Area (sq ft)		108.23
Q Total (cfs)	104.00	Flow (cfs)		104.00
Top width (ft)	61.34	Top width (ft)		61.34
Vel Total (ft/s)	0.96	Avg. Vel. (ft/s)		0.96
Max Chl Dpth (ft)	2.57	Hydr. Depth (ft)		1.76
Conv. Total (cfs)	5199.6	Conv. (cfs)		5199.6
Length wtd. (ft)		Wetted Per. (ft)		61.67
Min Ch El (ft)	94.37	Shear (lb/sq ft)		0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	1669.74	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)		
C & E Loss (ft)		Cum SA (acres)		

CROSS SECTION OUTPUT Profile #ULT 100Y

NM116 OUTPUT REPORT.TXT				
	97.43	Element	Left OB	Channel
E.G. Elev (ft)	97.43	Element		
Right OB Vel Head (ft)	0.02	wt. n-Val.		0.045
w.s. Elev (ft)	97.41	Reach Len. (ft)		
Crit w.s. (ft)	95.46	Flow Area (sq ft)		137.63
E.G. Slope (ft/ft)	0.000400	Area (sq ft)		137.63
Q Total (cfs)	149.90	Flow (cfs)		149.90
Top width (ft)	64.51	Top width (ft)		64.51
Vel Total (ft/s)	1.09	Avg. Vel. (ft/s)		1.09
Max Chl Dpth (ft)	3.04	Hydr. Depth (ft)		2.13
Conv. Total (cfs)	7493.4	Conv. (cfs)		7493.4
Length wtd. (ft)		Wetted Per. (ft)		65.01
Min Ch El (ft)	94.37	Shear (lb/sq ft)		0.05
Alpha 0.00	1.00	Stream Power (lb/ft s)	1669.74	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)		
C & E Loss (ft)		Cum SA (acres)		

SUMMARY OF MANNING'S N VALUES

River:N-NM-116

Reach	River Sta.	n1	n2	n3
NM-116	4375	.06	.045	.06
NM-116	3758	.06	.045	.06
NM-116	2942	.06	.045	.06
NM-116	2388	.06	.045	.06
NM-116	1622	.06	.045	.06
NM-116	923	.06	.045	.06
NM-116	472	.06	.045	.06

SUMMARY OF REACH LENGTHS

River: N-NM-116

Reach	River Sta.	Left	Channel	Right
NM-116	4375	613	617	621
NM-116	3758	816	816	816
NM-116	2942	557	554	551
NM-116	2388	766	766	766
NM-116	1622	701	699	697

NM116 OUTPUT REPORT.TXT

NM-116	923	450	451	452
NM-116	472	478	472	466

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: N-NM-116

Reach	River Sta.	Contr.	Expan.
NM-116	4375	.1	.3
NM-116	3758	.1	.3
NM-116	2942	.1	.3
NM-116	2388	.1	.3
NM-116	1622	.1	.3
NM-116	923	.1	.3
NM-116	472	.1	.3

Profile Output Table - Table 1

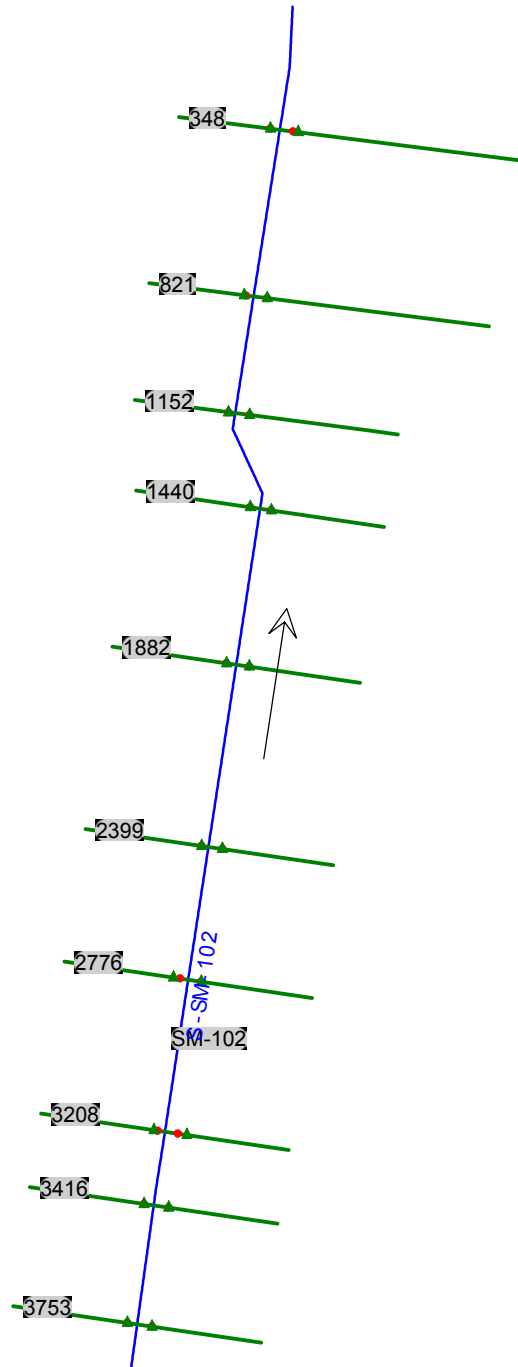
Reach Vel Chnl (ft/s)	River Sta Flow Area (sq ft)	Profile Top width (ft)	Q Total Volume (cfs) (acre-ft)	W.S. Elev (ft)	E.G. Elev (ft)	Min Ch El (ft)
NM-116 0.85	472 83.11	EX 10Y 56.73	70.60	96.52	96.53	94.37
NM-116 0.93	472 100.03	EX 25Y 59.88	92.70	96.81	96.82	94.37
NM-116 1.06	472 129.56	EX 100Y 63.72	136.80	97.28	97.30	94.37
NM-116 0.89	472 90.76	ULT 10Y 58.20	80.40	96.65	96.66	94.37
NM-116 0.96	472 108.23	ULT 25Y 61.34	104.00	96.94	96.96	94.37
NM-116 1.09	472 137.63	ULT 100Y 64.51	149.90	97.41	97.43	94.37
NM-116 0.96	923 73.22	EX 10Y 50.28	70.60 0.81	96.72	96.74	95.01
NM-116 1.06	923 87.85	EX 25Y 51.73	92.70 0.97	97.01	97.03	95.01
NM-116 1.21	923 113.18	EX 100Y 54.88	136.80 1.26	97.49	97.51	95.01
NM-116 1.01	923 79.88	ULT 10Y 50.94	80.40 0.88	96.85	96.87	95.01
NM-116 1.10	923 94.84	ULT 25Y 52.40	104.00 1.05	97.14	97.16	95.01
NM-116 1.25	923 120.15	ULT 100Y 55.82	149.90 1.33	97.61	97.64	95.01
NM-116 0.78	1622 76.24	EX 10Y 52.55	59.10 2.01	97.02	97.03	94.97
NM-116 0.83	1622 91.02	EX 25Y 53.87	76.00 2.41	97.30	97.31	94.97
NM-116	1622	EX 100Y	108.90	97.78	97.79	94.97

NM116 OUTPUT REPORT.TXT

0.93	117.07	56.13	3.10			
NM-116	1622	ULT 10Y	59.10	97.13	97.14	94.97
0.72	81.79	53.05	2.18			
NM-116	1622	ULT 25Y	76.00	97.41	97.42	94.97
0.78	97.09	54.41	2.59			
NM-116	1622	ULT 100Y	108.90	97.89	97.90	94.97
0.88	123.34	56.66	3.29			
NM-116	2388	EX 10Y	59.10	97.35	97.36	95.24
0.90	65.67	52.43	3.26			
NM-116	2388	EX 25Y	76.00	97.61	97.62	95.24
0.96	79.52	54.87	3.91			
NM-116	2388	EX 100Y	108.90	98.05	98.07	95.24
1.04	104.97	58.49	5.06			
NM-116	2388	ULT 10Y	59.10	97.40	97.41	95.24
0.86	68.36	52.91	3.50			
NM-116	2388	ULT 25Y	76.00	97.67	97.68	95.24
0.92	83.01	55.46	4.17			
NM-116	2388	ULT 100Y	108.90	98.13	98.14	95.24
1.00	109.33	58.94	5.33			
NM-116	2942	EX 10Y	13.10	97.42	97.42	95.25
0.14	91.29	51.12	4.25			
NM-116	2942	EX 25Y	16.80	97.68	97.68	95.25
0.16	104.84	52.53	5.08			
NM-116	2942	EX 100Y	23.90	98.13	98.13	95.25
0.19	129.02	54.83	6.54			
NM-116	2942	ULT 10Y	13.10	97.47	97.47	95.25
0.14	93.58	51.37	4.53			
NM-116	2942	ULT 25Y	16.80	97.74	97.74	95.25
0.16	107.79	52.82	5.39			
NM-116	2942	ULT 100Y	23.90	98.20	98.20	95.25
0.18	132.70	55.18	6.87			
NM-116	3758	EX 10Y	13.10	97.44	97.45	96.89
1.03	12.72	33.03	5.23			
NM-116	3758	EX 25Y	16.80	97.70	97.71	96.89
0.76	22.22	37.88	6.27			
NM-116	3758	EX 100Y	23.90	98.15	98.16	96.89
0.58	40.95	45.18	8.14			
NM-116	3758	ULT 10Y	13.10	97.48	97.50	96.89
0.92	14.22	34.39	5.54			
NM-116	3758	ULT 25Y	16.80	97.76	97.77	96.89
0.69	24.31	38.75	6.63			
NM-116	3758	ULT 100Y	23.90	98.22	98.22	96.89
0.54	43.97	47.91	8.53			
NM-116	4375	EX 10Y	13.10	97.81	97.81	96.78
0.38	34.47	50.77	5.56			
NM-116	4375	EX 25Y	16.80	97.95	97.95	96.78
0.40	41.69	51.65	6.72			
NM-116	4375	EX 100Y	23.90	98.28	98.29	96.78
0.40	59.21	53.75	8.85			
NM-116	4375	ULT 10Y	13.10	97.82	97.82	96.78
0.38	34.77	50.80	5.89			
NM-116	4375	ULT 25Y	16.80	97.97	97.97	96.78
0.39	42.75	51.78	7.10			
NM-116	4375	ULT 100Y	23.90	98.33	98.33	96.78
0.39	61.78	54.05	9.28			

NM116 OUTPUT REPORT.TXT

APPENDIX D
HEC-RAS HYDRAULIC OUTPUT
SM-102 BASE CONDITION

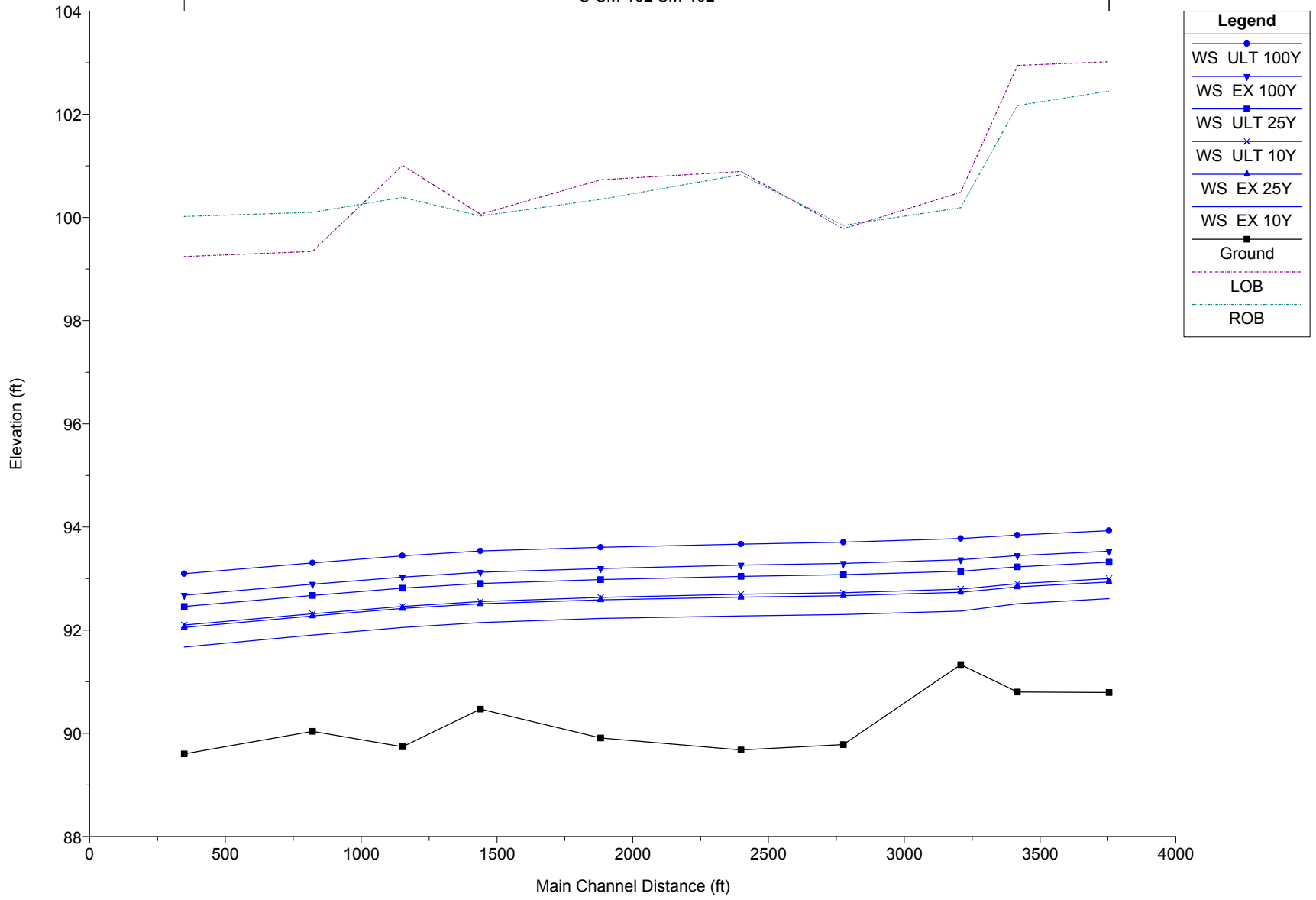


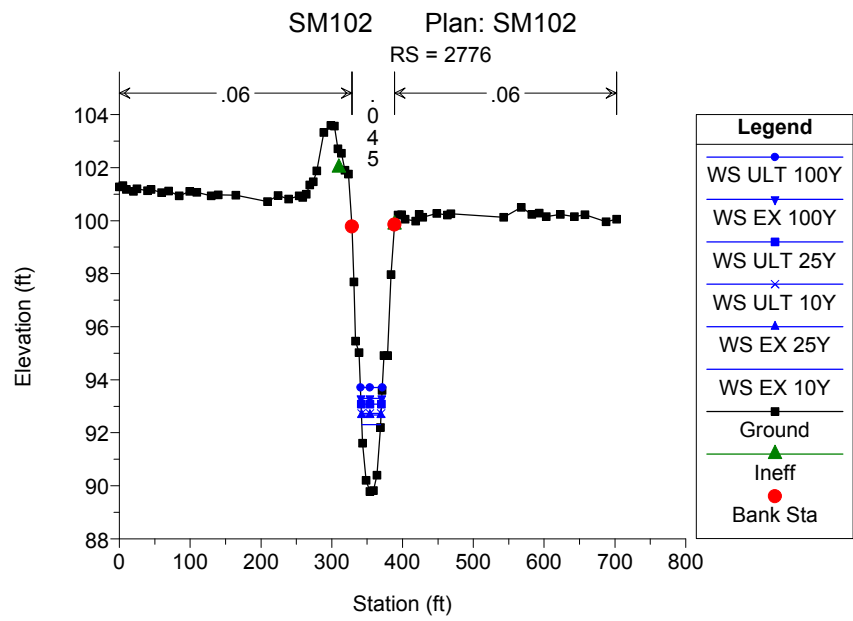
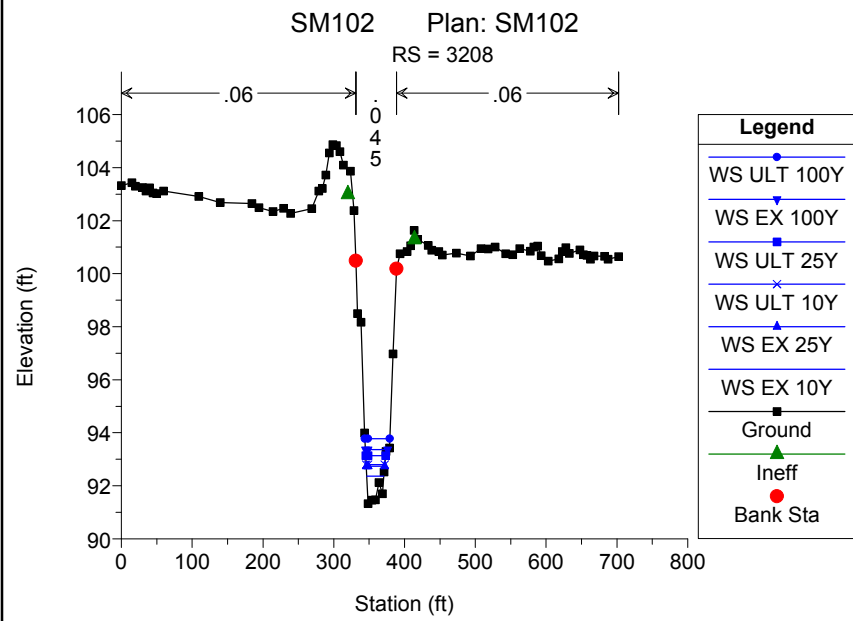
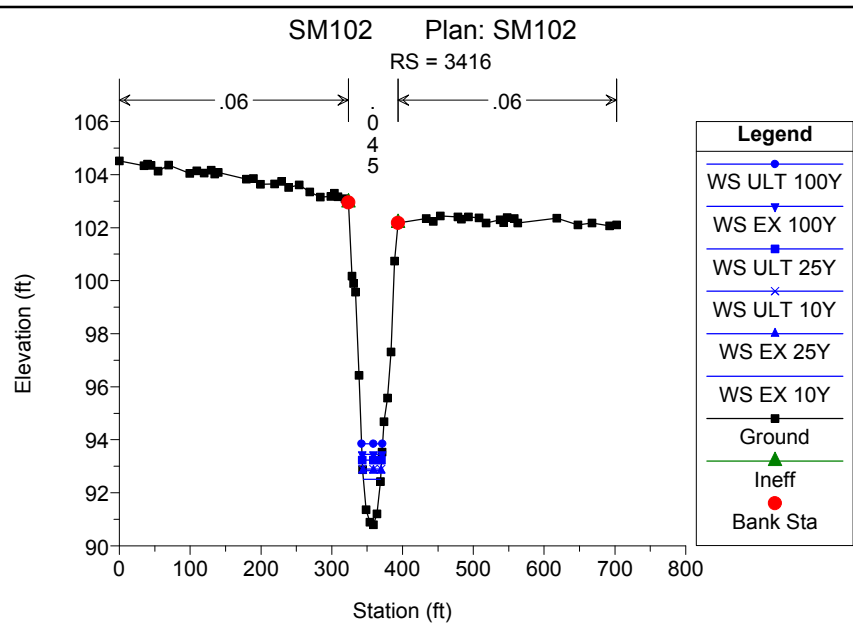
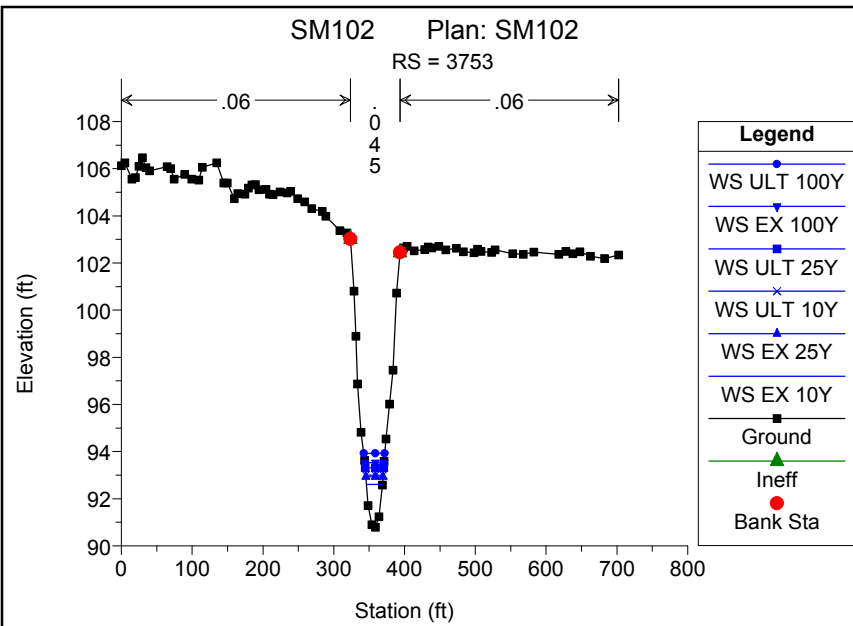
HEC-RAS Plan: BASE River: S-SM-102 Reach: SM-102

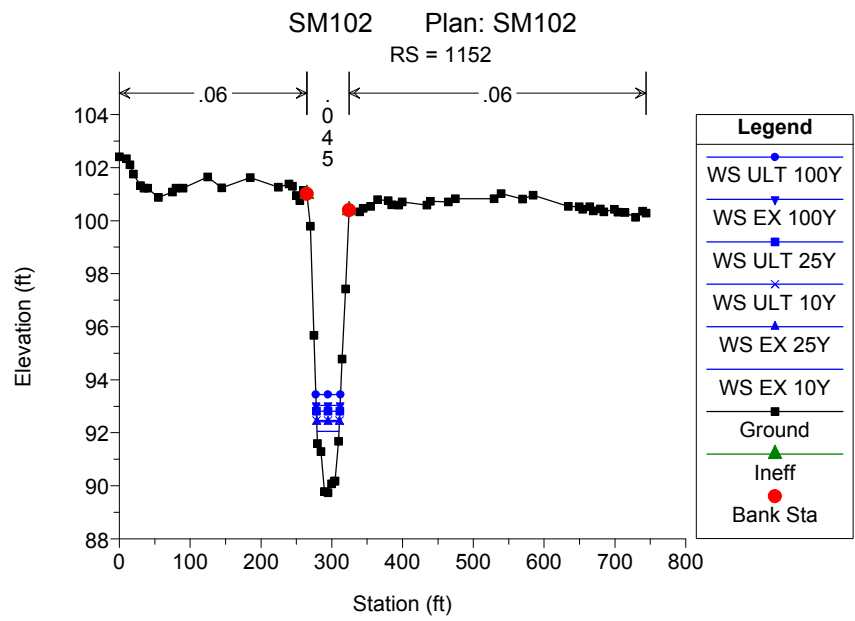
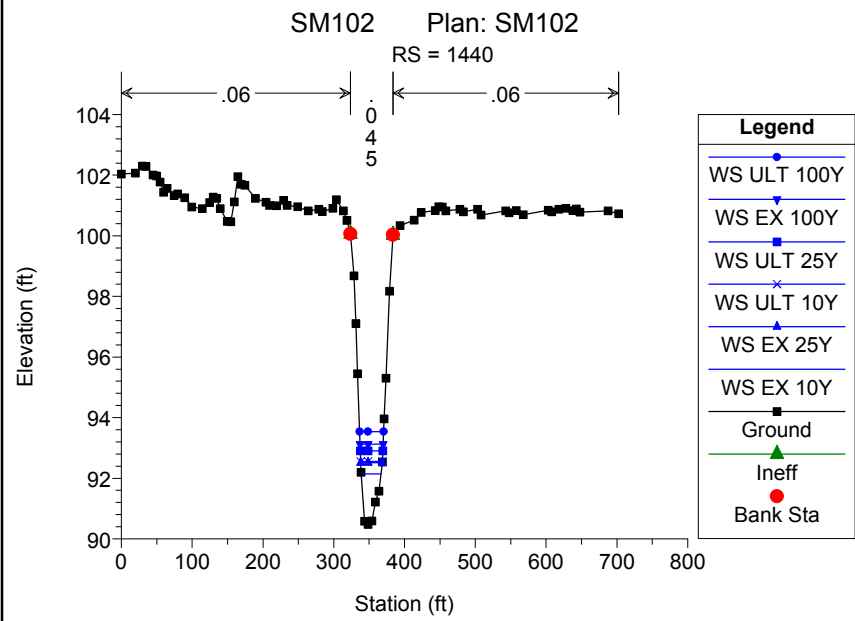
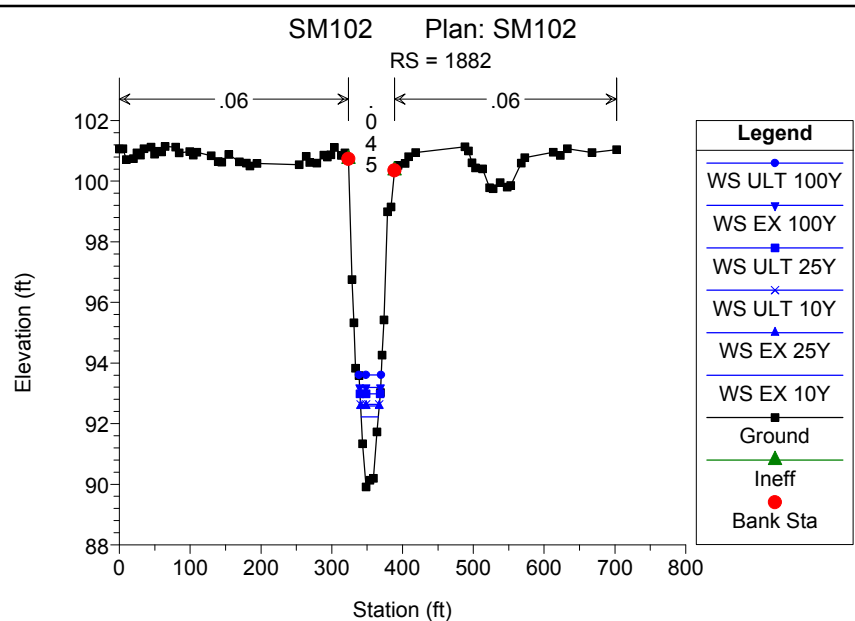
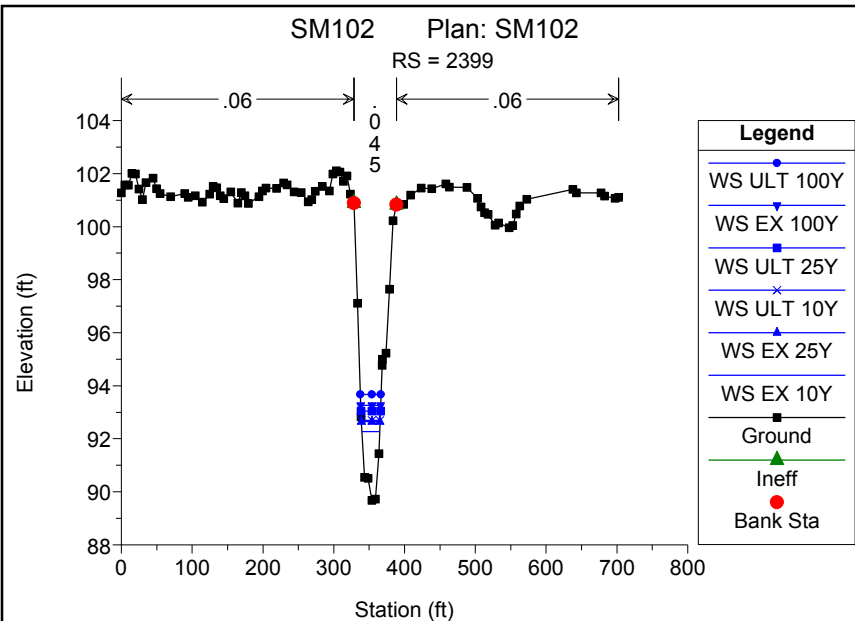
Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
SM-102	348	EX 10Y	37.00	89.60	91.67	90.27	91.68	0.000400	0.84	44.04	30.21	0.12
SM-102	348	EX 25Y	53.00	89.60	92.05	90.42	92.07	0.000401	0.95	55.89	31.83	0.13
SM-102	348	EX 100Y	85.00	89.60	92.68	90.67	92.70	0.000401	1.11	76.43	33.99	0.13
SM-102	348	ULT 10Y	55.00	89.60	92.10	90.44	92.11	0.000401	0.96	57.26	31.98	0.13
SM-102	348	ULT 25Y	73.00	89.60	92.46	90.59	92.48	0.000400	1.06	69.08	33.23	0.13
SM-102	348	ULT 100Y	110.00	89.60	93.10	90.82	93.12	0.000400	1.21	90.93	35.43	0.13
SM-102	821	EX 10Y	37.00	90.04	91.91	90.83	91.92	0.000630	0.94	39.44	32.21	0.15
SM-102	821	EX 25Y	53.00	90.04	92.28	90.97	92.29	0.000561	1.03	51.55	33.47	0.15
SM-102	821	EX 100Y	85.00	90.04	92.89	91.20	92.91	0.000503	1.17	72.72	35.59	0.14
SM-102	821	ULT 10Y	55.00	90.04	92.32	90.98	92.33	0.000556	1.04	52.96	33.62	0.15
SM-102	821	ULT 25Y	73.00	90.04	92.67	91.11	92.69	0.000519	1.12	65.13	34.84	0.14
SM-102	821	ULT 100Y	110.00	90.04	93.30	91.37	93.33	0.000478	1.25	87.71	37.01	0.14
SM-102	1152	EX 10Y	37.00	89.74	92.05	90.48	92.06	0.000313	0.77	48.13	31.13	0.11
SM-102	1152	EX 25Y	53.00	89.74	92.42	90.63	92.43	0.000329	0.89	59.72	32.17	0.11
SM-102	1152	EX 100Y	85.00	89.74	93.03	90.87	93.05	0.000349	1.06	79.87	33.90	0.12
SM-102	1152	ULT 10Y	55.00	89.74	92.46	90.65	92.47	0.000331	0.90	61.07	32.29	0.12
SM-102	1152	ULT 25Y	73.00	89.74	92.81	90.78	92.83	0.000343	1.00	72.65	33.29	0.12
SM-102	1152	ULT 100Y	110.00	89.74	93.44	91.04	93.46	0.000358	1.17	94.05	35.07	0.13
SM-102	1440	EX 10Y	18.00	90.47	92.14	90.97	92.15	0.000280	0.59	30.69	27.72	0.10
SM-102	1440	EX 25Y	25.00	90.47	92.51	91.07	92.52	0.000227	0.61	41.30	30.26	0.09
SM-102	1440	EX 100Y	41.00	90.47	93.12	91.26	93.13	0.000189	0.68	60.47	32.37	0.09
SM-102	1440	ULT 10Y	27.00	90.47	92.55	91.09	92.56	0.000241	0.63	42.63	30.48	0.09
SM-102	1440	ULT 25Y	35.00	90.47	92.91	91.18	92.91	0.000200	0.65	53.57	31.65	0.09
SM-102	1440	ULT 100Y	53.00	90.47	93.53	91.38	93.54	0.000171	0.72	74.10	33.74	0.09
SM-102	1882	EX 10Y	18.00	89.91	92.23	90.52	92.23	0.000127	0.49	36.86	23.79	0.07
SM-102	1882	EX 25Y	25.00	89.91	92.59	90.62	92.59	0.000133	0.55	45.83	25.97	0.07
SM-102	1882	EX 100Y	41.00	89.91	93.20	90.81	93.20	0.000149	0.65	62.75	29.37	0.08
SM-102	1882	ULT 10Y	27.00	89.91	92.64	90.65	92.64	0.000144	0.57	47.11	26.27	0.08
SM-102	1882	ULT 25Y	35.00	89.91	92.98	90.75	92.99	0.000146	0.62	56.56	28.36	0.08
SM-102	1882	ULT 100Y	53.00	89.91	93.61	90.94	93.61	0.000150	0.71	75.12	31.41	0.08
SM-102	2399	EX 10Y	18.00	89.68	92.28	90.31	92.28	0.000073	0.40	44.54	24.87	0.05
SM-102	2399	EX 25Y	25.00	89.68	92.64	90.44	92.64	0.000080	0.46	53.84	26.18	0.06
SM-102	2399	EX 100Y	41.00	89.68	93.26	90.68	93.26	0.000097	0.58	70.62	27.96	0.06
SM-102	2399	ULT 10Y	27.00	89.68	92.69	90.47	92.70	0.000087	0.49	55.26	26.37	0.06
SM-102	2399	ULT 25Y	35.00	89.68	93.04	90.62	93.05	0.000092	0.54	64.62	27.40	0.06
SM-102	2399	ULT 100Y	53.00	89.68	93.67	90.78	93.68	0.000103	0.64	82.33	29.01	0.07
SM-102	2776	EX 10Y	18.00	89.78	92.30	90.32	92.30	0.000063	0.38	47.16	26.10	0.05
SM-102	2776	EX 25Y	25.00	89.78	92.67	90.41	92.67	0.000070	0.44	56.96	27.31	0.05
SM-102	2776	EX 100Y	41.00	89.78	93.29	90.59	93.30	0.000085	0.55	74.66	29.37	0.06
SM-102	2776	ULT 10Y	27.00	89.78	92.73	90.44	92.73	0.000075	0.46	58.50	27.50	0.06
SM-102	2776	ULT 25Y	35.00	89.78	93.08	90.53	93.08	0.000080	0.51	68.32	28.65	0.06
SM-102	2776	ULT 100Y	53.00	89.78	93.71	90.70	93.71	0.000091	0.61	87.08	30.74	0.06
SM-102	3208	EX 10Y	18.00	91.33	92.37	91.87	92.39	0.001950	1.11	16.21	23.96	0.24
SM-102	3208	EX 25Y	25.00	91.33	92.74	91.97	92.75	0.000944	0.99	25.32	25.79	0.18
SM-102	3208	EX 100Y	41.00	91.33	93.36	92.13	93.38	0.000583	0.96	42.61	31.34	0.15
SM-102	3208	ULT 10Y	27.00	91.33	92.80	91.99	92.81	0.000917	1.00	26.88	26.09	0.17
SM-102	3208	ULT 25Y	35.00	91.33	93.14	92.07	93.16	0.000622	0.97	36.26	27.83	0.15
SM-102	3208	ULT 100Y	53.00	91.33	93.78	92.22	93.79	0.000438	0.94	56.67	34.96	0.13
SM-102	3416	EX 10Y	18.00	90.80	92.51	91.34	92.52	0.000300	0.63	28.37	23.90	0.10
SM-102	3416	EX 25Y	25.00	90.80	92.84	91.44	92.85	0.000276	0.68	36.52	25.71	0.10
SM-102	3416	EX 100Y	41.00	90.80	93.45	91.61	93.45	0.000247	0.78	52.74	27.95	0.10
SM-102	3416	ULT 10Y	27.00	90.80	92.90	91.46	92.91	0.000284	0.71	38.09	25.99	0.10
SM-102	3416	ULT 25Y	35.00	90.80	93.23	91.55	93.24	0.000257	0.75	46.79	27.17	0.10
SM-102	3416	ULT 100Y	53.00	90.80	93.84	91.72	93.86	0.000231	0.83	64.20	29.39	0.10
SM-102	3753	EX 10Y	18.00	90.79	92.61	91.37	92.62	0.000292	0.65	27.88	22.35	0.10
SM-102	3753	EX 25Y	25.00	90.79	92.93	91.47	92.94	0.000282	0.71	35.35	24.02	0.10
SM-102	3753	EX 100Y	41.00	90.79	93.53	91.67	93.54	0.000272	0.81	50.59	27.09	0.10
SM-102	3753	ULT 10Y	27.00	90.79	93.00	91.50	93.01	0.000291	0.73	36.89	24.34	0.10
SM-102	3753	ULT 25Y	35.00	90.79	93.32	91.60	93.33	0.000278	0.78	44.95	25.99	0.10
SM-102	3753	ULT 100Y	53.00	90.79	93.93	91.78	93.94	0.000264	0.86	61.79	29.61	0.10

SM102 Plan: SM102

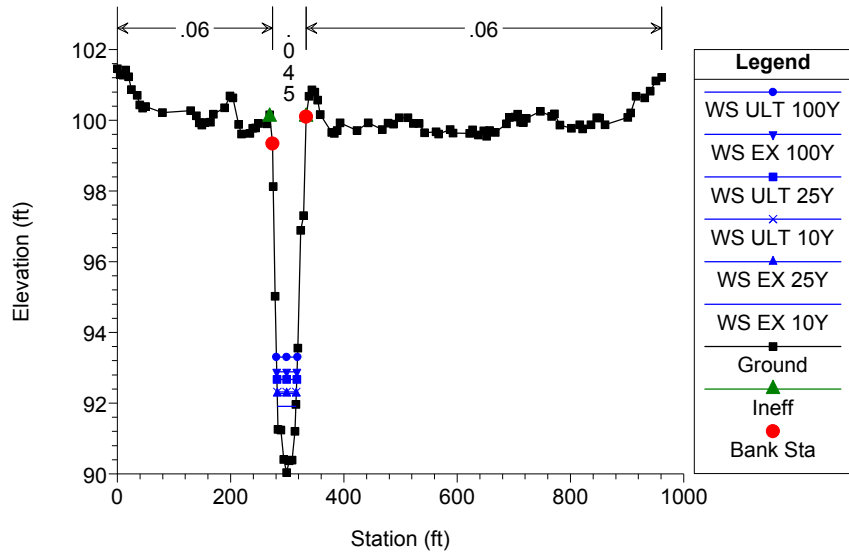
S-SM-102 SM-102



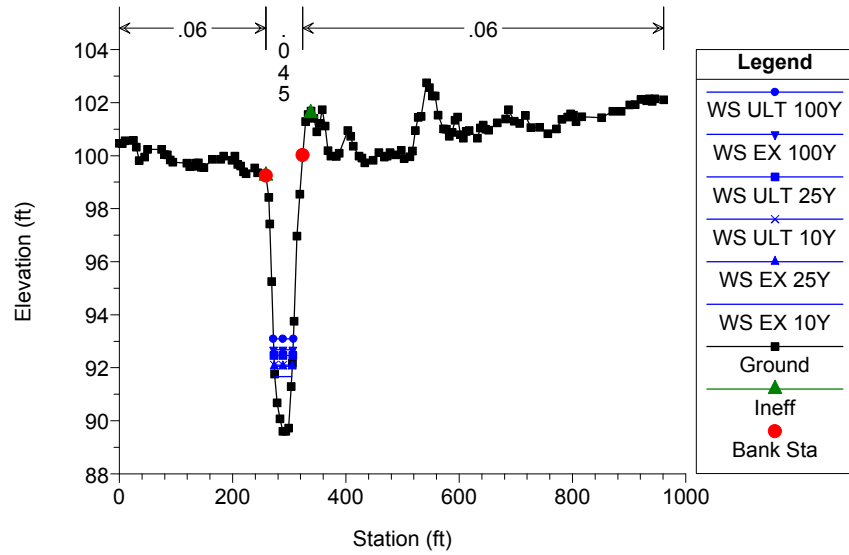




SM102 Plan: SM102
RS = 821



SM102 Plan: SM102
RS = 348



SM102 OUTPUT REPORT.TXT

HEC-RAS Version 4.1.0 Jan 2010
U.S. Army Corps of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

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PROJECT DATA

Project Title: SM102
Project File : SM102.prj

Project in English units

PLAN DATA

Plan Title: SM102
Plan File : K:\2014PROJECTS\COE_MDP_TEDSI\MODEL\APPENDIX C - HYDRAULICS\SM102.p01

Geometry Title: SM102
Geometry File : K:\2014PROJECTS\COE_MDP_TEDSI\MODEL\APPENDIX C -
HYDRAULICS\SM102.g01

Flow Title : SM102 FLOW
Flow File : K:\2014PROJECTS\COE_MDP_TEDSI\MODEL\APPENDIX C -
HYDRAULICS\SM102.f01

Plan Summary Information:

Number of:	Cross Sections =	10	Multiple Openings =	0
	Culverts =	0	Inline Structures =	0
	Bridges =	0	Lateral Structures =	0

Computational Information

Water surface calculation tolerance =	0.01
Critical depth calculation tolerance =	0.01
Maximum number of iterations =	20
Maximum difference tolerance =	0.3
Flow tolerance factor =	0.001

Computation Options

Critical depth computed only where necessary	
Conveyance Calculation Method:	At breaks in n values only
Friction Slope Method:	Average Conveyance
Computational Flow Regime:	Subcritical Flow

FLOW DATA

SM102 OUTPUT REPORT.TXT

Flow Title: SM102 FLOW

Flow File : K:\2014PROJECTS\COE_MDP_TEDSI\MODEL\APPENDIX C - HYDRAULICS\SM102.f01

Flow Data (cfs)

River	Reach	RS	EX 10Y	EX 25Y
EX 100Y	ULT 10Y	ULT 25Y	ULT 100Y	
S-SM-102	SM-102	3753	18	25
41	27	35	53	
S-SM-102	SM-102	1152	37	53
85	55	73	110	

Boundary Conditions

River	Reach	Profile	Upstream
Downstream			
S-SM-102	SM-102	EX 10Y	
Normal S = 0.0004			
S-SM-102	SM-102	EX 25Y	
Normal S = 0.0004			
S-SM-102	SM-102	EX 100Y	
Normal S = 0.0004			
S-SM-102	SM-102	ULT 10Y	
Normal S = 0.0004			

GEOMETRY DATA

Geometry Title: SM102

Geometry File : K:\2014PROJECTS\COE_MDP_TEDSI\MODEL\APPENDIX C - HYDRAULICS\SM102.g01

CROSS SECTION

RIVER: S-SM-102

REACH: SM-102

RS: 3753

INPUT

Description:

Station Elevation Data		num=		80					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	106.13	4.98	106.25	14.94	105.56	19.93	105.62	24.91	106.1
29.89	106.47	34.87	106.04	39.85	105.91	64.76	106.09	69.74	106
74.72	105.56	89.67	105.76	99.63	105.55	109.59	105.52	114.57	106.06
134.5	106.25	144.46	105.39	149.44	105.4	159.4	104.73	164.39	104.94
174.35	104.92	179.33	105.17	184.31	105.31	189.29	105.32	194.27	105.11
204.24	105.12	209.22	104.92	214.2	104.9	224.16	105.02	234.13	104.97
239.11	105.04	249.07	104.73	259.03	104.59	269	104.31	283.94	104.18
288.92	103.98	308.85	103.37	318.81	103.28	323.79	103.02	328.77	100.8
331.19	98.89	333.75	96.87	338.73	94.82	343.72	93.62	348.7	91.71
353.68	90.9	358.66	90.79	363.64	91.23	368.62	92.58	371.19	93.59
373.6	94.53	378.59	96.01	383.57	97.45	388.55	100.72	393.53	102.45

SM102 OUTPUT REPORT.TXT

398.51	102.64	403.49	102.7	413.46	102.52	428.4	102.57	433.38	102.68
438.36	102.64	448.32	102.71	458.29	102.55	473.23	102.63	483.19	102.47
498.14	102.43	503.12	102.59	508.1	102.49	523.05	102.45	528.03	102.56
552.93	102.4	567.88	102.37	582.82	102.46	617.69	102.36	627.65	102.49
637.62	102.39	647.58	102.48	662.52	102.29	682.45	102.19	702.38	102.34

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 323.79 .045 393.53 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 323.79 393.53 337 337 337 .1 .3
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 323.79 103.02 F
 393.53 702.38 102.45 F

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	92.62	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	wt. n-Val.		0.045
w.s. Elev (ft)	92.61	Reach Len. (ft)	337.00	337.00
337.00				
Crit w.s. (ft)	91.37	Flow Area (sq ft)		27.88
E.G. Slope (ft/ft)	0.000292	Area (sq ft)		27.88
Q Total (cfs)	18.00	Flow (cfs)		18.00
Top width (ft)	22.35	Top width (ft)		22.35
Vel Total (ft/s)	0.65	Avg. Vel. (ft/s)		0.65
Max chl Dpth (ft)	1.82	Hydr. Depth (ft)		1.25
Conv. Total (cfs)	1052.7	Conv. (cfs)		1052.7
Length wtd. (ft)	337.00	wetted Per. (ft)		22.79
Min Ch El (ft)	90.79	Shear (lb/sq ft)		0.02
Alpha	1.00	Stream Power (lb/ft s)	702.38	0.00
0.00				
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)		2.91
C & E Loss (ft)	0.00	Cum SA (acres)		2.09

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	92.94	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	wt. n-Val.		0.045

SM102 OUTPUT REPORT.TXT				
W.S. Elev (ft)	92.93	Reach Len. (ft)	337.00	337.00
337.00 Crit W.S. (ft)	91.47	Flow Area (sq ft)		35.35
E.G. Slope (ft/ft)	0.000282	Area (sq ft)		35.35
Q Total (cfs)	25.00	Flow (cfs)		25.00
Top width (ft)	24.02	Top width (ft)		24.02
Vel Total (ft/s)	0.71	Avg. Vel. (ft/s)		0.71
Max Chl Dpth (ft)	2.14	Hydr. Depth (ft)		1.47
Conv. Total (cfs)	1487.7	Conv. (cfs)		1487.7
Length wtd. (ft)	337.00	wetted Per. (ft)		24.58
Min ch El (ft)	90.79	Shear (lb/sq ft)		0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	702.38	0.00
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)		3.69
C & E Loss (ft)	0.00	Cum SA (acres)		2.22

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

Profile #EX 100Y				
E.G. Elev (ft)	93.54	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	93.53	Reach Len. (ft)	337.00	337.00
337.00 Crit W.S. (ft)	91.67	Flow Area (sq ft)		50.59
E.G. Slope (ft/ft)	0.000272	Area (sq ft)		50.59
Q Total (cfs)	41.00	Flow (cfs)		41.00
Top width (ft)	27.09	Top width (ft)		27.09
Vel Total (ft/s)	0.81	Avg. Vel. (ft/s)		0.81
Max Chl Dpth (ft)	2.74	Hydr. Depth (ft)		1.87
Conv. Total (cfs)	2486.0	Conv. (cfs)		2486.0
Length wtd. (ft)	337.00	wetted Per. (ft)		27.87
Min ch El (ft)	90.79	Shear (lb/sq ft)		0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	702.38	0.00
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)		5.11

C & E Loss (ft)	SM102 OUTPUT REPORT.TXT 0.00	Cum SA (acres)	2.42
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Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	93.01	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	93.00	Reach Len. (ft)	337.00	337.00
337.00 Crit w.s. (ft)	91.50	Flow Area (sq ft)		36.89
E.G. Slope (ft/ft)	0.000291	Area (sq ft)		36.89
Q Total (cfs)	27.00	Flow (cfs)		27.00
Top width (ft)	24.34	Top width (ft)		24.34
Vel Total (ft/s)	0.73	Avg. Vel. (ft/s)		0.73
Max Chl Dpth (ft)	2.21	Hydr. Depth (ft)		1.52
Conv. Total (cfs)	1582.1	Conv. (cfs)		1582.1
Length wtd. (ft)	337.00	wetted Per. (ft)		24.93
Min Ch El (ft)	90.79	Shear (lb/sq ft)		0.03
Alpha	1.00	Stream Power (lb/ft s)	702.38	0.00
0.00 Frctn Loss (ft)	0.10	Cum Volume (acre-ft)		3.80
C & E Loss (ft)	0.00	Cum SA (acres)		2.23

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	93.33	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	93.32	Reach Len. (ft)	337.00	337.00
337.00 Crit w.s. (ft)	91.60	Flow Area (sq ft)		44.95
E.G. Slope (ft/ft)	0.000278	Area (sq ft)		44.95
Q Total (cfs)	35.00	Flow (cfs)		35.00
Top width (ft)	25.99	Top width (ft)		25.99

SM102 OUTPUT REPORT.TXT

Vel Total (ft/s)	0.78	Avg. Vel. (ft/s)	0.78
Max Chl Dpth (ft)	2.53	Hydr. Depth (ft)	1.73
Conv. Total (cfs)	2100.7	Conv. (cfs)	2100.7
Length Wtd. (ft)	337.00	wetted Per. (ft)	26.70
Min Ch El (ft)	90.79	Shear (lb/sq ft)	0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	702.38
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)	4.60
C & E Loss (ft)	0.00	Cum SA (acres)	2.34

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	93.94	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.045
w.s. Elev (ft)	93.93	Reach Len. (ft)	337.00	337.00
337.00 Crit w.s. (ft)	91.78	Flow Area (sq ft)		61.79
E.G. Slope (ft/ft)	0.000264	Area (sq ft)		61.79
Q Total (cfs)	53.00	Flow (cfs)		53.00
Top width (ft)	29.61	Top width (ft)		29.61
Vel Total (ft/s)	0.86	Avg. Vel. (ft/s)		0.86
Max Chl Dpth (ft)	3.14	Hydr. Depth (ft)		2.09
Conv. Total (cfs)	3265.0	Conv. (cfs)		3265.0
Length Wtd. (ft)	337.00	wetted Per. (ft)		30.52
Min Ch El (ft)	90.79	Shear (lb/sq ft)		0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	702.38	0.00
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)		6.13
C & E Loss (ft)	0.00	Cum SA (acres)		2.55

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

SM102 OUTPUT REPORT.TXT

RIVER: S-SM-102
 REACH: SM-102

RS: 3416

INPUT

Description:

Station	Elevation	Data	num= 60							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	
0	104.52	34.87	104.33	39.85	104.39	44.83	104.35	54.8	104.13	
69.74	104.36	99.63	104.05	109.59	104.14	119.55	104.06	129.52	104.17	
134.5	104.02	139.48	104.08	179.33	103.83	189.29	103.85	199.26	103.64	
219.18	103.65	229.14	103.74	239.11	103.51	254.05	103.61	269	103.35	
283.94	103.15	298.88	103.18	303.86	103.3	308.85	103.17	318.81	103.09	
323.79	102.95	328.77	100.17	331.04	99.9	333.75	99.57	338.73	96.43	
343.72	92.87	348.7	91.36	353.68	90.89	358.66	90.8	363.64	91.21	
368.62	92.43	371.05	93.53	373.6	94.68	378.59	95.57	383.57	97.31	
388.55	100.74	393.53	102.17	433.38	102.34	443.34	102.23	453.31	102.44	
478.21	102.4	483.19	102.32	493.16	102.41	508.1	102.37	518.06	102.18	
537.99	102.29	542.97	102.19	547.95	102.38	557.92	102.34	562.9	102.18	
617.69	102.36	647.58	102.1	667.51	102.17	692.41	102.07	702.38	102.1	

Manning's n	Values	num= 3			
Sta	n Val	Sta	n Val	Sta	n Val
0	.06	323.79	.045	393.53	.06

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	323.79	393.53		209	209	209		.1	.3
Ineffective Flow	num= 2								
Sta L	Sta R	Elev	Permanent						
0	323.79	102.95	F						
393.53	702.38	102.17	F						

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	92.52	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	wt. n-val.		0.045
W.S. Elev (ft)	92.51	Reach Len. (ft)	209.00	209.00
209.00				
Crit w.s. (ft)	91.34	Flow Area (sq ft)		28.37
E.G. Slope (ft/ft)	0.000300	Area (sq ft)		28.37
Q Total (cfs)	18.00	Flow (cfs)		18.00
Top width (ft)	23.90	Top width (ft)		23.90
Vel Total (ft/s)	0.63	Avg. vel. (ft/s)		0.63
Max Chl Dpth (ft)	1.71	Hydr. Depth (ft)		1.19
Conv. Total (cfs)	1039.3	Conv. (cfs)		1039.3
Length wtd. (ft)	209.00	wetted Per. (ft)		24.28
Min Ch El (ft)	90.80	Shear (lb/sq ft)		0.02
Alpha	1.00	Stream Power (lb/ft s)	702.38	0.00
0.00				
Frctn Loss (ft)	0.13	Cum volume (acre-ft)		2.69

SM102 OUTPUT REPORT.TXT

C & E Loss (ft) 0.00 Cum SA (acres) 1.91

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	92.85	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	92.84	Reach Len. (ft)	209.00	209.00
209.00				
Crit w.s. (ft)	91.44	Flow Area (sq ft)		36.52
E.G. Slope (ft/ft)	0.000276	Area (sq ft)		36.52
Q Total (cfs)	25.00	Flow (cfs)		25.00
Top width (ft)	25.71	Top width (ft)		25.71
Vel Total (ft/s)	0.68	Avg. Vel. (ft/s)		0.68
Max Chl Dpth (ft)	2.04	Hydr. Depth (ft)		1.42
Conv. Total (cfs)	1504.4	Conv. (cfs)		1504.4
Length wtd. (ft)	209.00	wetted Per. (ft)		26.21
Min Ch El (ft)	90.80	Shear (lb/sq ft)		0.02
Alpha	1.00	Stream Power (lb/ft s)	702.38	0.00
0.00				
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)		3.41
C & E Loss (ft)	0.00	Cum SA (acres)		2.02

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	93.45	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	93.45	Reach Len. (ft)	209.00	209.00
209.00				

SM102 OUTPUT REPORT.TXT				
Crit w.s. (ft)	91.61	Flow Area (sq ft)		52.74
E.G. Slope (ft/ft)	0.000247	Area (sq ft)		52.74
Q Total (cfs)	41.00	Flow (cfs)		41.00
Top width (ft)	27.95	Top width (ft)		27.95
Vel Total (ft/s)	0.78	Avg. Vel. (ft/s)		0.78
Max Chl Dpth (ft)	2.65	Hydr. Depth (ft)		1.89
Conv. Total (cfs)	2609.0	Conv. (cfs)		2609.0
Length wtd. (ft)	209.00	wetted Per. (ft)		28.76
Min Ch El (ft)	90.80	Shear (lb/sq ft)		0.03
Alpha	1.00	Stream Power (lb/ft s)	702.38	0.00
0.00				
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)		4.71
C & E Loss (ft)	0.00	Cum SA (acres)		2.21

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	92.91	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	wt. n-val.		0.045
W.S. Elev (ft)	92.90	Reach Len. (ft)	209.00	209.00
209.00				
Crit w.s. (ft)	91.46	Flow Area (sq ft)		38.09
E.G. Slope (ft/ft)	0.000284	Area (sq ft)		38.09
Q Total (cfs)	27.00	Flow (cfs)		27.00
Top width (ft)	25.99	Top width (ft)		25.99
Vel Total (ft/s)	0.71	Avg. Vel. (ft/s)		0.71
Max Chl Dpth (ft)	2.10	Hydr. Depth (ft)		1.47
Conv. Total (cfs)	1601.7	Conv. (cfs)		1601.7
Length wtd. (ft)	209.00	wetted Per. (ft)		26.51
Min Ch El (ft)	90.80	Shear (lb/sq ft)		0.03
Alpha	1.00	Stream Power (lb/ft s)	702.38	0.00
0.00				
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)		3.51

SM102 OUTPUT REPORT.TXT

C & E Loss (ft) 0.00 Cum SA (acres) 2.04

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	93.24	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	wt. n-val.		0.045
W.S. Elev (ft)	93.23	Reach Len. (ft)	209.00	209.00
209.00				
Crit w.s. (ft)	91.55	Flow Area (sq ft)		46.79
E.G. Slope (ft/ft)	0.000257	Area (sq ft)		46.79
Q Total (cfs)	35.00	Flow (cfs)		35.00
Top width (ft)	27.17	Top width (ft)		27.17
Vel Total (ft/s)	0.75	Avg. Vel. (ft/s)		0.75
Max Chl Dpth (ft)	2.43	Hydr. Depth (ft)		1.72
Conv. Total (cfs)	2182.6	Conv. (cfs)		2182.6
Length wtd. (ft)	209.00	wetted Per. (ft)		27.87
Min Ch El (ft)	90.80	Shear (lb/sq ft)		0.03
Alpha	1.00	Stream Power (lb/ft s)	702.38	0.00
0.00				
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)		4.24
C & E Loss (ft)	0.00	Cum SA (acres)		2.13

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	93.86	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	wt. n-val.		0.045
W.S. Elev (ft)	93.84	Reach Len. (ft)	209.00	209.00
209.00				

SM102 OUTPUT REPORT.TXT

Crit w.s. (ft)	91.72	Flow Area (sq ft)	64.20
E.G. slope (ft/ft)	0.000231	Area (sq ft)	64.20
Q Total (cfs)	53.00	Flow (cfs)	53.00
Top width (ft)	29.39	Top width (ft)	29.39
Vel Total (ft/s)	0.83	Avg. Vel. (ft/s)	0.83
Max Chl Dpth (ft)	3.04	Hydr. Depth (ft)	2.18
Conv. Total (cfs)	3487.4	Conv. (cfs)	3487.4
Length wtd. (ft)	209.00	Wetted Per. (ft)	30.42
Min Ch El (ft)	90.80	Shear (lb/sq ft)	0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	702.38
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)	5.64
C & E Loss (ft)	0.00	Cum SA (acres)	2.32

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: S-SM-102
 REACH: SM-102 RS: 3208

INPUT
 Description:

Station Elevation Data		num= 75		Sta		Elev		Sta		Elev	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	103.32	14.94	103.43	19.93	103.3	29.89	103.25	34.87	103.12		
39.85	103.24	44.83	103.04	49.81	103.02	59.78	103.12	109.59	102.91		
139.48	102.68	184.31	102.64	194.27	102.49	214.2	102.34	229.14	102.46		
239.11	102.27	269	102.45	278.96	103.12	283.94	103.21	288.92	103.72		
293.9	104.55	298.88	104.87	303.86	104.83	308.85	104.6	313.83	104.09		
323.79	103.86	328.77	102.38	331.19	100.49	333.75	98.49	338.73	98.17		
343.72	93.99	348.7	91.33	353.68	91.46	358.66	91.47	363.64	92.12		
368.62	91.7	371.19	92.52	373.6	93.29	378.59	93.43	383.57	96.98		
388.55	100.19	393.53	100.75	403.49	100.84	408.47	101.05	413.46	101.63		
418.44	101.29	433.38	101.07	438.36	100.88	448.32	100.84	453.31	100.7		
473.23	100.77	493.16	100.67	508.1	100.95	518.06	100.93	528.03	101.01		
542.97	100.75	552.93	100.72	562.9	100.94	577.84	100.85	582.82	101.01		
587.8	101.04	592.79	100.68	602.75	100.47	617.69	100.56	622.67	100.83		
627.65	100.98	632.64	100.76	647.58	100.89	652.56	100.72	657.54	100.69		
662.52	100.55	667.51	100.67	682.45	100.66	687.43	100.55	702.38	100.64		

Manning's n Values		num= 3		Sta		n Val	
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.06	331.19	.045	388.55	.06		

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	331.19	388.55		432	432	432		.1	.3
Ineffective Flow			num=	2					

SM102 OUTPUT REPORT.TXT

Sta L	Sta R	Elev	Permanent
0	320	103	F
414	702.38	101.3	F

CROSS SECTION OUTPUT Profile #EX 10Y

		Element	Left OB	Channel
E.G. Elev (ft)	92.39			
Right OB				
Vel Head (ft)	0.02	wt. n-val.		0.045
W.S. Elev (ft)	92.37	Reach Len. (ft)	432.00	432.00
432.00				
Crit W.S. (ft)	91.87	Flow Area (sq ft)		16.21
E.G. slope (ft/ft)	0.001950	Area (sq ft)		16.21
Q Total (cfs)	18.00	Flow (cfs)		18.00
Top width (ft)	23.96	Top width (ft)		23.96
Vel Total (ft/s)	1.11	Avg. vel. (ft/s)		1.11
Max Chl Dpth (ft)	1.04	Hydr. Depth (ft)		0.68
Conv. Total (cfs)	407.6	Conv. (cfs)		407.6
Length wtd. (ft)	432.00	wetted Per. (ft)		24.39
Min Ch El (ft)	91.33	Shear (lb/sq ft)		0.08
Alpha	1.00	Stream Power (lb/ft s)	702.38	0.00
0.00				
Frctn Loss (ft)	0.08	Cum volume (acre-ft)		2.58
C & E Loss (ft)	0.01	Cum SA (acres)		1.79

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

		Element	Left OB	Channel
E.G. Elev (ft)	92.75			
Right OB				
Vel Head (ft)	0.02	wt. n-val.		0.045
W.S. Elev (ft)	92.74	Reach Len. (ft)	432.00	432.00
432.00				
Crit W.S. (ft)	91.97	Flow Area (sq ft)		25.32
E.G. slope (ft/ft)	0.000944	Area (sq ft)		25.32
Q Total (cfs)	25.00	Flow (cfs)		25.00
Top width (ft)	25.79	Top width (ft)		25.79

SM102 OUTPUT REPORT.TXT				
Vel Total (ft/s)	0.99	Avg. Vel. (ft/s)		0.99
Max Chl Dpth (ft)	1.41	Hydr. Depth (ft)		0.98
Conv. Total (cfs)	813.7	Conv. (cfs)		813.7
Length wtd. (ft)	432.00	wetted Per. (ft)		26.37
Min Ch El (ft)	91.33	Shear (lb/sq ft)		0.06
Alpha 0.00	1.00	Stream Power (lb/ft s)	702.38	0.00
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)		3.26
C & E Loss (ft)	0.00	Cum SA (acres)		1.90

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	93.38	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-val.		0.045
W.S. Elev (ft)	93.36	Reach Len. (ft)	432.00	432.00
432.00 Crit w.s. (ft)	92.13	Flow Area (sq ft)		42.61
E.G. slope (ft/ft)	0.000583	Area (sq ft)		42.61
Q Total (cfs)	41.00	Flow (cfs)		41.00
Top width (ft)	31.34	Top width (ft)		31.34
Vel Total (ft/s)	0.96	Avg. Vel. (ft/s)		0.96
Max Chl Dpth (ft)	2.03	Hydr. Depth (ft)		1.36
Conv. Total (cfs)	1697.4	Conv. (cfs)		1697.4
Length wtd. (ft)	432.00	wetted Per. (ft)		32.16
Min Ch El (ft)	91.33	Shear (lb/sq ft)		0.05
Alpha 0.00	1.00	Stream Power (lb/ft s)	702.38	0.00
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)		4.48
C & E Loss (ft)	0.00	Cum SA (acres)		2.06

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

SM102 OUTPUT REPORT.TXT

This may indicate the need for additional cross sections.
 Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	92.81	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-val.		0.045
W.S. Elev (ft)	92.80	Reach Len. (ft)	432.00	432.00
432.00 Crit w.s. (ft)	91.99	Flow Area (sq ft)		26.88
E.G. slope (ft/ft)	0.000917	Area (sq ft)		26.88
Q Total (cfs)	27.00	Flow (cfs)		27.00
Top width (ft)	26.09	Top width (ft)		26.09
Vel Total (ft/s)	1.00	Avg. vel. (ft/s)		1.00
Max Chl Dpth (ft)	1.47	Hydr. Depth (ft)		1.03
Conv. Total (cfs)	891.5	Conv. (cfs)		891.5
Length wtd. (ft)	432.00	wetted Per. (ft)		26.69
Min Ch El (ft)	91.33	Shear (lb/sq ft)		0.06
Alpha 0.00	1.00	Stream Power (lb/ft s)	702.38	0.00
Frctn Loss (ft)	0.08	Cum volume (acre-ft)		3.35
C & E Loss (ft)	0.00	Cum SA (acres)		1.91

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	93.16	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-val.		0.045
W.S. Elev (ft)	93.14	Reach Len. (ft)	432.00	432.00
432.00 Crit w.s. (ft)	92.07	Flow Area (sq ft)		36.26
E.G. slope (ft/ft)	0.000622	Area (sq ft)		36.26
Q Total (cfs)	35.00	Flow (cfs)		35.00
Top width (ft)	27.83	Top width (ft)		27.83

SM102 OUTPUT REPORT.TXT				
Vel Total (ft/s)	0.97	Avg. Vel. (ft/s)		0.97
Max Chl Dpth (ft)	1.81	Hydr. Depth (ft)		1.30
Conv. Total (cfs)	1403.2	Conv. (cfs)		1403.2
Length wtd. (ft)	432.00	wetted Per. (ft)		28.58
Min Ch El (ft)	91.33	Shear (lb/sq ft)		0.05
Alpha 0.00	1.00	Stream Power (lb/ft s)	702.38	0.00
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)		4.04
C & E Loss (ft)	0.00	Cum SA (acres)		2.00

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	93.79	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-val.		0.045
W.S. Elev (ft)	93.78	Reach Len. (ft)	432.00	432.00
432.00 Crit w.s. (ft)	92.22	Flow Area (sq ft)		56.67
E.G. slope (ft/ft)	0.000438	Area (sq ft)		56.67
Q Total (cfs)	53.00	Flow (cfs)		53.00
Top width (ft)	34.96	Top width (ft)		34.96
Vel Total (ft/s)	0.94	Avg. Vel. (ft/s)		0.94
Max Chl Dpth (ft)	2.45	Hydr. Depth (ft)		1.62
Conv. Total (cfs)	2532.8	Conv. (cfs)		2532.8
Length wtd. (ft)	432.00	wetted Per. (ft)		35.99
Min Ch El (ft)	91.33	Shear (lb/sq ft)		0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	702.38	0.00
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)		5.35
C & E Loss (ft)	0.00	Cum SA (acres)		2.17

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

SM102 OUTPUT REPORT.TXT

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: S-SM-102
 REACH: SM-102

RS: 2776

INPUT

Description:

Station Elevation Data		num= 65		Sta Elev		Sta Elev		Sta Elev		Sta Elev	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	101.27	4.98	101.32	9.96	101.18	19.93	101.11	24.91	101.2		
39.85	101.13	44.83	101.18	59.78	101.05	69.74	101.12	84.68	100.94		
99.63	101.1	109.59	101.07	129.52	100.93	139.48	100.97	164.39	100.96		
209.22	100.72	224.16	100.95	239.11	100.81	254.05	100.93	259.03	100.87		
264.01	100.99	269	101.35	273.98	101.47	278.96	101.88	288.92	103.32		
298.88	103.59	303.86	103.57	308.85	102.71	313.83	102.54	318.81	101.9		
323.79	101.76	328.77	99.78	331.19	97.69	333.75	95.46	338.73	95.02		
343.72	91.61	348.7	90.21	353.68	89.78	358.66	89.82	363.64	90.4		
368.62	92.2	371.19	93.6	373.6	94.91	378.59	94.91	383.57	97.97		
388.55	99.85	393.53	100.21	398.51	100.22	403.49	100.06	418.44	99.98		
423.42	100.24	428.4	100.13	448.32	100.27	463.27	100.21	468.25	100.26		
542.97	100.13	567.88	100.5	582.82	100.24	592.79	100.28	602.75	100.15		
622.67	100.24	642.6	100.15	657.54	100.22	687.43	99.96	702.38	100.06		

Manning's n Values		num= 3		Sta n Val		Sta n Val	
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.06	328.77	.045	388.55	.06		

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	328.77	388.55		377	377		.1	.3

Ineffective Flow		num= 2		Sta L Sta R Elev Permanent	
	0	310	102	F	F
	388.55	702.38	99.85	F	F

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	92.30	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-val.		0.045
W.S. Elev (ft)	92.30	Reach Len. (ft)	377.00	377.00
377.00				
Crit w.s. (ft)	90.32	Flow Area (sq ft)		47.16
E.G. Slope (ft/ft)	0.000063	Area (sq ft)		47.16
Q Total (cfs)	18.00	Flow (cfs)		18.00
Top width (ft)	26.10	Top width (ft)		26.10
Vel Total (ft/s)	0.38	Avg. vel. (ft/s)		0.38
Max Chl Dpth (ft)	2.52	Hydr. Depth (ft)		1.81
Conv. Total (cfs)	2263.8	Conv. (cfs)		2263.8
Length wtd. (ft)	377.00	wetted Per. (ft)		26.90

SM102 OUTPUT REPORT.TXT

Min Ch El (ft)	89.78	Shear (lb/sq ft)		0.01
Alpha	1.00	Stream Power (lb/ft s)	702.38	0.00
0.00				
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)		2.27
C & E Loss (ft)	0.00	Cum SA (acres)		1.54

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	92.67	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-Val.		0.045
W.S. Elev (ft)	92.67	Reach Len. (ft)	377.00	377.00
377.00				
Crit w.s. (ft)	90.41	Flow Area (sq ft)		56.96
E.G. Slope (ft/ft)	0.000070	Area (sq ft)		56.96
Q Total (cfs)	25.00	Flow (cfs)		25.00
Top width (ft)	27.31	Top width (ft)		27.31
Vel Total (ft/s)	0.44	Avg. Vel. (ft/s)		0.44
Max Chl Dpth (ft)	2.89	Hydr. Depth (ft)		2.09
Conv. Total (cfs)	2996.7	Conv. (cfs)		2996.7
Length wtd. (ft)	377.00	wetted Per. (ft)		28.32
Min Ch El (ft)	89.78	Shear (lb/sq ft)		0.01
Alpha	1.00	Stream Power (lb/ft s)	702.38	0.00
0.00				
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)		2.85
C & E Loss (ft)	0.00	Cum SA (acres)		1.64

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	93.30	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-Val.		0.045
W.S. Elev (ft)	93.29	Reach Len. (ft)	377.00	377.00
377.00				

SM102 OUTPUT REPORT.TXT

Crit w.s. (ft)	90.59	Flow Area (sq ft)		74.66
E.G. Slope (ft/ft)	0.000085	Area (sq ft)		74.66
Q Total (cfs)	41.00	Flow (cfs)		41.00
Top width (ft)	29.37	Top width (ft)		29.37
Vel Total (ft/s)	0.55	Avg. Vel. (ft/s)		0.55
Max Chl Dpth (ft)	3.51	Hydr. Depth (ft)		2.54
Conv. Total (cfs)	4454.9	Conv. (cfs)		4454.9
Length wtd. (ft)	377.00	wetted Per. (ft)		30.73
Min Ch El (ft)	89.78	Shear (lb/sq ft)		0.01
Alpha 0.00	1.00	Stream Power (lb/ft s)	702.38	0.00
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)		3.90
C & E Loss (ft)	0.00	Cum SA (acres)		1.76

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	92.73	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-Val.		0.045
W.S. Elev (ft)	92.73	Reach Len. (ft)	377.00	377.00
377.00 Crit w.s. (ft)	90.44	Flow Area (sq ft)		58.50
E.G. Slope (ft/ft)	0.000075	Area (sq ft)		58.50
Q Total (cfs)	27.00	Flow (cfs)		27.00
Top width (ft)	27.50	Top width (ft)		27.50
Vel Total (ft/s)	0.46	Avg. Vel. (ft/s)		0.46
Max Chl Dpth (ft)	2.95	Hydr. Depth (ft)		2.13
Conv. Total (cfs)	3116.9	Conv. (cfs)		3116.9
Length wtd. (ft)	377.00	wetted Per. (ft)		28.54
Min Ch El (ft)	89.78	Shear (lb/sq ft)		0.01
Alpha 0.00	1.00	Stream Power (lb/ft s)	702.38	0.00
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)		2.93
C & E Loss (ft)	0.00	Cum SA (acres)		1.65

SM102 OUTPUT REPORT.TXT

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	93.08	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-val.		0.045
W.S. Elev (ft)	93.08	Reach Len. (ft)	377.00	377.00
377.00 Crit w.s. (ft)	90.53	Flow Area (sq ft)		68.32
E.G. Slope (ft/ft)	0.000080	Area (sq ft)		68.32
Q Total (cfs)	35.00	Flow (cfs)		35.00
Top width (ft)	28.65	Top width (ft)		28.65
Vel Total (ft/s)	0.51	Avg. Vel. (ft/s)		0.51
Max Chl Dpth (ft)	3.30	Hydr. Depth (ft)		2.38
Conv. Total (cfs)	3914.4	Conv. (cfs)		3914.4
Length wtd. (ft)	377.00	wetted Per. (ft)		29.89
Min Ch El (ft)	89.78	Shear (lb/sq ft)		0.01
Alpha	1.00	Stream Power (lb/ft s)	702.38	0.00
0.00 Frctn Loss (ft)	0.03	Cum Volume (acre-ft)		3.52
C & E Loss (ft)	0.00	Cum SA (acres)		1.72

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	93.71	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-val.		0.045
W.S. Elev (ft)	93.71	Reach Len. (ft)	377.00	377.00
377.00 Crit w.s. (ft)	90.70	Flow Area (sq ft)		87.08
E.G. Slope (ft/ft)	0.000091	Area (sq ft)		87.08
Q Total (cfs)	53.00	Flow (cfs)		53.00
Top width (ft)	30.74	Top width (ft)		30.74
Vel Total (ft/s)	0.61	Avg. Vel. (ft/s)		0.61

SM102 OUTPUT REPORT.TXT

Max Chl Dpth (ft)	3.93	Hydr. Depth (ft)	2.83
Conv. Total (cfs)	5566.9	Conv. (cfs)	5566.9
Length Wtd. (ft)	377.00	Wetted Per. (ft)	32.33
Min Ch El (ft)	89.78	Shear (lb/sq ft)	0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	702.38
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	4.64
C & E Loss (ft)	0.00	Cum SA (acres)	1.84

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: S-SM-102
 REACH: SM-102 RS: 2399

INPUT

Description:

Station Elevation Data num= 83

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	101.27	4.98	101.57	9.96	101.56	14.94	102.01	19.93	101.99
24.91	101.42	29.89	101.02	34.87	101.66	44.83	101.83	49.81	101.43
54.8	101.25	69.74	101.13	89.67	101.25	94.65	101.1	104.61	101.16
114.57	100.92	124.53	101.23	129.52	101.51	134.5	101.47	139.48	101.16
144.46	101.05	154.42	101.31	164.39	100.89	169.37	101.28	174.35	101.17
179.33	100.88	194.27	101.13	199.26	101.35	204.24	101.46	219.18	101.44
229.14	101.65	234.13	101.58	244.09	101.31	254.05	101.28	264.01	100.94
269	101.02	273.98	101.33	283.94	101.51	293.9	101.34	298.88	101.99
303.86	102.1	308.85	102.06	313.83	101.71	318.81	101.91	323.79	101.22
328.77	100.89	333.75	97.11	338.73	92.83	343.72	90.55	348.7	90.51
353.68	89.68	358.66	89.73	363.64	91.44	368.3	94.77	368.62	95
373.6	95.23	378.59	97.64	383.57	100.22	388.55	100.83	398.51	100.84
408.47	101.19	423.42	101.45	438.36	101.43	458.29	101.61	463.27	101.49
488.18	101.48	503.12	101.07	508.1	100.74	513.08	100.53	518.06	100.47
528.03	100.05	533.01	100.14	547.95	99.96	552.93	100.04	557.92	100.48
562.9	100.78	572.86	101.03	637.62	101.4	642.6	101.27	677.47	101.27
682.45	101.15	697.39	101.07	702.38	101.11				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	328.77	.045	388.55	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.	Expan.
328.77	388.55	517	517	517	.1	.3	

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	328.77	100.89	F
388.55	702.38	100.83	F

CROSS SECTION OUTPUT Profile #EX 10Y

SM102 OUTPUT REPORT.TXT				
E.G. Elev (ft)	92.28	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-Val.		0.045
W.S. Elev (ft)	92.28	Reach Len. (ft)	517.00	517.00
517.00 Crit w.s. (ft)	90.31	Flow Area (sq ft)		44.54
E.G. Slope (ft/ft)	0.000073	Area (sq ft)		44.54
Q Total (cfs)	18.00	Flow (cfs)		18.00
Top width (ft)	24.87	Top width (ft)		24.87
Vel Total (ft/s)	0.40	Avg. Vel. (ft/s)		0.40
Max Chl Dpth (ft)	2.60	Hydr. Depth (ft)		1.79
Conv. Total (cfs)	2113.1	Conv. (cfs)		2113.1
Length wtd. (ft)	517.00	wetted Per. (ft)		25.87
Min Ch El (ft)	89.68	Shear (lb/sq ft)		0.01
Alpha	1.00	Stream Power (lb/ft s)	702.38	0.00
0.00 Frctn Loss (ft)	0.05	Cum Volume (acre-ft)		1.87
C & E Loss (ft)	0.00	Cum SA (acres)		1.32

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	92.64	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-Val.		0.045
W.S. Elev (ft)	92.64	Reach Len. (ft)	517.00	517.00
517.00 Crit w.s. (ft)	90.44	Flow Area (sq ft)		53.84
E.G. Slope (ft/ft)	0.000080	Area (sq ft)		53.84
Q Total (cfs)	25.00	Flow (cfs)		25.00
Top width (ft)	26.18	Top width (ft)		26.18
Vel Total (ft/s)	0.46	Avg. Vel. (ft/s)		0.46
Max Chl Dpth (ft)	2.96	Hydr. Depth (ft)		2.06
Conv. Total (cfs)	2791.1	Conv. (cfs)		2791.1
Length wtd. (ft)	517.00	wetted Per. (ft)		27.37
Min Ch El (ft)	89.68	Shear (lb/sq ft)		0.01

		SM102 OUTPUT REPORT.TXT		
Alpha	1.00	Stream Power (lb/ft s)	702.38	0.00
0.00				
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)		2.37
C & E Loss (ft)	0.00	Cum SA (acres)		1.41

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	93.26	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	93.26	Reach Len. (ft)	517.00	517.00
517.00				
Crit w.s. (ft)	90.68	Flow Area (sq ft)		70.62
E.G. Slope (ft/ft)	0.000097	Area (sq ft)		70.62
Q Total (cfs)	41.00	Flow (cfs)		41.00
Top width (ft)	27.96	Top width (ft)		27.96
Vel Total (ft/s)	0.58	Avg. Vel. (ft/s)		0.58
Max Chl Dpth (ft)	3.58	Hydr. Depth (ft)		2.53
Conv. Total (cfs)	4168.3	Conv. (cfs)		4168.3
Length wtd. (ft)	517.00	wetted Per. (ft)		29.55
Min Ch El (ft)	89.68	Shear (lb/sq ft)		0.01
Alpha	1.00	Stream Power (lb/ft s)	702.38	0.00
0.00				
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)		3.27
C & E Loss (ft)	0.00	Cum SA (acres)		1.51

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	92.70	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-Val.		0.045
W.S. Elev (ft)	92.69	Reach Len. (ft)	517.00	517.00
517.00				
Crit w.s. (ft)	90.47	Flow Area (sq ft)		55.26
E.G. slope (ft/ft)	0.000087	Area (sq ft)		55.26

SM102 OUTPUT REPORT.TXT

Q Total (cfs)	27.00	Flow (cfs)		27.00
Top width (ft)	26.37	Top width (ft)		26.37
Vel Total (ft/s)	0.49	Avg. Vel. (ft/s)		0.49
Max Chl Dpth (ft)	3.01	Hydr. Depth (ft)		2.10
Conv. Total (cfs)	2898.7	Conv. (cfs)		2898.7
Length wtd. (ft)	517.00	wetted Per. (ft)		27.59
Min Ch El (ft)	89.68	Shear (lb/sq ft)		0.01
Alpha 0.00	1.00	Stream Power (lb/ft s)	702.38	0.00
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)		2.44
C & E Loss (ft)	0.00	Cum SA (acres)		1.41

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	93.05	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	wt. n-val.		0.045
W.S. Elev (ft)	93.04	Reach Len. (ft)	517.00	517.00
517.00 Crit w.s. (ft)	90.62	Flow Area (sq ft)		64.62
E.G. Slope (ft/ft)	0.000092	Area (sq ft)		64.62
Q Total (cfs)	35.00	Flow (cfs)		35.00
Top width (ft)	27.40	Top width (ft)		27.40
Vel Total (ft/s)	0.54	Avg. Vel. (ft/s)		0.54
Max Chl Dpth (ft)	3.36	Hydr. Depth (ft)		2.36
Conv. Total (cfs)	3653.7	Conv. (cfs)		3653.7
Length wtd. (ft)	517.00	wetted Per. (ft)		28.84
Min Ch El (ft)	89.68	Shear (lb/sq ft)		0.01
Alpha 0.00	1.00	Stream Power (lb/ft s)	702.38	0.00
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)		2.95
C & E Loss (ft)	0.00	Cum SA (acres)		1.48

SM102 OUTPUT REPORT.TXT

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	93.68	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.		0.045
W.S. Elev (ft)	93.67	Reach Len. (ft)	517.00	517.00
517.00 Crit w.s. (ft)	90.78	Flow Area (sq ft)		82.33
E.G. Slope (ft/ft)	0.000103	Area (sq ft)		82.33
Q Total (cfs)	53.00	Flow (cfs)		53.00
Top width (ft)	29.01	Top width (ft)		29.01
Vel Total (ft/s)	0.64	Avg. Vel. (ft/s)		0.64
Max Chl Dpth (ft)	3.99	Hydr. Depth (ft)		2.84
Conv. Total (cfs)	5226.0	Conv. (cfs)		5226.0
Length wtd. (ft)	517.00	wetted Per. (ft)		30.89
Min Ch El (ft)	89.68	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	702.38	0.00
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)		3.91
C & E Loss (ft)	0.00	Cum SA (acres)		1.58

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: S-SM-102
REACH: SM-102 RS: 1882

INPUT

Description:

Station Elevation Data		num= 72									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	101.06	4.98	101.07	9.96	100.71	19.93	100.74	24.91	100.93		
29.89	100.86	34.87	101.07	44.83	101.12	49.81	100.89	54.8	100.99		
59.78	100.97	64.76	101.14	79.7	101.12	84.68	100.93	99.63	100.98		
104.61	100.86	109.59	100.96	129.52	100.84	139.48	100.65	144.46	100.63		
154.42	100.88	169.37	100.64	179.33	100.6	184.31	100.5	194.27	100.58		
254.05	100.54	264.01	100.82	269	100.62	278.96	100.6	288.92	100.86		
293.9	100.8	298.88	100.87	303.86	101.11	313.83	100.85	318.81	100.93		
323.79	100.73	328.77	96.75	331.19	95.33	333.75	93.83	338.73	93.59		
343.72	91.34	348.7	89.91	353.68	90.13	358.66	90.2	363.64	91.73		
368.62	93.03	371.19	94.26	373.6	95.42	378.59	98.99	383.57	99.15		
388.55	100.35	393.53	100.52	403.49	100.59	408.47	100.81	418.44	100.94		

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488.18	101.13	493.16	101	498.14	100.61	503.12	100.44	513.08	100.41
523.05	99.78	528.03	99.75	537.99	99.95	547.95	99.8	552.93	99.86
567.88	100.6	572.86	100.77	612.71	100.95	622.67	100.85	632.64	101.07
667.51	100.94	702.38	101.04						

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 323.79 .045 388.55 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 323.79 388.55 443 443 443 .1 .3
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 323.79 100.73 F
 388.55 702.38 100.35 F

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	92.23	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	wt. n-val.		0.045
W.S. Elev (ft)	92.23	Reach Len. (ft)	443.00	443.00
443.00				
Crit w.s. (ft)	90.52	Flow Area (sq ft)		36.86
E.G. slope (ft/ft)	0.000127	Area (sq ft)		36.86
Q Total (cfs)	18.00	Flow (cfs)		18.00
Top width (ft)	23.79	Top width (ft)		23.79
vel Total (ft/s)	0.49	Avg. vel. (ft/s)		0.49
Max Chl Dpth (ft)	2.32	Hydr. Depth (ft)		1.55
Conv. Total (cfs)	1598.9	Conv. (cfs)		1598.9
Length wtd. (ft)	443.00	wetted Per. (ft)		24.48
Min Ch El (ft)	89.91	Shear (lb/sq ft)		0.01
Alpha	1.00	Stream Power (lb/ft s)	702.38	0.00
0.00				
Frctn Loss (ft)	0.08	Cum volume (acre-ft)		1.39
C & E Loss (ft)	0.00	Cum SA (acres)		1.04

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	92.59	Element	Left OB	Channel
Right OB				

SM102 OUTPUT REPORT.TXT				
Vel Head (ft)	0.00	wt. n-Val.		0.045
W.S. Elev (ft)	92.59	Reach Len. (ft)	443.00	443.00
443.00 Crit w.s. (ft)	90.62	Flow Area (sq ft)		45.83
E.G. Slope (ft/ft)	0.000133	Area (sq ft)		45.83
Q Total (cfs)	25.00	Flow (cfs)		25.00
Top width (ft)	25.97	Top width (ft)		25.97
Vel Total (ft/s)	0.55	Avg. Vel. (ft/s)		0.55
Max Chl Dpth (ft)	2.68	Hydr. Depth (ft)		1.76
Conv. Total (cfs)	2164.9	Conv. (cfs)		2164.9
Length wtd. (ft)	443.00	wetted Per. (ft)		26.78
Min Ch El (ft)	89.91	Shear (lb/sq ft)		0.01
Alpha 0.00	1.00	Stream Power (lb/ft s)	702.38	0.00
Frctn Loss (ft)	0.08	Cum volume (acre-ft)		1.78
C & E Loss (ft)	0.00	Cum SA (acres)		1.10

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	93.20	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	93.20	Reach Len. (ft)	443.00	443.00
443.00 Crit w.s. (ft)	90.81	Flow Area (sq ft)		62.75
E.G. Slope (ft/ft)	0.000149	Area (sq ft)		62.75
Q Total (cfs)	41.00	Flow (cfs)		41.00
Top width (ft)	29.37	Top width (ft)		29.37
Vel Total (ft/s)	0.65	Avg. Vel. (ft/s)		0.65
Max Chl Dpth (ft)	3.29	Hydr. Depth (ft)		2.14
Conv. Total (cfs)	3358.9	Conv. (cfs)		3358.9
Length wtd. (ft)	443.00	wetted Per. (ft)		30.41
Min Ch El (ft)	89.91	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	702.38	0.00

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Frctn Loss (ft)	0.07	Cum Volume (acre-ft)	2.48
C & E Loss (ft)	0.00	Cum SA (acres)	1.17

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	92.64	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-val.		0.045
W.S. Elev (ft)	92.64	Reach Len. (ft)	443.00	443.00
443.00 Crit w.s. (ft)	90.65	Flow Area (sq ft)		47.11
E.G. slope (ft/ft)	0.000144	Area (sq ft)		47.11
Q Total (cfs)	27.00	Flow (cfs)		27.00
Top width (ft)	26.27	Top width (ft)		26.27
vel Total (ft/s)	0.57	Avg. vel. (ft/s)		0.57
Max Chl Dpth (ft)	2.73	Hydr. Depth (ft)		1.79
Conv. Total (cfs)	2249.2	Conv. (cfs)		2249.2
Length wtd. (ft)	443.00	wetted Per. (ft)		27.10
Min Ch El (ft)	89.91	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	702.38	0.00
Frctn Loss (ft)	0.08	Cum volume (acre-ft)		1.83
C & E Loss (ft)	0.00	Cum SA (acres)		1.10

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	92.99	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-val.		0.045
W.S. Elev (ft)	92.98	Reach Len. (ft)	443.00	443.00
443.00 Crit w.s. (ft)	90.75	Flow Area (sq ft)		56.56
E.G. slope (ft/ft)	0.000146	Area (sq ft)		56.56
Q Total (cfs)	35.00	Flow (cfs)		35.00

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Top width (ft)	28.36	Top width (ft)	28.36
Vel Total (ft/s)	0.62	Avg. Vel. (ft/s)	0.62
Max Chl Dpth (ft)	3.07	Hydr. Depth (ft)	1.99
Conv. Total (cfs)	2894.9	Conv. (cfs)	2894.9
Length wtd. (ft)	443.00	wetted Per. (ft)	29.31
Min Ch El (ft)	89.91	Shear (lb/sq ft)	0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	702.38
Frctn Loss (ft)	0.08	Cum volume (acre-ft)	2.23
C & E Loss (ft)	0.00	Cum SA (acres)	1.15

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	93.61	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-val.		0.045
W.S. Elev (ft)	93.61	Reach Len. (ft)	443.00	443.00
443.00 Crit w.s. (ft)	90.94	Flow Area (sq ft)		75.12
E.G. slope (ft/ft)	0.000150	Area (sq ft)		75.12
Q Total (cfs)	53.00	Flow (cfs)		53.00
Top width (ft)	31.41	Top width (ft)		31.41
Vel Total (ft/s)	0.71	Avg. Vel. (ft/s)		0.71
Max Chl Dpth (ft)	3.70	Hydr. Depth (ft)		2.39
Conv. Total (cfs)	4324.8	Conv. (cfs)		4324.8
Length wtd. (ft)	443.00	wetted Per. (ft)		32.63
Min Ch El (ft)	89.91	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	702.38	0.00
Frctn Loss (ft)	0.07	Cum volume (acre-ft)		2.97
C & E Loss (ft)	0.00	Cum SA (acres)		1.23

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

SM102 OUTPUT REPORT.TXT

CROSS SECTION

RIVER: S-SM-102
 REACH: SM-102

RS: 1440

INPUT

Description:

Station Elevation Data		num= 77		Sta Elev		Sta Elev		Sta Elev		Sta Elev	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	102.04	19.93	102.07	29.89	102.3	34.87	102.29	44.83	102		
49.81	101.97	54.8	101.77	59.78	101.43	64.76	101.56	74.72	101.33		
79.7	101.38	89.67	101.26	99.63	100.95	114.57	100.9	124.53	101.1		
129.52	101.28	134.5	101.23	139.48	100.9	149.44	100.47	154.42	100.46		
159.4	101.12	164.39	101.95	169.37	101.7	174.35	101.67	189.29	101.23		
204.24	101.11	209.22	101	219.18	100.99	229.14	101.17	234.13	101		
249.07	100.96	264.01	100.82	278.96	100.87	283.94	100.8	298.88	100.91		
303.86	101.19	313.83	100.82	318.81	100.5	323.79	100.06	328.77	98.68		
331.19	97.11	333.75	95.45	338.73	92.2	343.72	90.58	348.7	90.47		
353.68	90.59	358.66	91.21	363.64	91.57	368.62	92.53	371.19	93.96		
373.6	95.3	378.59	98.17	383.57	100.03	393.53	100.34	413.46	100.52		
423.42	100.77	443.34	100.83	448.32	100.96	453.31	100.95	458.29	100.82		
478.21	100.88	483.19	100.79	503.12	100.88	508.1	100.69	542.97	100.82		
547.95	100.76	557.92	100.83	567.88	100.7	602.75	100.84	607.73	100.79		
617.69	100.88	627.65	100.91	637.62	100.83	642.6	100.89	647.58	100.78		
687.43	100.82	702.38	100.73								

Manning's n Values		num= 3		Sta n Val	
Sta	n Val	Sta	n Val	Sta	n Val
0	.06	323.79	.045	383.57	.06

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	323.79	383.57		274	287		.1	.3
Ineffective Flow	num= 2							
Sta L	Sta R	Elev	Permanent					
0	323.79	100.06	F					
383.57	702.38	100.03	F					

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	92.15	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	wt. n-val.		0.045
W.S. Elev (ft)	92.14	Reach Len. (ft)	274.00	287.00
276.00				
Crit w.s. (ft)	90.97	Flow Area (sq ft)		30.69
E.G. Slope (ft/ft)	0.000280	Area (sq ft)		30.69
Q Total (cfs)	18.00	Flow (cfs)		18.00
Top width (ft)	27.72	Top width (ft)		27.72
Vel Total (ft/s)	0.59	Avg. vel. (ft/s)		0.59
Max Chl Dpth (ft)	1.67	Hydr. Depth (ft)		1.11
Conv. Total (cfs)	1075.2	Conv. (cfs)		1075.2
Length wtd. (ft)	287.00	wetted Per. (ft)		28.08

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Min Ch El (ft)	90.47	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	702.38	0.00
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)		1.05
C & E Loss (ft)	0.00	Cum SA (acres)		0.77

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	92.52	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	92.51	Reach Len. (ft)	274.00	287.00
276.00 Crit w.s. (ft)	91.07	Flow Area (sq ft)		41.30
E.G. Slope (ft/ft)	0.000227	Area (sq ft)		41.30
Q Total (cfs)	25.00	Flow (cfs)		25.00
Top width (ft)	30.26	Top width (ft)		30.26
Vel Total (ft/s)	0.61	Avg. Vel. (ft/s)		0.61
Max Chl Dpth (ft)	2.04	Hydr. Depth (ft)		1.36
Conv. Total (cfs)	1660.2	Conv. (cfs)		1660.2
Length wtd. (ft)	287.00	wetted Per. (ft)		30.76
Min Ch El (ft)	90.47	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	702.38	0.00
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)		1.34
C & E Loss (ft)	0.00	Cum SA (acres)		0.81

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

SM102 OUTPUT REPORT.TXT				
		Element	Left OB	Channel
E.G. Elev (ft)	93.13			
Right OB				
Vel Head (ft)	0.01	wt. n-val.		0.045
W.S. Elev (ft)	93.12	Reach Len. (ft)	274.00	287.00
276.00				
Crit w.s. (ft)	91.26	Flow Area (sq ft)		60.47
E.G. Slope (ft/ft)	0.000189	Area (sq ft)		60.47
Q Total (cfs)	41.00	Flow (cfs)		41.00
Top width (ft)	32.37	Top width (ft)		32.37
Vel Total (ft/s)	0.68	Avg. Vel. (ft/s)		0.68
Max Chl Dpth (ft)	2.65	Hydr. Depth (ft)		1.87
Conv. Total (cfs)	2978.4	Conv. (cfs)		2978.4
Length wtd. (ft)	287.00	wetted Per. (ft)		33.20
Min Ch El (ft)	90.47	Shear (lb/sq ft)		0.02
Alpha	1.00	Stream Power (lb/ft s)	702.38	0.00
0.00				
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)		1.85
C & E Loss (ft)	0.00	Cum SA (acres)		0.86

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

		Element	Left OB	Channel
E.G. Elev (ft)	92.56			
Right OB				
Vel Head (ft)	0.01	wt. n-val.		0.045
W.S. Elev (ft)	92.55	Reach Len. (ft)	274.00	287.00
276.00				
Crit w.s. (ft)	91.09	Flow Area (sq ft)		42.63
E.G. Slope (ft/ft)	0.000241	Area (sq ft)		42.63
Q Total (cfs)	27.00	Flow (cfs)		27.00
Top width (ft)	30.48	Top width (ft)		30.48
Vel Total (ft/s)	0.63	Avg. Vel. (ft/s)		0.63
Max Chl Dpth (ft)	2.08	Hydr. Depth (ft)		1.40
Conv. Total (cfs)	1741.0	Conv. (cfs)		1741.0
Length wtd. (ft)	287.00	wetted Per. (ft)		30.99

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Min Ch El (ft)	90.47	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	702.38	0.00
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)		1.37
C & E Loss (ft)	0.00	Cum SA (acres)		0.81

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	92.91	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	92.91	Reach Len. (ft)	274.00	287.00
276.00 Crit w.s. (ft)	91.18	Flow Area (sq ft)		53.57
E.G. Slope (ft/ft)	0.000200	Area (sq ft)		53.57
Q Total (cfs)	35.00	Flow (cfs)		35.00
Top width (ft)	31.65	Top width (ft)		31.65
Vel Total (ft/s)	0.65	Avg. Vel. (ft/s)		0.65
Max Chl Dpth (ft)	2.44	Hydr. Depth (ft)		1.69
Conv. Total (cfs)	2475.7	Conv. (cfs)		2475.7
Length wtd. (ft)	287.00	wetted Per. (ft)		32.36
Min Ch El (ft)	90.47	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	702.38	0.00
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)		1.67
C & E Loss (ft)	0.00	Cum SA (acres)		0.84

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

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	93.54	Element	Left OB	Channel
E.G. Elev (ft)	93.54	Element		
Right OB				
Vel Head (ft)	0.01	Wt. n-Val.		0.045
W.S. Elev (ft)	93.53	Reach Len. (ft)	274.00	287.00
276.00				
Crit w.s. (ft)	91.38	Flow Area (sq ft)		74.10
E.G. Slope (ft/ft)	0.000171	Area (sq ft)		74.10
Q Total (cfs)	53.00	Flow (cfs)		53.00
Top width (ft)	33.74	Top width (ft)		33.74
Vel Total (ft/s)	0.72	Avg. Vel. (ft/s)		0.72
Max Chl Dpth (ft)	3.06	Hydr. Depth (ft)		2.20
Conv. Total (cfs)	4049.8	Conv. (cfs)		4049.8
Length wtd. (ft)	287.00	Wetted Per. (ft)		34.80
Min Ch El (ft)	90.47	Shear (lb/sq ft)		0.02
Alpha	1.00	Stream Power (lb/ft s)	702.38	0.00
0.00				
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)		2.21
C & E Loss (ft)	0.00	Cum SA (acres)		0.89

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: S-SM-102

REACH: SM-102

RS: 1152

INPUT

Description:

Station Elevation Data		num=		63							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	102.41	9.99	102.34	14.98	102.11	19.98	101.75	29.97	101.32		
34.96	101.22	39.96	101.23	54.94	100.88	74.92	101.08	79.91	101.23		
89.9	101.22	124.87	101.65	144.84	101.24	184.8	101.62	224.76	101.26		
239.74	101.38	244.74	101.3	249.73	100.95	254.73	100.75	259.72	101.14		
264.72	101.01	269.71	99.79	274.7	95.67	279.7	91.6	284.69	91.3		
289.69	89.79	294.68	89.74	299.68	90.08	303.83	90.17	304.67	90.18		
309.67	91.68	314.66	94.78	319.66	97.42	324.65	100.39	339.63	100.33		
344.63	100.46	354.62	100.54	364.61	100.79	379.59	100.75	384.59	100.6		
394.58	100.59	399.57	100.71	434.53	100.59	439.53	100.73	464.5	100.7		
474.49	100.83	529.43	100.83	539.42	101.02	569.39	100.82	584.37	100.96		
634.32	100.54	649.3	100.53	654.3	100.43	664.28	100.52	669.26	100.37		
679.23	100.44	684.21	100.33	699.17	100.43	704.15	100.32	714.12	100.31		
729.07	100.13	739.04	100.36	744.02	100.28						

SM102 OUTPUT REPORT.TXT

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 264.72 .045 324.65 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 264.72 324.65 331 331 333 .1 .3
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 0 264.72 101.01 F
 324.65 744.02 100.39 F

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	92.06	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	92.05	Reach Len. (ft)	331.00	331.00
333.00				
Crit w.s. (ft)	90.48	Flow Area (sq ft)		48.13
E.G. Slope (ft/ft)	0.000313	Area (sq ft)		48.13
Q Total (cfs)	37.00	Flow (cfs)		37.00
Top width (ft)	31.13	Top width (ft)		31.13
Vel Total (ft/s)	0.77	Avg. Vel. (ft/s)		0.77
Max Chl Dpth (ft)	2.31	Hydr. Depth (ft)		1.55
Conv. Total (cfs)	2092.4	Conv. (cfs)		2092.4
Length wtd. (ft)	331.00	wetted Per. (ft)		31.86
Min ch El (ft)	89.74	Shear (lb/sq ft)		0.03
Alpha	1.00	Stream Power (lb/ft s)	744.02	0.00
0.00				
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)		0.79
C & E Loss (ft)	0.00	Cum SA (acres)		0.58

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	92.43	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	92.42	Reach Len. (ft)	331.00	331.00
333.00				
Crit w.s. (ft)	90.63	Flow Area (sq ft)		59.72

SM102 OUTPUT REPORT.TXT

E.G. Slope (ft/ft)	0.000329	Area (sq ft)		59.72
Q Total (cfs)	53.00	Flow (cfs)		53.00
Top width (ft)	32.17	Top width (ft)		32.17
Vel Total (ft/s)	0.89	Avg. Vel. (ft/s)		0.89
Max Chl Dpth (ft)	2.68	Hydr. Depth (ft)		1.86
Conv. Total (cfs)	2920.3	Conv. (cfs)		2920.3
Length wtd. (ft)	331.00	wetted Per. (ft)		33.14
Min Ch El (ft)	89.74	Shear (lb/sq ft)		0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	744.02	0.00
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)		1.01
C & E Loss (ft)	0.00	Cum SA (acres)		0.60

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	93.05	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-Val.		0.045
w.s. Elev (ft)	93.03	Reach Len. (ft)	331.00	331.00
333.00 Crit w.s. (ft)	90.87	Flow Area (sq ft)		79.87
E.G. Slope (ft/ft)	0.000349	Area (sq ft)		79.87
Q Total (cfs)	85.00	Flow (cfs)		85.00
Top width (ft)	33.90	Top width (ft)		33.90
Vel Total (ft/s)	1.06	Avg. Vel. (ft/s)		1.06
Max Chl Dpth (ft)	3.29	Hydr. Depth (ft)		2.36
Conv. Total (cfs)	4549.2	Conv. (cfs)		4549.2
Length wtd. (ft)	331.00	wetted Per. (ft)		35.26
Min Ch El (ft)	89.74	Shear (lb/sq ft)		0.05
Alpha 0.00	1.00	Stream Power (lb/ft s)	744.02	0.00
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)		1.39
C & E Loss (ft)	0.00	Cum SA (acres)		0.64

SM102 OUTPUT REPORT.TXT

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	92.47	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.045
W.S. Elev (ft)	92.46	Reach Len. (ft)	331.00	331.00
333.00 Crit w.s. (ft)	90.65	Flow Area (sq ft)		61.07
E.G. Slope (ft/ft)	0.000331	Area (sq ft)		61.07
Q Total (cfs)	55.00	Flow (cfs)		55.00
Top width (ft)	32.29	Top width (ft)		32.29
Vel Total (ft/s)	0.90	Avg. Vel. (ft/s)		0.90
Max chl Dpth (ft)	2.72	Hydr. Depth (ft)		1.89
Conv. Total (cfs)	3022.4	Conv. (cfs)		3022.4
Length wtd. (ft)	331.00	wetted Per. (ft)		33.28
Min ch El (ft)	89.74	Shear (lb/sq ft)		0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	744.02	0.00
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)		1.03
C & E Loss (ft)	0.00	Cum SA (acres)		0.61

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	92.83	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-Val.		0.045
W.S. Elev (ft)	92.81	Reach Len. (ft)	331.00	331.00
333.00 Crit w.s. (ft)	90.78	Flow Area (sq ft)		72.65
E.G. Slope (ft/ft)	0.000343	Area (sq ft)		72.65
Q Total (cfs)	73.00	Flow (cfs)		73.00
Top width (ft)	33.29	Top width (ft)		33.29
Vel Total (ft/s)	1.00	Avg. Vel. (ft/s)		1.00

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Max Chl Dpth (ft)	3.07	Hydr. Depth (ft)		2.18
Conv. Total (cfs)	3940.5	Conv. (cfs)		3940.5
Length Wtd. (ft)	331.00	Wetted Per. (ft)		34.51
Min Ch El (ft)	89.74	Shear (lb/sq ft)		0.05
Alpha 0.00	1.00	Stream Power (lb/ft s)	744.02	0.00
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)		1.25
C & E Loss (ft)	0.00	Cum SA (acres)		0.63

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	93.46	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-Val.		0.045
W.S. Elev (ft)	93.44	Reach Len. (ft)	331.00	331.00
333.00 Crit W.S. (ft)	91.04	Flow Area (sq ft)		94.05
E.G. Slope (ft/ft)	0.000358	Area (sq ft)		94.05
Q Total (cfs)	110.00	Flow (cfs)		110.00
Top width (ft)	35.07	Top width (ft)		35.07
Vel Total (ft/s)	1.17	Avg. Vel. (ft/s)		1.17
Max Chl Dpth (ft)	3.70	Hydr. Depth (ft)		2.68
Conv. Total (cfs)	5817.3	Conv. (cfs)		5817.3
Length Wtd. (ft)	331.00	Wetted Per. (ft)		36.69
Min Ch El (ft)	89.74	Shear (lb/sq ft)		0.06
Alpha 0.00	1.00	Stream Power (lb/ft s)	744.02	0.00
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)		1.66
C & E Loss (ft)	0.00	Cum SA (acres)		0.67

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: S-SM-102

SM102 OUTPUT REPORT.TXT

REACH: SM-102

RS: 821

INPUT

Description:

Station Elevation Data		num= 99							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	101.46	4.98	101.29	9.96	101.28	14.93	101.42	19.91	101.23
24.89	100.87	34.85	100.71	39.82	100.43	44.8	100.34	49.78	100.39
79.65	100.22	129.43	100.27	139.39	100.13	144.36	99.93	149.34	99.86
154.32	99.94	164.28	99.95	169.25	100.17	189.17	100.35	199.12	100.69
204.1	100.63	214.06	99.88	219.03	99.61	233.97	99.63	238.95	99.77
243.92	99.78	248.9	99.91	263.84	99.9	268.81	100.15	273.79	99.34
275.19	98.13	278.77	95.02	283.75	91.26	288.73	91.24	293.7	90.41
298.68	90.04	303.66	90.37	308.64	90.39	313.62	91.2	315.21	91.96
318.6	93.56	323.57	96.89	328.55	97.3	333.53	100.1	338.51	100.68
343.49	100.86	348.46	100.8	353.44	100.57	358.42	100.16	378.33	99.66
383.31	99.63	388.29	99.71	393.27	99.93	423.13	99.71	443.05	99.93
467.94	99.74	477.89	99.92	487.85	99.89	497.8	100.07	512.74	100.07
522.7	99.91	532.65	99.91	542.61	99.65	562.52	99.67	567.5	99.61
587.41	99.74	592.39	99.64	622.26	99.63	627.23	99.73	637.19	99.58
647.15	99.7	652.12	99.55	657.1	99.71	667.06	99.66	686.97	99.9
691.95	100.08	701.9	100.09	706.88	100.17	711.86	99.95	716.84	99.94
721.82	100.05	746.71	100.25	766.62	100.11	771.6	100.18	781.55	99.86
801.47	99.77	816.4	99.87	821.38	99.76	836.31	99.87	846.27	100.07
851.25	100.06	861.2	99.87	901.03	100.08	906	100.21	915.96	100.68
930.89	100.63	940.85	100.82	950.81	101.11	960.76	101.21		

Manning's n Values		num= 3			
Sta	n Val	Sta	n Val	Sta	n Val
0	.06	273.79	.045	333.53	.06

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	273.79	333.53		473	473		.1	.3
Ineffective Flow	num= 2							
Sta L	Sta R	Elev	Permanent					
0	268.8	100.1	F					
333.53	960.76	100.1	F					

CROSS SECTION OUTPUT Profile #EX 10Y

E.G. Elev (ft)	91.92	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	wt. n-Val.		0.045
w.s. Elev (ft)	91.91	Reach Len. (ft)	473.00	473.00
473.00 Crit w.s. (ft)	90.83	Flow Area (sq ft)		39.44
E.G. Slope (ft/ft)	0.000630	Area (sq ft)		39.44
Q Total (cfs)	37.00	Flow (cfs)		37.00
Top width (ft)	32.21	Top width (ft)		32.21
Vel Total (ft/s)	0.94	Avg. Vel. (ft/s)		0.94
Max chl Dpth (ft)	1.87	Hydr. Depth (ft)		1.22
Conv. Total (cfs)	1474.1	Conv. (cfs)		1474.1
Length wtd. (ft)	473.00	wetted Per. (ft)		32.74

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Min Ch El (ft)	90.04	Shear (lb/sq ft)		0.05
Alpha 0.00	1.00	Stream Power (lb/ft s)	960.76	0.00
Frctn Loss (ft)	0.23	Cum Volume (acre-ft)		0.45
C & E Loss (ft)	0.00	Cum SA (acres)		0.34

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

E.G. Elev (ft)	92.29	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-Val.		0.045
W.S. Elev (ft)	92.28	Reach Len. (ft)	473.00	473.00
473.00 Crit w.s. (ft)	90.97	Flow Area (sq ft)		51.55
E.G. Slope (ft/ft)	0.000561	Area (sq ft)		51.55
Q Total (cfs)	53.00	Flow (cfs)		53.00
Top width (ft)	33.47	Top width (ft)		33.47
Vel Total (ft/s)	1.03	Avg. Vel. (ft/s)		1.03
Max Chl Dpth (ft)	2.24	Hydr. Depth (ft)		1.54
Conv. Total (cfs)	2236.9	Conv. (cfs)		2236.9
Length wtd. (ft)	473.00	wetted Per. (ft)		34.22
Min Ch El (ft)	90.04	Shear (lb/sq ft)		0.05
Alpha 0.00	1.00	Stream Power (lb/ft s)	960.76	0.00
Frctn Loss (ft)	0.22	Cum Volume (acre-ft)		0.58
C & E Loss (ft)	0.00	Cum SA (acres)		0.35

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	92.91	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-Val.		0.045
W.S. Elev (ft)	92.89	Reach Len. (ft)	473.00	473.00
473.00 Crit w.s. (ft)	91.20	Flow Area (sq ft)		72.72

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E.G. Slope (ft/ft)	0.000503	Area (sq ft)		72.72
Q Total (cfs)	85.00	Flow (cfs)		85.00
Top width (ft)	35.59	Top width (ft)		35.59
Vel Total (ft/s)	1.17	Avg. Vel. (ft/s)		1.17
Max Chl Dpth (ft)	2.85	Hydr. Depth (ft)		2.04
Conv. Total (cfs)	3790.5	Conv. (cfs)		3790.5
Length wtd. (ft)	473.00	wetted Per. (ft)		36.67
Min Ch El (ft)	90.04	Shear (lb/sq ft)		0.06
Alpha 0.00	1.00	Stream Power (lb/ft s)	960.76	0.00
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)		0.81
C & E Loss (ft)	0.00	Cum SA (acres)		0.38

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	92.33	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-Val.		0.045
w.s. Elev (ft)	92.32	Reach Len. (ft)	473.00	473.00
473.00 Crit w.s. (ft)	90.98	Flow Area (sq ft)		52.96
E.G. Slope (ft/ft)	0.000556	Area (sq ft)		52.96
Q Total (cfs)	55.00	Flow (cfs)		55.00
Top width (ft)	33.62	Top width (ft)		33.62
Vel Total (ft/s)	1.04	Avg. Vel. (ft/s)		1.04
Max Chl Dpth (ft)	2.28	Hydr. Depth (ft)		1.58
Conv. Total (cfs)	2332.4	Conv. (cfs)		2332.4
Length wtd. (ft)	473.00	wetted Per. (ft)		34.38
Min Ch El (ft)	90.04	Shear (lb/sq ft)		0.05
Alpha 0.00	1.00	Stream Power (lb/ft s)	960.76	0.00
Frctn Loss (ft)	0.22	Cum Volume (acre-ft)		0.60
C & E Loss (ft)	0.00	Cum SA (acres)		0.36

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Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

E.G. Elev (ft)	92.69	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-Val.		0.045
W.S. Elev (ft)	92.67	Reach Len. (ft)	473.00	473.00
473.00 Crit w.s. (ft)	91.11	Flow Area (sq ft)		65.13
E.G. Slope (ft/ft)	0.000519	Area (sq ft)		65.13
Q Total (cfs)	73.00	Flow (cfs)		73.00
Top width (ft)	34.84	Top width (ft)		34.84
Vel Total (ft/s)	1.12	Avg. Vel. (ft/s)		1.12
Max chl Dpth (ft)	2.63	Hydr. Depth (ft)		1.87
Conv. Total (cfs)	3204.6	Conv. (cfs)		3204.6
Length wtd. (ft)	473.00	wetted Per. (ft)		35.81
Min ch El (ft)	90.04	Shear (lb/sq ft)		0.06
Alpha 0.00	1.00	Stream Power (lb/ft s)	960.76	0.00
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)		0.73
C & E Loss (ft)	0.00	Cum SA (acres)		0.37

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

E.G. Elev (ft)	93.33	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-Val.		0.045
W.S. Elev (ft)	93.30	Reach Len. (ft)	473.00	473.00
473.00 Crit w.s. (ft)	91.37	Flow Area (sq ft)		87.71
E.G. Slope (ft/ft)	0.000478	Area (sq ft)		87.71
Q Total (cfs)	110.00	Flow (cfs)		110.00
Top width (ft)	37.01	Top width (ft)		37.01
Vel Total (ft/s)	1.25	Avg. Vel. (ft/s)		1.25

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Max Chl Dpth (ft)	3.26	Hydr. Depth (ft)	2.37
Conv. Total (cfs)	5030.0	Conv. (cfs)	5030.0
Length Wtd. (ft)	473.00	Wetted Per. (ft)	38.32
Min Ch El (ft)	90.04	Shear (lb/sq ft)	0.07
Alpha 0.00	1.00	Stream Power (lb/ft s)	960.76
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	0.97
C & E Loss (ft)	0.00	Cum SA (acres)	0.39

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: S-SM-102
 REACH: SM-102 RS: 348

INPUT

Description:

Station	Elevation	Data	num=	125					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	100.46	4.98	100.45	9.96	100.56	24.89	100.57	29.87	100.32
34.85	99.81	44.8	99.94	49.78	100.24	74.67	100.24	79.65	100.04
84.63	100.03	89.6	99.84	94.58	99.75	119.47	99.72	124.45	99.58
129.43	99.59	134.41	99.72	139.39	99.73	144.36	99.56	149.34	99.55
164.28	99.86	179.21	99.86	184.19	99.98	199.12	99.83	204.1	99.98
209.08	99.67	214.06	99.61	219.03	99.39	224.01	99.32	238.95	99.54
243.92	99.35	258.86	99.24	263.84	98.42	265.41	97.42	268.81	95.25
273.79	91.77	278.77	90.68	283.75	90.08	288.73	89.6	293.7	89.61
298.68	89.73	303.66	91.29	305.43	92.16	308.64	93.75	313.62	96.97
318.6	98.55	323.57	100.02	328.55	101.28	333.53	101.55	338.51	101.68
343.49	101.41	348.46	100.9	353.44	101.21	358.42	101.73	363.4	101.12
368.38	100.19	373.35	99.98	383.31	99.97	388.29	100.09	403.22	100.95
408.2	100.73	413.18	100.36	423.13	99.98	428.11	99.91	433.09	99.73
448.02	99.82	457.98	100.12	467.94	99.95	472.91	99.98	477.89	100.12
487.85	100.03	497.8	100.2	502.78	99.88	512.74	99.96	517.72	100.17
522.7	100.95	527.67	101.44	532.65	101.48	542.61	102.75	547.59	102.57
552.56	102.25	557.54	102.25	562.52	101.53	572.48	101.01	577.45	100.99
582.43	100.73	587.41	100.88	592.39	101.33	597.37	101.46	602.34	100.79
607.32	100.66	612.3	100.91	617.28	100.95	632.21	100.66	637.19	101.04
642.17	101.15	647.15	100.99	652.12	100.96	667.06	101.24	681.99	101.38
686.97	101.73	696.93	101.3	706.88	101.21	716.84	101.52	726.79	101.06
741.73	101.07	756.66	100.83	771.6	101.01	781.55	101.37	791.51	101.45
796.49	101.57	801.47	101.53	806.44	101.28	816.4	101.47	851.25	101.43
871.16	101.67	886.09	101.67	901.03	101.91	910.98	101.93	920.94	102.12
930.89	102.07	935.87	102.14	940.85	102.04	945.83	102.14	960.76	102.1

Manning's n Values	num=	3			
Sta	n Val	Sta	n Val	Sta	n Val
0	.06	258.86	.045	323.57	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.	Expan.
258.86	323.57	340	348	355	.1	.3	
Ineffective Flow	num=	2					

SM102 OUTPUT REPORT.TXT

Sta L	Sta R	Elev	Permanent
0	258.86	99.24	F
338	960.76	101.6	F

CROSS SECTION OUTPUT Profile #EX 10Y

		Element	Left OB	Channel
E.G. Elev (ft)	91.68			
Right OB				
Vel Head (ft)	0.01	wt. n-val.		0.045
W.S. Elev (ft)	91.67	Reach Len. (ft)		
Crit W.S. (ft)	90.27	Flow Area (sq ft)		44.04
E.G. slope (ft/ft)	0.000400	Area (sq ft)		44.04
Q Total (cfs)	37.00	Flow (cfs)		37.00
Top width (ft)	30.21	Top width (ft)		30.21
Vel Total (ft/s)	0.84	Avg. vel. (ft/s)		0.84
Max Chl Dpth (ft)	2.07	Hydr. Depth (ft)		1.46
Conv. Total (cfs)	1849.5	Conv. (cfs)		1849.5
Length wtd. (ft)		wetted Per. (ft)		30.71
Min Ch El (ft)	89.60	Shear (lb/sq ft)		0.04
Alpha	1.00	Stream Power (lb/ft s)	960.76	0.00
0.00		Cum volume (acre-ft)		
Frctn Loss (ft)		Cum SA (acres)		
C & E Loss (ft)				

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 25Y

		Element	Left OB	Channel
E.G. Elev (ft)	92.07			
Right OB				
Vel Head (ft)	0.01	wt. n-val.		0.045
W.S. Elev (ft)	92.05	Reach Len. (ft)		
Crit W.S. (ft)	90.42	Flow Area (sq ft)		55.89
E.G. slope (ft/ft)	0.000401	Area (sq ft)		55.89
Q Total (cfs)	53.00	Flow (cfs)		53.00
Top width (ft)	31.83	Top width (ft)		31.83
Vel Total (ft/s)	0.95	Avg. vel. (ft/s)		0.95
Max Chl Dpth (ft)	2.45	Hydr. Depth (ft)		1.76

SM102 OUTPUT REPORT.TXT

Conv. Total (cfs)	2648.0	Conv. (cfs)		2648.0
Length wtd. (ft)		wetted Per. (ft)		32.52
Min Ch El (ft)	89.60	Shear (lb/sq ft)		0.04
Alpha	1.00	Stream Power (lb/ft s)	960.76	0.00
0.00 Frctn Loss (ft)		Cum Volume (acre-ft)		
C & E Loss (ft)		Cum SA (acres)		

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #EX 100Y

E.G. Elev (ft)	92.70	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	wt. n-val.		0.045
w.s. Elev (ft)	92.68	Reach Len. (ft)		
Crit w.s. (ft)	90.67	Flow Area (sq ft)		76.43
E.G. slope (ft/ft)	0.000401	Area (sq ft)		76.43
Q Total (cfs)	85.00	Flow (cfs)		85.00
Top width (ft)	33.99	Top width (ft)		33.99
vel Total (ft/s)	1.11	Avg. vel. (ft/s)		1.11
Max Chl Dpth (ft)	3.08	Hydr. Depth (ft)		2.25
Conv. Total (cfs)	4246.7	Conv. (cfs)		4246.7
Length wtd. (ft)		wetted Per. (ft)		35.01
Min Ch El (ft)	89.60	Shear (lb/sq ft)		0.05
Alpha	1.00	Stream Power (lb/ft s)	960.76	0.00
0.00 Frctn Loss (ft)		Cum Volume (acre-ft)		
C & E Loss (ft)		Cum SA (acres)		

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 10Y

E.G. Elev (ft)	92.11	Element	Left OB	Channel
Right OB				

SM102 OUTPUT REPORT.TXT			
Vel Head (ft)	0.01	Wt. n-Val.	0.045
W.S. Elev (ft)	92.10	Reach Len. (ft)	
Crit W.S. (ft)	90.44	Flow Area (sq ft)	57.26
E.G. Slope (ft/ft)	0.000401	Area (sq ft)	57.26
Q Total (cfs)	55.00	Flow (cfs)	55.00
Top Width (ft)	31.98	Top Width (ft)	31.98
Vel Total (ft/s)	0.96	Avg. Vel. (ft/s)	0.96
Max Chl Dpth (ft)	2.50	Hydr. Depth (ft)	1.79
Conv. Total (cfs)	2747.6	Conv. (cfs)	2747.6
Length Wtd. (ft)		Wetted Per. (ft)	32.69
Min Ch El (ft)	89.60	Shear (lb/sq ft)	0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	960.76
Frctn Loss (ft)		Cum Volume (acre-ft)	0.00
C & E Loss (ft)		Cum SA (acres)	

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 25Y

		Element	Left OB	Channel
E.G. Elev (ft)	92.48			
Right OB Vel Head (ft)	0.02	Wt. n-Val.		0.045
W.S. Elev (ft)	92.46	Reach Len. (ft)		
Crit W.S. (ft)	90.59	Flow Area (sq ft)		69.08
E.G. Slope (ft/ft)	0.000400	Area (sq ft)		69.08
Q Total (cfs)	73.00	Flow (cfs)		73.00
Top Width (ft)	33.23	Top Width (ft)		33.23
Vel Total (ft/s)	1.06	Avg. Vel. (ft/s)		1.06
Max Chl Dpth (ft)	2.86	Hydr. Depth (ft)		2.08
Conv. Total (cfs)	3649.4	Conv. (cfs)		3649.4
Length Wtd. (ft)		Wetted Per. (ft)		34.14
Min Ch El (ft)	89.60	Shear (lb/sq ft)		0.05
Alpha 0.00	1.00	Stream Power (lb/ft s)	960.76	0.00

SM102 OUTPUT REPORT.TXT
 Cum Volume (acre-ft)
 Cum SA (acres)

Frctn Loss (ft)
 C & E Loss (ft)

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #ULT 100Y

		Element	Left OB	Channel
E.G. Elev (ft)	93.12			
Right OB				
Vel Head (ft)	0.02	wt. n-val.		0.045
w.s. Elev (ft)	93.10	Reach Len. (ft)		
Crit w.s. (ft)	90.82	Flow Area (sq ft)		90.93
E.G. slope (ft/ft)	0.000400	Area (sq ft)		90.93
Q Total (cfs)	110.00	Flow (cfs)		110.00
Top width (ft)	35.43	Top width (ft)		35.43
vel Total (ft/s)	1.21	Avg. vel. (ft/s)		1.21
Max Chl Dpth (ft)	3.50	Hydr. Depth (ft)		2.57
Conv. Total (cfs)	5499.4	Conv. (cfs)		5499.4
Length wtd. (ft)		wetted Per. (ft)		36.68
Min Ch El (ft)	89.60	Shear (lb/sq ft)		0.06
Alpha	1.00	Stream Power (lb/ft s)	960.76	0.00
0.00				
Frctn Loss (ft)		Cum volume (acre-ft)		
C & E Loss (ft)		Cum SA (acres)		

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

SUMMARY OF MANNING'S N VALUES

River:S-SM-102

Reach	River Sta.	n1	n2	n3
SM-102	3753	.06	.045	.06
SM-102	3416	.06	.045	.06
SM-102	3208	.06	.045	.06
SM-102	2776	.06	.045	.06
SM-102	2399	.06	.045	.06
SM-102	1882	.06	.045	.06

SM102 OUTPUT REPORT.TXT

SM-102	1440	.06	.045	.06
SM-102	1152	.06	.045	.06
SM-102	821	.06	.045	.06
SM-102	348	.06	.045	.06

SUMMARY OF REACH LENGTHS

River: S-SM-102

Reach	River Sta.	Left	Channel	Right
SM-102	3753	337	337	337
SM-102	3416	209	209	209
SM-102	3208	432	432	432
SM-102	2776	377	377	377
SM-102	2399	517	517	517
SM-102	1882	443	443	443
SM-102	1440	274	287	276
SM-102	1152	331	331	333
SM-102	821	473	473	473
SM-102	348	340	348	355

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS

River: S-SM-102

Reach	River Sta.	Contr.	Expan.
SM-102	3753	.1	.3
SM-102	3416	.1	.3
SM-102	3208	.1	.3
SM-102	2776	.1	.3
SM-102	2399	.1	.3
SM-102	1882	.1	.3
SM-102	1440	.1	.3
SM-102	1152	.1	.3
SM-102	821	.1	.3
SM-102	348	.1	.3

Profile Output Table - Table 1

Reach Vel Chnl (ft/s)	River Sta Flow Area (sq ft)	Profile Top width (ft)	Q Total Volume (cfs) (acre-ft)	W.S. Elev (ft)	E.G. Elev (ft)	Min Ch El (ft)
SM-102 0.84	348 44.04	EX 10Y 30.21	37.00	91.67	91.68	89.60
SM-102 0.95	348 55.89	EX 25Y 31.83	53.00	92.05	92.07	89.60
SM-102 1.11	348 76.43	EX 100Y 33.99	85.00	92.68	92.70	89.60
SM-102 0.96	348 57.26	ULT 10Y 31.98	55.00	92.10	92.11	89.60

SM102 OUTPUT REPORT.TXT

SM-102	348	ULT 25Y	73.00	92.46	92.48	89.60
1.06	69.08	33.23				
SM-102	348	ULT 100Y	110.00	93.10	93.12	89.60
1.21	90.93	35.43				
SM-102	821	EX 10Y	37.00	91.91	91.92	90.04
0.94	39.44	32.21	0.45			
SM-102	821	EX 25Y	53.00	92.28	92.29	90.04
1.03	51.55	33.47	0.58			
SM-102	821	EX 100Y	85.00	92.89	92.91	90.04
1.17	72.72	35.59	0.81			
SM-102	821	ULT 10Y	55.00	92.32	92.33	90.04
1.04	52.96	33.62	0.60			
SM-102	821	ULT 25Y	73.00	92.67	92.69	90.04
1.12	65.13	34.84	0.73			
SM-102	821	ULT 100Y	110.00	93.30	93.33	90.04
1.25	87.71	37.01	0.97			
SM-102	1152	EX 10Y	37.00	92.05	92.06	89.74
0.77	48.13	31.13	0.79			
SM-102	1152	EX 25Y	53.00	92.42	92.43	89.74
0.89	59.72	32.17	1.01			
SM-102	1152	EX 100Y	85.00	93.03	93.05	89.74
1.06	79.87	33.90	1.39			
SM-102	1152	ULT 10Y	55.00	92.46	92.47	89.74
0.90	61.07	32.29	1.03			
SM-102	1152	ULT 25Y	73.00	92.81	92.83	89.74
1.00	72.65	33.29	1.25			
SM-102	1152	ULT 100Y	110.00	93.44	93.46	89.74
1.17	94.05	35.07	1.66			
SM-102	1440	EX 10Y	18.00	92.14	92.15	90.47
0.59	30.69	27.72	1.05			
SM-102	1440	EX 25Y	25.00	92.51	92.52	90.47
0.61	41.30	30.26	1.34			
SM-102	1440	EX 100Y	41.00	93.12	93.13	90.47
0.68	60.47	32.37	1.85			
SM-102	1440	ULT 10Y	27.00	92.55	92.56	90.47
0.63	42.63	30.48	1.37			
SM-102	1440	ULT 25Y	35.00	92.91	92.91	90.47
0.65	53.57	31.65	1.67			
SM-102	1440	ULT 100Y	53.00	93.53	93.54	90.47
0.72	74.10	33.74	2.21			
SM-102	1882	EX 10Y	18.00	92.23	92.23	89.91
0.49	36.86	23.79	1.39			
SM-102	1882	EX 25Y	25.00	92.59	92.59	89.91
0.55	45.83	25.97	1.78			
SM-102	1882	EX 100Y	41.00	93.20	93.20	89.91
0.65	62.75	29.37	2.48			
SM-102	1882	ULT 10Y	27.00	92.64	92.64	89.91
0.57	47.11	26.27	1.83			
SM-102	1882	ULT 25Y	35.00	92.98	92.99	89.91
0.62	56.56	28.36	2.23			
SM-102	1882	ULT 100Y	53.00	93.61	93.61	89.91
0.71	75.12	31.41	2.97			
SM-102	2399	EX 10Y	18.00	92.28	92.28	89.68

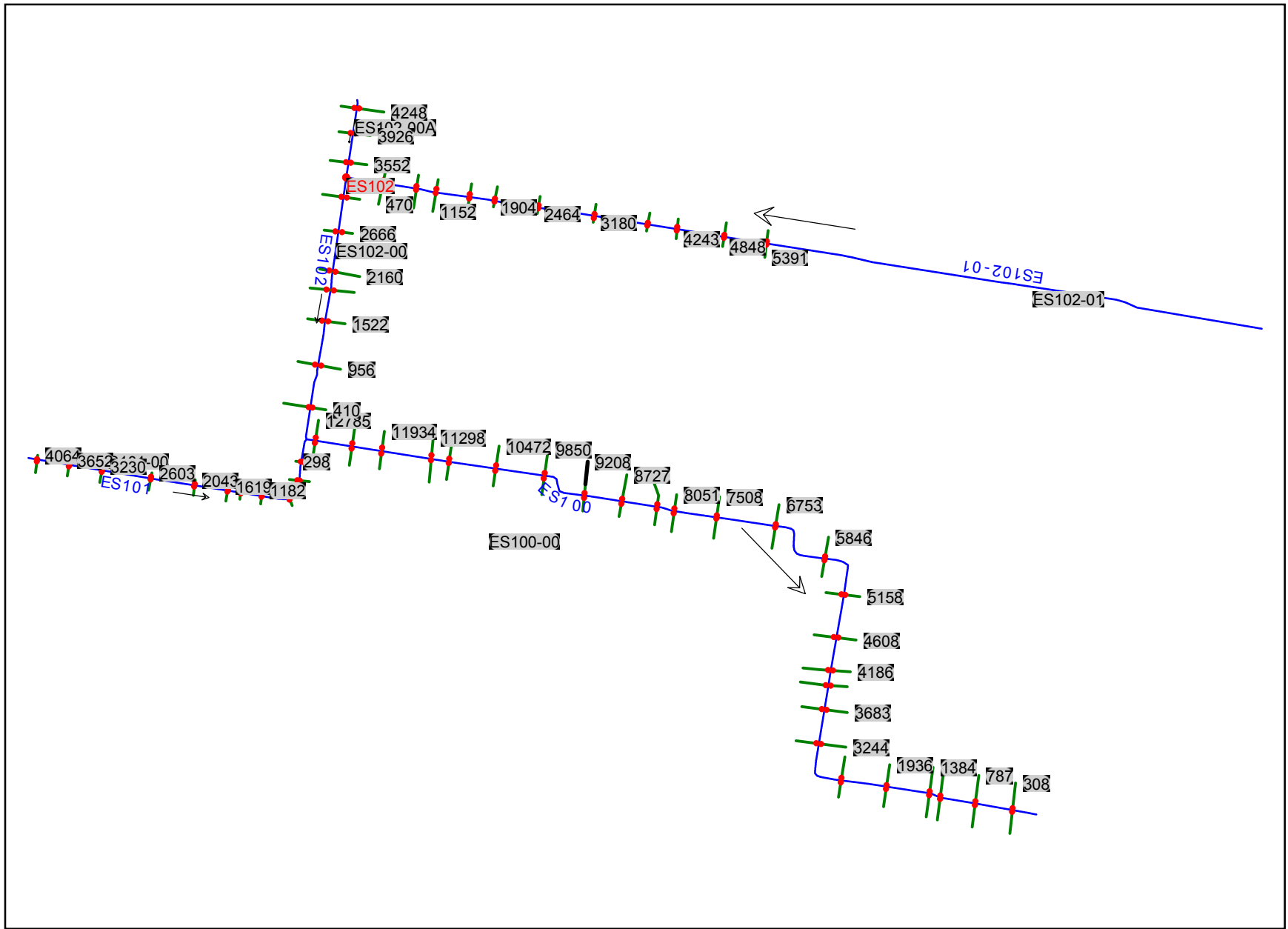
SM102 OUTPUT REPORT.TXT

0.40	44.54	24.87	1.87			
SM-102	2399	EX 25Y	25.00	92.64	92.64	89.68
0.46	53.84	26.18	2.37			
SM-102	2399	EX 100Y	41.00	93.26	93.26	89.68
0.58	70.62	27.96	3.27			
SM-102	2399	ULT 10Y	27.00	92.69	92.70	89.68
0.49	55.26	26.37	2.44			
SM-102	2399	ULT 25Y	35.00	93.04	93.05	89.68
0.54	64.62	27.40	2.95			
SM-102	2399	ULT 100Y	53.00	93.67	93.68	89.68
0.64	82.33	29.01	3.91			
SM-102	2776	EX 10Y	18.00	92.30	92.30	89.78
0.38	47.16	26.10	2.27			
SM-102	2776	EX 25Y	25.00	92.67	92.67	89.78
0.44	56.96	27.31	2.85			
SM-102	2776	EX 100Y	41.00	93.29	93.30	89.78
0.55	74.66	29.37	3.90			
SM-102	2776	ULT 10Y	27.00	92.73	92.73	89.78
0.46	58.50	27.50	2.93			
SM-102	2776	ULT 25Y	35.00	93.08	93.08	89.78
0.51	68.32	28.65	3.52			
SM-102	2776	ULT 100Y	53.00	93.71	93.71	89.78
0.61	87.08	30.74	4.64			
SM-102	3208	EX 10Y	18.00	92.37	92.39	91.33
1.11	16.21	23.96	2.58			
SM-102	3208	EX 25Y	25.00	92.74	92.75	91.33
0.99	25.32	25.79	3.26			
SM-102	3208	EX 100Y	41.00	93.36	93.38	91.33
0.96	42.61	31.34	4.48			
SM-102	3208	ULT 10Y	27.00	92.80	92.81	91.33
1.00	26.88	26.09	3.35			
SM-102	3208	ULT 25Y	35.00	93.14	93.16	91.33
0.97	36.26	27.83	4.04			
SM-102	3208	ULT 100Y	53.00	93.78	93.79	91.33
0.94	56.67	34.96	5.35			
SM-102	3416	EX 10Y	18.00	92.51	92.52	90.80
0.63	28.37	23.90	2.69			
SM-102	3416	EX 25Y	25.00	92.84	92.85	90.80
0.68	36.52	25.71	3.41			
SM-102	3416	EX 100Y	41.00	93.45	93.45	90.80
0.78	52.74	27.95	4.71			
SM-102	3416	ULT 10Y	27.00	92.90	92.91	90.80
0.71	38.09	25.99	3.51			
SM-102	3416	ULT 25Y	35.00	93.23	93.24	90.80
0.75	46.79	27.17	4.24			
SM-102	3416	ULT 100Y	53.00	93.84	93.86	90.80
0.83	64.20	29.39	5.64			
SM-102	3753	EX 10Y	18.00	92.61	92.62	90.79
0.65	27.88	22.35	2.91			
SM-102	3753	EX 25Y	25.00	92.93	92.94	90.79
0.71	35.35	24.02	3.69			
SM-102	3753	EX 100Y	41.00	93.53	93.54	90.79
0.81	50.59	27.09	5.11			
SM-102	3753	ULT 10Y	27.00	93.00	93.01	90.79
0.73	36.89	24.34	3.80			

		SM102 OUTPUT REPORT.TXT				
SM-102	3753	ULT 25Y	35.00	93.32	93.33	90.79
0.78	44.95	25.99	4.60			
SM-102	3753	ULT 100Y	53.00	93.93	93.94	90.79
0.86	61.79	29.61	6.13			

APPENDIX D
HEC-RAS HYDRAULIC OUTPUT

ES-100 BASE CONDITION
ES-100, ES-101, ES-102, ES-102-01



HEC-RAS Plan: BASE

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
ES100	ES100-00	308	EX 10Y	214.00	81.61	87.31	83.64	87.35	0.000400	1.59	134.38	32.70	0.14
ES100	ES100-00	308	EX 25Y	279.00	81.61	88.13	83.92	88.18	0.000400	1.72	162.27	34.87	0.14
ES100	ES100-00	308	EX 100Y	431.00	81.61	89.88	84.49	89.93	0.000401	1.89	228.01	42.36	0.14
ES100	ES100-00	308	ULT 10Y	220.00	81.61	87.39	83.66	87.43	0.000401	1.61	136.96	32.90	0.14
ES100	ES100-00	308	ULT 25Y	280.00	81.61	88.14	83.93	88.19	0.000400	1.72	162.69	34.91	0.14
ES100	ES100-00	308	ULT 100Y	440.00	81.61	89.98	84.52	90.04	0.000401	1.89	232.52	43.19	0.14
ES100	ES100-00	787	EX 10Y	214.00	81.10	87.48		87.51	0.000276	1.34	159.43	38.23	0.12
ES100	ES100-00	787	EX 25Y	279.00	81.10	88.30		88.34	0.000275	1.45	191.97	40.46	0.12
ES100	ES100-00	787	EX 100Y	431.00	81.10	90.05		90.09	0.000258	1.61	272.17	67.76	0.12
ES100	ES100-00	787	ULT 10Y	220.00	81.10	87.56		87.59	0.000276	1.35	162.46	38.44	0.12
ES100	ES100-00	787	ULT 25Y	280.00	81.10	88.32		88.35	0.000275	1.45	192.45	40.50	0.12
ES100	ES100-00	787	ULT 100Y	440.00	81.10	90.15		90.19	0.000256	1.62	279.35	69.32	0.12
ES100	ES100-00	1236	EX 10Y	214.00	81.56	87.61		87.64	0.000314	1.45	147.20	34.39	0.12
ES100	ES100-00	1236	EX 25Y	279.00	81.56	88.43		88.47	0.000319	1.58	176.48	36.42	0.13
ES100	ES100-00	1236	EX 100Y	431.00	81.56	90.17		90.22	0.000299	1.77	246.09	47.66	0.13
ES100	ES100-00	1236	ULT 10Y	220.00	81.56	87.69		87.72	0.000315	1.47	149.93	34.58	0.12
ES100	ES100-00	1236	ULT 25Y	280.00	81.56	88.45		88.48	0.000319	1.58	176.92	36.45	0.13
ES100	ES100-00	1236	ULT 100Y	440.00	81.56	90.27		90.32	0.000294	1.78	251.61	65.87	0.13
ES100	ES100-00	1384	EX 10Y	214.00	81.55	87.65		87.68	0.000210	1.21	176.30	40.39	0.10
ES100	ES100-00	1384	EX 25Y	279.00	81.55	88.48		88.51	0.000213	1.32	210.67	42.47	0.10
ES100	ES100-00	1384	EX 100Y	431.00	81.55	90.22		90.25	0.000209	1.50	288.11	46.82	0.11
ES100	ES100-00	1384	ULT 10Y	220.00	81.55	87.73		87.76	0.000211	1.23	179.52	40.59	0.10
ES100	ES100-00	1384	ULT 25Y	280.00	81.55	88.50		88.52	0.000213	1.33	211.18	42.50	0.10
ES100	ES100-00	1384	ULT 100Y	440.00	81.55	90.32		90.36	0.000207	1.50	292.93	47.07	0.11
ES100	ES100-00	1936	EX 10Y	214.00	81.40	87.77		87.79	0.000207	1.20	177.89	40.95	0.10
ES100	ES100-00	1936	EX 25Y	279.00	81.40	88.60		88.63	0.000209	1.31	212.64	42.68	0.10
ES100	ES100-00	1936	EX 100Y	431.00	81.40	90.33		90.37	0.000204	1.49	289.70	46.30	0.10
ES100	ES100-00	1936	ULT 10Y	220.00	81.40	87.85		87.87	0.000208	1.21	181.16	41.11	0.10
ES100	ES100-00	1936	ULT 25Y	280.00	81.40	88.61		88.64	0.000209	1.31	213.15	42.71	0.10
ES100	ES100-00	1936	ULT 100Y	440.00	81.40	90.43		90.47	0.000203	1.49	294.43	46.52	0.10
ES100	ES100-00	2515	EX 10Y	214.00	81.64	87.91		87.94	0.000291	1.38	154.85	37.50	0.12
ES100	ES100-00	2515	EX 25Y	279.00	81.64	88.74		88.77	0.000290	1.49	187.10	39.94	0.12
ES100	ES100-00	2515	EX 100Y	431.00	81.64	90.46		90.51	0.000272	1.66	259.84	44.40	0.12
ES100	ES100-00	2515	ULT 10Y	220.00	81.64	87.99		88.02	0.000292	1.39	157.85	37.78	0.12
ES100	ES100-00	2515	ULT 25Y	280.00	81.64	88.75		88.78	0.000290	1.49	187.58	39.97	0.12
ES100	ES100-00	2515	ULT 100Y	440.00	81.64	90.56		90.61	0.000271	1.66	264.35	44.66	0.12
ES100	ES100-00	3244	EX 10Y	214.00	83.47	88.20		88.26	0.000699	1.83	117.19	36.07	0.18
ES100	ES100-00	3244	EX 25Y	279.00	83.47	89.02		89.07	0.000604	1.89	147.32	38.06	0.17
ES100	ES100-00	3244	EX 100Y	431.00	83.47	90.71		90.77	0.000480	2.00	215.12	42.19	0.16
ES100	ES100-00	3244	ULT 10Y	220.00	83.47	88.28		88.33	0.000688	1.83	120.02	36.26	0.18
ES100	ES100-00	3244	ULT 25Y	280.00	83.47	89.03		89.08	0.000603	1.89	147.77	38.08	0.17
ES100	ES100-00	3244	ULT 100Y	440.00	83.47	90.81		90.87	0.000473	2.01	219.29	42.43	0.16
ES100	ES100-00	3683	EX 10Y	214.00	82.25	88.45		88.49	0.000411	1.56	136.97	35.85	0.14
ES100	ES100-00	3683	EX 25Y	279.00	82.25	89.25		89.29	0.000420	1.67	167.43	40.45	0.14
ES100	ES100-00	3683	EX 100Y	431.00	82.25	90.91		90.96	0.000386	1.77	243.94	50.86	0.14
ES100	ES100-00	3683	ULT 10Y	220.00	82.25	88.53		88.57	0.000413	1.57	139.75	36.28	0.14
ES100	ES100-00	3683	ULT 25Y	280.00	82.25	89.26		89.30	0.000420	1.67	167.90	40.53	0.14
ES100	ES100-00	3683	ULT 100Y	440.00	82.25	91.01		91.06	0.000380	1.77	248.84	51.20	0.14
ES100	ES100-00	3991	EX 10Y	214.00	82.29	88.56		88.60	0.000302	1.44	148.33	33.93	0.12
ES100	ES100-00	3991	EX 25Y	279.00	82.29	89.37		89.41	0.000318	1.58	176.51	36.31	0.13
ES100	ES100-00	3991	EX 100Y	431.00	82.29	91.03		91.07	0.000362	1.78	241.86	46.05	0.14
ES100	ES100-00	3991	ULT 10Y	220.00	82.29	88.64		88.68	0.000304	1.46	150.97	34.16	0.12
ES100	ES100-00	3991	ULT 25Y	280.00	82.29	89.38		89.42	0.000318	1.58	176.93	36.35	0.13
ES100	ES100-00	3991	ULT 100Y	440.00	82.29	91.12		91.17	0.000368	1.79	246.36	49.47	0.14
ES100	ES100-00	4186	EX 10Y	214.00	82.04	88.62		88.64	0.000158	1.10	193.77	41.42	0.09
ES100	ES100-00	4186	EX 25Y	279.00	82.04	89.43		89.45	0.000169	1.22	228.09	43.61	0.09
ES100	ES100-00	4186	EX 100Y	431.00	82.04	91.10		91.12	0.000181	1.38	357.38	194.66	0.10
ES100	ES100-00	4186	ULT 10Y	220.00	82.04	88.70		88.72	0.000159	1.12	197.01	41.63	0.09
ES100	ES100-00	4186	ULT 25Y	280.00	82.04	89.44		89.46	0.000169	1.22	228.60	43.65	0.09
ES100	ES100-00	4186	ULT 100Y	440.00	82.04	91.19		91.22	0.000178	1.37	376.29	196.78	0.10
ES100	ES100-00	4608	EX 10Y	214.00	82.04	88.69		88.71	0.000161	1.09	196.14	43.96	0.09
ES100	ES100-00	4608	EX 25Y	279.00	82.04	89.50		89.52	0.000169	1.20	233.06	47.00	0.09
ES100	ES100-00	4608	EX 100Y	431.00	82.04	91.17		91.20	0.000151	1.22	510.32	398.77	0.09
ES100	ES100-00	4608	ULT 10Y	220.00	82.04	88.77		88.79	0.000162	1.10	199.61	44.26	0.09
ES100	ES100-00	4608	ULT 25Y	280.00	82.04	89.51		89.53	0.000170	1.20	233.61	47.04	0.09
ES100	ES100-00	4608	ULT 100Y	440.00	82.04	91.27		91.29	0.000144	1.20	548.44	401.12	0.09
ES100	ES100-00	5158	EX 10Y	214.00	81.55	88.77		88.79	0.000131	1.04	205.09	40.53	0.08
ES100	ES100-00	5158	EX 25Y	279.00	81.55	89.59		89.61	0.000147	1.17	239.38	43.52	0.09
ES100	ES100-00	5158	EX 100Y	431.00	81.55	91.25		91.26	0.000101	1.06	647.51	323.23	0.07
ES100	ES100-00	5158	ULT 10Y	220.00	81.55	88.85		88.87	0.000133	1.06	208.31	40.76	0.08
ES100	ES100-00	5158	ULT 25Y	280.00	81.55	89.60		89.62	0.000147	1.17	239.90	43.56	0.09
ES100	ES100-00	5158	ULT 100Y	440.00	81.55	91.34		91.35	0.000096	1.05	677.25	327.11	0.07
ES100	ES100-00	5846	EX 10Y	214.00	81.54	88.87		88.88	0.000151	1.07	200.57	43.72	0.09
ES100	ES100-00	5846	EX 25Y	279.00	81.54	89.69		89.71	0.000150	1.13	310.58	337.10	0.09
ES100	ES100-00	5846	EX 100Y	431.00	81.54	91.31		91.32	0.000058	0.82	953.10	436.62	0.06

HEC-RAS Plan: BASE (Continued)

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
ES100	ES100-00	5846	ULT 10Y	220.00	81.54	88.95		88.96	0.000152	1.08	204.09	44.04	0.09
ES100	ES100-00	5846	ULT 25Y	280.00	81.54	89.70		89.72	0.000149	1.13	314.62	340.41	0.09
ES100	ES100-00	5846	ULT 100Y	440.00	81.54	91.40		91.40	0.000055	0.81	991.85	438.43	0.06
ES100	ES100-00	6753	EX 10Y	214.00	82.32	89.01		89.03	0.000162	1.11	193.29	41.49	0.09
ES100	ES100-00	6753	EX 25Y	279.00	82.32	89.83		89.85	0.000156	1.17	329.44	449.07	0.09
ES100	ES100-00	6753	EX 100Y	431.00	82.32	91.36		91.37	0.000054	0.80	1038.73	483.80	0.06
ES100	ES100-00	6753	ULT 10Y	220.00	82.32	89.09		89.11	0.000163	1.12	196.67	41.70	0.09
ES100	ES100-00	6753	ULT 25Y	280.00	82.32	89.84		89.86	0.000155	1.17	334.52	449.28	0.09
ES100	ES100-00	6753	ULT 100Y	440.00	82.32	91.45		91.45	0.000051	0.79	1080.51	493.84	0.05
ES100	ES100-00	7508	EX 10Y	214.00	82.23	89.14		89.16	0.000202	1.26	169.41	34.29	0.10
ES100	ES100-00	7508	EX 25Y	279.00	82.23	89.96		89.99	0.000212	1.38	238.49	207.32	0.10
ES100	ES100-00	7508	EX 100Y	431.00	82.23	91.41		91.43	0.000113	1.10	729.20	423.12	0.08
ES100	ES100-00	7508	ULT 10Y	220.00	82.23	89.22		89.25	0.000204	1.28	172.24	34.48	0.10
ES100	ES100-00	7508	ULT 25Y	280.00	82.23	89.97		90.00	0.000212	1.38	240.72	207.60	0.10
ES100	ES100-00	7508	ULT 100Y	440.00	82.23	91.50		91.51	0.000107	1.08	764.49	423.99	0.07
ES100	ES100-00	8051	EX 10Y	214.00	83.29	89.26		89.28	0.000217	1.20	178.91	43.99	0.10
ES100	ES100-00	8051	EX 25Y	279.00	83.29	90.08		90.11	0.000215	1.29	216.39	46.94	0.11
ES100	ES100-00	8051	EX 100Y	431.00	83.29	91.48		91.51	0.000222	1.46	342.89	168.91	0.11
ES100	ES100-00	8051	ULT 10Y	220.00	83.29	89.34		89.36	0.000216	1.21	182.56	44.29	0.10
ES100	ES100-00	8051	ULT 25Y	280.00	83.29	90.09		90.12	0.000215	1.29	216.89	46.98	0.11
ES100	ES100-00	8051	ULT 100Y	440.00	83.29	91.56		91.59	0.000219	1.46	356.42	169.76	0.11
ES100	ES100-00	8275	EX 10Y	214.00	82.40	89.30		89.32	0.000129	1.04	206.64	41.28	0.08
ES100	ES100-00	8275	EX 25Y	279.00	82.40	90.12		90.15	0.000141	1.16	241.55	43.30	0.09
ES100	ES100-00	8275	EX 100Y	431.00	82.40	91.53		91.56	0.000174	1.41	304.78	46.81	0.10
ES100	ES100-00	8275	ULT 10Y	220.00	82.40	89.38		89.40	0.000130	1.05	210.07	41.47	0.08
ES100	ES100-00	8275	ULT 25Y	280.00	82.40	90.14		90.16	0.000141	1.16	242.01	43.33	0.09
ES100	ES100-00	8275	ULT 100Y	440.00	82.40	91.61		91.64	0.000176	1.43	308.48	47.00	0.10
ES100	ES100-00	8727	EX 10Y	214.00	82.28	89.37		89.39	0.000204	1.25	170.61	35.65	0.10
ES100	ES100-00	8727	EX 25Y	279.00	82.28	90.20		90.23	0.000220	1.39	201.25	38.10	0.11
ES100	ES100-00	8727	EX 100Y	431.00	82.28	91.62		91.66	0.000278	1.66	259.48	44.67	0.12
ES100	ES100-00	8727	ULT 10Y	220.00	82.28	89.45		89.47	0.000205	1.27	173.59	35.89	0.10
ES100	ES100-00	8727	ULT 25Y	280.00	82.28	90.21		90.24	0.000221	1.39	201.66	38.14	0.11
ES100	ES100-00	8727	ULT 100Y	440.00	82.28	91.70		91.74	0.000280	1.67	263.05	45.16	0.12
ES100	ES100-00	9208	EX 10Y	214.00	82.68	89.47		89.50	0.000243	1.34	159.25	34.16	0.11
ES100	ES100-00	9208	EX 25Y	279.00	82.68	90.31		90.34	0.000257	1.48	188.77	36.30	0.11
ES100	ES100-00	9208	EX 100Y	431.00	82.68	91.76		91.81	0.000323	1.73	248.50	44.70	0.13
ES100	ES100-00	9208	ULT 10Y	220.00	82.68	89.55		89.58	0.000245	1.36	162.13	34.38	0.11
ES100	ES100-00	9208	ULT 25Y	280.00	82.68	90.32		90.35	0.000258	1.48	189.17	36.33	0.11
ES100	ES100-00	9208	ULT 100Y	440.00	82.68	91.84		91.89	0.000323	1.75	252.10	44.93	0.13
ES100	ES100-00	9850	EX 10Y	187.00	82.55	89.60		89.62	0.000144	1.02	183.21	40.99	0.09
ES100	ES100-00	9850	EX 25Y	242.00	82.55	90.45		90.47	0.000145	1.11	218.83	43.28	0.09
ES100	ES100-00	9850	EX 100Y	368.00	82.55	91.93		91.95	0.000159	1.29	286.01	48.03	0.09
ES100	ES100-00	9850	ULT 10Y	190.00	82.55	89.69		89.70	0.000141	1.02	186.66	41.22	0.08
ES100	ES100-00	9850	ULT 25Y	250.00	82.55	90.46		90.48	0.000153	1.14	219.40	43.31	0.09
ES100	ES100-00	9850	ULT 100Y	370.00	82.55	92.01		92.03	0.000155	1.28	289.86	48.35	0.09
ES100	ES100-00	10472	EX 10Y	187.00	82.96	89.70		89.72	0.000182	1.12	166.81	38.72	0.10
ES100	ES100-00	10472	EX 25Y	242.00	82.96	90.55		90.57	0.000181	1.21	200.59	41.20	0.10
ES100	ES100-00	10472	EX 100Y	368.00	82.96	92.03		92.06	0.000191	1.39	265.03	45.31	0.10
ES100	ES100-00	10472	ULT 10Y	190.00	82.96	89.78		89.80	0.000178	1.12	169.99	38.96	0.09
ES100	ES100-00	10472	ULT 25Y	250.00	82.96	90.57		90.59	0.000191	1.24	201.37	41.26	0.10
ES100	ES100-00	10472	ULT 100Y	370.00	82.96	92.11		92.14	0.000186	1.38	268.53	45.49	0.10
ES100	ES100-00	11071	EX 10Y	187.00	84.25	89.82		89.85	0.000246	1.23	151.91	38.91	0.11
ES100	ES100-00	11071	EX 25Y	242.00	84.25	90.67		90.69	0.000230	1.30	185.56	41.10	0.11
ES100	ES100-00	11071	EX 100Y	368.00	84.25	92.15		92.19	0.000228	1.47	249.66	45.00	0.11
ES100	ES100-00	11071	ULT 10Y	190.00	84.25	89.90		89.93	0.000239	1.23	154.98	39.11	0.11
ES100	ES100-00	11071	ULT 25Y	250.00	84.25	90.69		90.72	0.000242	1.34	186.60	41.17	0.11
ES100	ES100-00	11071	ULT 100Y	370.00	84.25	92.23		92.26	0.000222	1.46	253.00	45.20	0.11
ES100	ES100-00	11298	EX 10Y	187.00	83.91	89.88		89.91	0.000266	1.27	147.49	38.13	0.11
ES100	ES100-00	11298	EX 25Y	242.00	83.91	90.72		90.75	0.000252	1.34	180.82	41.23	0.11
ES100	ES100-00	11298	EX 100Y	368.00	83.91	92.21		92.24	0.000253	1.49	247.61	48.04	0.12
ES100	ES100-00	11298	ULT 10Y	190.00	83.91	89.96		89.98	0.000260	1.26	150.47	38.56	0.11
ES100	ES100-00	11298	ULT 25Y	250.00	83.91	90.75		90.78	0.000265	1.37	181.98	41.36	0.12
ES100	ES100-00	11298	ULT 100Y	370.00	83.91	92.28		92.32	0.000246	1.47	251.11	48.27	0.11
ES100	ES100-00	11934	EX 10Y	187.00	84.46	89.99		90.01	0.000100	0.82	227.14	55.07	0.07
ES100	ES100-00	11934	EX 25Y	242.00	84.46	90.83		90.84	0.000095	0.88	274.04	57.30	0.07
ES100	ES100-00	11934	EX 100Y	368.00	84.46	92.32		92.34	0.000096	1.02	362.44	61.07	0.07
ES100	ES100-00	11934	ULT 10Y	190.00	84.46	90.07		90.08	0.000097	0.82	231.30	55.28	0.07
ES100	ES100-00	11934	ULT 25Y	250.00	84.46	90.86		90.88	0.000099	0.91	275.95	57.39	0.07
ES100	ES100-00	11934	ULT 100Y	370.00	84.46	92.39		92.41	0.000094	1.01	366.71	61.24	0.07
ES100	ES100-00	12315	EX 10Y	187.00	84.29	90.04		90.05	0.000127	0.94	199.65	47.47	0.08
ES100	ES100-00	12315	EX 25Y	242.00	84.29	90.87		90.88	0.000124	1.01	240.25	50.05	0.08
ES100	ES100-00	12315	EX 100Y	368.00	84.29	92.36		92.38	0.000128	1.16	318.44	54.77	0.08
ES100	ES100-00	12315	ULT 10Y	190.00	84.29	90.11		90.12	0.000124	0.94	203.19	47.70	0.08
ES100	ES100-00	12315	ULT 25Y	250.00	84.29	90.90		90.92	0.000129	1.03	242.01	50.16	0.08
ES100	ES100-00	12315	ULT 100Y	370.00	84.29	92.43		92.45	0.000125	1.15	322.22	55.02	0.08

HEC-RAS Plan: BASE (Continued)

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
ES100	ES100-00	12785	EX 10Y	187.00	83.00	90.08		90.08	0.000049	0.68	273.02	49.31	0.05
ES100	ES100-00	12785	EX 25Y	242.00	83.00	90.91		90.92	0.000054	0.77	315.01	51.25	0.05
ES100	ES100-00	12785	EX 100Y	368.00	83.00	92.41		92.42	0.000066	0.93	394.48	55.02	0.06
ES100	ES100-00	12785	ULT 10Y	190.00	83.00	90.15		90.16	0.000048	0.69	276.67	49.48	0.05
ES100	ES100-00	12785	ULT 25Y	250.00	83.00	90.95		90.96	0.000057	0.79	316.91	51.34	0.06
ES100	ES100-00	12785	ULT 100Y	370.00	83.00	92.48		92.49	0.000065	0.93	398.23	55.30	0.06
ES101	ES101-00	298	EX 10Y	50.00	84.30	88.11	85.70	88.13	0.000400	1.13	44.30	17.80	0.13
ES101	ES101-00	298	EX 25Y	66.00	84.30	88.65	85.89	88.67	0.000400	1.22	54.22	19.29	0.13
ES101	ES101-00	298	EX 100Y	101.00	84.30	89.61	86.24	89.64	0.000400	1.36	74.17	22.08	0.13
ES101	ES101-00	298	ULT 10Y	50.00	84.30	88.11	85.70	88.13	0.000400	1.13	44.30	17.80	0.13
ES101	ES101-00	298	ULT 25Y	70.00	84.30	88.77	85.93	88.80	0.000400	1.24	56.61	19.64	0.13
ES101	ES101-00	298	ULT 100Y	110.00	84.30	89.83	86.31	89.86	0.000400	1.39	79.03	22.72	0.13
ES101	ES101-00	538	EX 10Y	50.00	87.39	88.69	88.69	89.08	0.034792	4.98	10.05	13.43	1.01
ES101	ES101-00	538	EX 25Y	66.00	87.39	88.86	88.86	89.30	0.033170	5.35	12.33	14.22	1.01
ES101	ES101-00	538	EX 100Y	101.00	87.39	89.74		89.96	0.008520	3.79	26.66	18.42	0.55
ES101	ES101-00	538	ULT 10Y	50.00	87.39	88.69	88.69	89.08	0.034792	4.98	10.05	13.43	1.01
ES101	ES101-00	538	ULT 25Y	70.00	87.39	88.90	88.90	89.36	0.032853	5.43	12.88	14.40	1.01
ES101	ES101-00	538	ULT 100Y	110.00	87.39	89.96		90.16	0.006657	3.56	30.92	19.45	0.50
ES101	ES101-00	830	EX 10Y	50.00	89.79	91.67		91.74	0.004050	2.15	23.31	22.16	0.37
ES101	ES101-00	830	EX 25Y	66.00	89.79	91.87		91.96	0.004093	2.37	27.90	23.01	0.38
ES101	ES101-00	830	EX 100Y	101.00	89.79	92.02		92.18	0.006811	3.23	31.27	23.61	0.49
ES101	ES101-00	830	ULT 10Y	50.00	89.79	91.67		91.74	0.004050	2.15	23.31	22.16	0.37
ES101	ES101-00	830	ULT 25Y	70.00	89.79	91.92		92.01	0.004102	2.41	29.00	23.21	0.38
ES101	ES101-00	830	ULT 100Y	110.00	89.79	92.05		92.23	0.007576	3.44	31.95	23.73	0.52
ES101	ES101-00	1182	EX 10Y	50.00	90.01	92.46		92.50	0.001316	1.53	32.63	21.68	0.22
ES101	ES101-00	1182	EX 25Y	66.00	90.01	92.72		92.77	0.001464	1.71	38.54	23.45	0.24
ES101	ES101-00	1182	EX 100Y	101.00	90.01	93.18		93.24	0.001672	2.03	49.85	25.95	0.26
ES101	ES101-00	1182	ULT 10Y	50.00	90.01	92.46		92.50	0.001316	1.53	32.63	21.68	0.22
ES101	ES101-00	1182	ULT 25Y	70.00	90.01	92.78		92.83	0.001496	1.75	39.94	23.85	0.24
ES101	ES101-00	1182	ULT 100Y	110.00	90.01	93.28		93.35	0.001721	2.09	52.57	26.64	0.26
ES101	ES101-00	1450	EX 10Y	50.00	90.39	92.73		92.75	0.000674	1.12	44.84	29.36	0.16
ES101	ES101-00	1450	EX 25Y	66.00	90.39	93.01		93.03	0.000698	1.24	53.32	30.52	0.17
ES101	ES101-00	1450	EX 100Y	101.00	90.39	93.51		93.54	0.000761	1.46	68.96	32.56	0.18
ES101	ES101-00	1450	ULT 10Y	50.00	90.39	92.73		92.75	0.000674	1.12	44.84	29.36	0.16
ES101	ES101-00	1450	ULT 25Y	70.00	90.39	93.07		93.10	0.000705	1.27	55.28	30.79	0.17
ES101	ES101-00	1450	ULT 100Y	110.00	90.39	93.62		93.65	0.000772	1.51	72.62	32.89	0.18
ES101	ES101-00	1619	EX 10Y	50.00	89.74	92.84		92.86	0.000695	1.24	40.27	22.72	0.16
ES101	ES101-00	1619	EX 25Y	66.00	89.74	93.13		93.16	0.000784	1.40	47.10	24.21	0.18
ES101	ES101-00	1619	EX 100Y	101.00	89.74	93.64		93.69	0.000951	1.67	60.32	27.37	0.20
ES101	ES101-00	1619	ULT 10Y	50.00	89.74	92.84		92.86	0.000695	1.24	40.27	22.72	0.16
ES101	ES101-00	1619	ULT 25Y	70.00	89.74	93.20		93.23	0.000807	1.44	48.72	24.63	0.18
ES101	ES101-00	1619	ULT 100Y	110.00	89.74	93.76		93.80	0.000983	1.73	63.49	28.07	0.20
ES101	ES101-00	2043	EX 10Y	50.00	89.19	92.98		92.99	0.000164	0.77	65.04	24.72	0.08
ES101	ES101-00	2043	EX 25Y	66.00	89.19	93.30		93.31	0.000206	0.90	73.18	25.94	0.09
ES101	ES101-00	2043	EX 100Y	101.00	89.19	93.87		93.89	0.000288	1.14	88.58	28.31	0.11
ES101	ES101-00	2043	ULT 10Y	50.00	89.19	92.98		92.99	0.000164	0.77	65.04	24.72	0.08
ES101	ES101-00	2043	ULT 25Y	70.00	89.19	93.38		93.39	0.000216	0.93	75.09	26.22	0.10
ES101	ES101-00	2043	ULT 100Y	110.00	89.19	94.00		94.02	0.000307	1.19	92.21	28.85	0.12
ES101	ES101-00	2603	EX 10Y	50.00	89.55	93.08		93.09	0.000187	0.79	62.96	25.49	0.09
ES101	ES101-00	2603	EX 25Y	66.00	89.55	93.42		93.44	0.000224	0.92	71.91	26.72	0.10
ES101	ES101-00	2603	EX 100Y	101.00	89.55	94.03		94.05	0.000297	1.13	89.26	29.90	0.12
ES101	ES101-00	2603	ULT 10Y	50.00	89.55	93.08		93.09	0.000187	0.79	62.96	25.49	0.09
ES101	ES101-00	2603	ULT 25Y	70.00	89.55	93.50		93.51	0.000233	0.95	74.04	27.13	0.10
ES101	ES101-00	2603	ULT 100Y	110.00	89.55	94.17		94.19	0.000313	1.18	93.39	30.60	0.12
ES101	ES101-00	3230	EX 10Y	50.00	88.20	93.16		93.16	0.000078	0.56	89.74	32.02	0.06
ES101	ES101-00	3230	EX 25Y	66.00	88.20	93.52		93.53	0.000099	0.65	101.81	34.51	0.07
ES101	ES101-00	3230	EX 100Y	101.00	88.20	94.16		94.17	0.000121	0.81	125.09	38.38	0.08
ES101	ES101-00	3230	ULT 10Y	50.00	88.20	93.16		93.16	0.000078	0.56	89.74	32.02	0.06
ES101	ES101-00	3230	ULT 25Y	70.00	88.20	93.60		93.61	0.000102	0.67	104.68	34.94	0.07
ES101	ES101-00	3230	ULT 100Y	110.00	88.20	94.30		94.31	0.000125	0.85	130.62	39.25	0.08
ES101	ES101-00	3652	EX 10Y	50.00	89.17	93.19		93.20	0.000089	0.60	83.23	29.50	0.06
ES101	ES101-00	3652	EX 25Y	66.00	89.17	93.56		93.57	0.000109	0.70	94.42	30.82	0.07
ES101	ES101-00	3652	EX 100Y	101.00	89.17	94.21		94.22	0.000140	0.88	115.63	34.62	0.08
ES101	ES101-00	3652	ULT 10Y	50.00	89.17	93.19		93.20	0.000089	0.60	83.23	29.50	0.06
ES101	ES101-00	3652	ULT 25Y	70.00	89.17	93.65		93.65	0.000113	0.72	97.03	31.12	0.07
ES101	ES101-00	3652	ULT 100Y	110.00	89.17	94.36		94.37	0.000147	0.92	120.71	35.52	0.08
ES101	ES101-00	4064	EX 10Y	50.00	88.52	93.23		93.24	0.000102	0.68	73.85	22.94	0.07
ES101	ES101-00	4064	EX 25Y	66.00	88.52	93.61		93.62	0.000130	0.80	82.78	24.01	0.08
ES101	ES101-00	4064	EX 100Y	101.00	88.52	94.27		94.29	0.000185	1.02	99.39	25.89	0.09
ES101	ES101-00	4064	ULT 10Y	50.00	88.52	93.23		93.24	0.000102	0.68	73.85	22.94	0.07
ES101	ES101-00	4064	ULT 25Y	70.00	88.52	93.70		93.71	0.000137	0.82	84.86	24.25	0.08
ES101	ES101-00	4064	ULT 100Y	110.00	88.52	94.42		94.44	0.000198	1.07	103.26	26.31	0.09
ES102	ES102-00	410	EX 10Y	138.00	86.20	91.03	88.28	91.05	0.000400	1.31	105.52	35.58	0.13
ES102	ES102-00	410	EX 25Y	178.00	86.20	91.57	88.47	91.60	0.000400	1.42	125.23	37.02	0.14

HEC-RAS Plan: BASE (Continued)

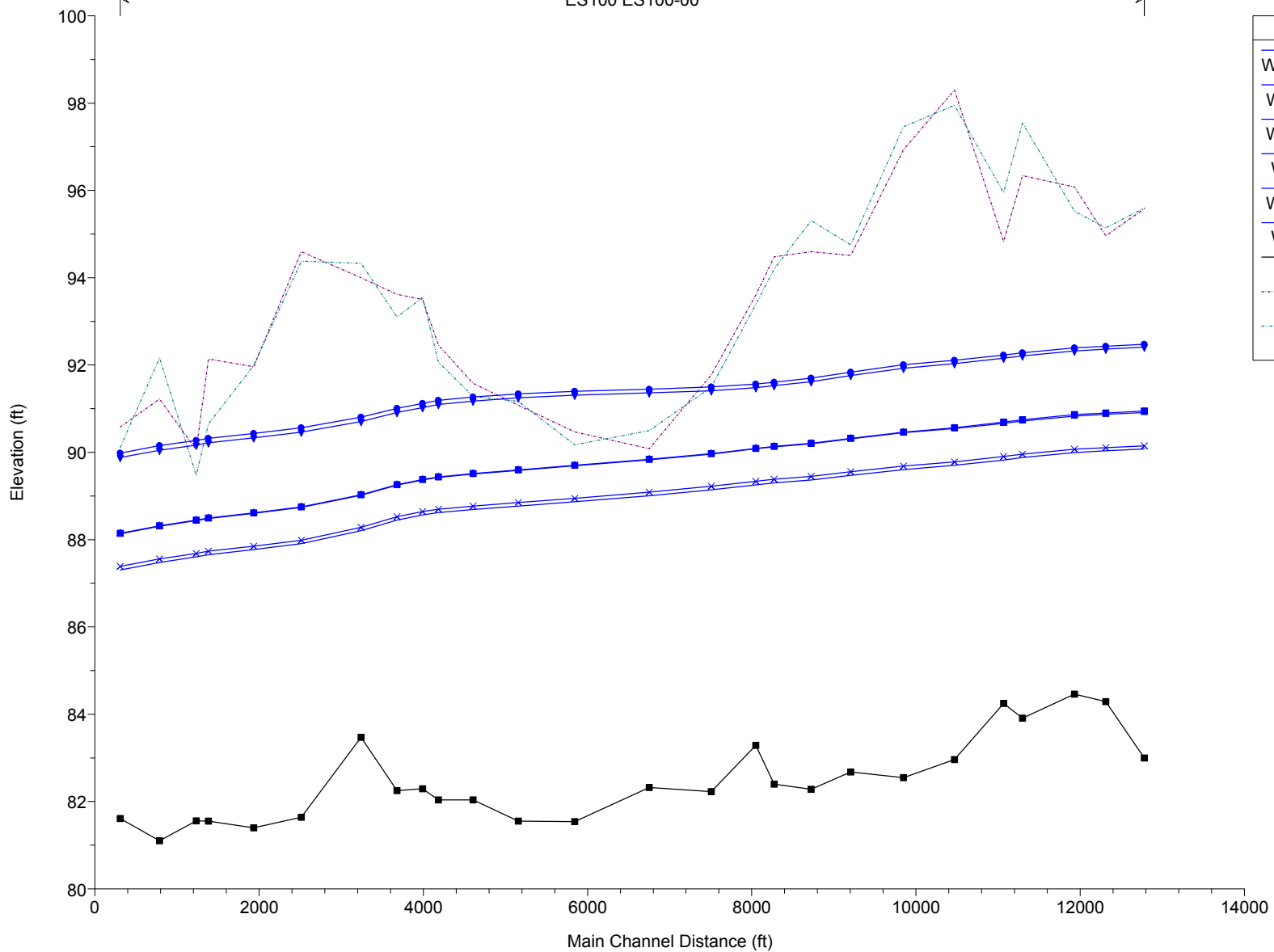
River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
ES102	ES102-00	410	EX 100Y	269.00	86.20	92.63	88.88	92.67	0.000400	1.62	166.08	39.94	0.14
ES102	ES102-00	410	ULT 10Y	140.00	86.20	91.05	88.29	91.08	0.000401	1.31	106.48	35.66	0.13
ES102	ES102-00	410	ULT 25Y	180.00	86.20	91.59	88.48	91.63	0.000400	1.43	126.18	37.08	0.14
ES102	ES102-00	410	ULT 100Y	270.00	86.20	92.64	88.89	92.68	0.000400	1.62	166.51	39.97	0.14
ES102	ES102-00	956	EX 10Y	138.00	85.54	91.13		91.13	0.000073	0.64	214.58	60.64	0.06
ES102	ES102-00	956	EX 25Y	178.00	85.54	91.68		91.68	0.000079	0.72	248.65	63.09	0.06
ES102	ES102-00	956	EX 100Y	269.00	85.54	92.75		92.76	0.000087	0.84	319.15	67.81	0.07
ES102	ES102-00	956	ULT 10Y	140.00	85.54	91.15		91.16	0.000074	0.65	216.25	60.76	0.06
ES102	ES102-00	956	ULT 25Y	180.00	85.54	91.70		91.71	0.000079	0.72	250.29	63.21	0.06
ES102	ES102-00	956	ULT 100Y	270.00	85.54	92.76		92.77	0.000087	0.84	319.88	67.85	0.07
ES102	ES102-00	1522	EX 10Y	138.00	86.47	91.18		91.19	0.000152	0.86	161.30	51.08	0.08
ES102	ES102-00	1522	EX 25Y	178.00	86.47	91.73		91.75	0.000154	0.94	190.13	53.16	0.09
ES102	ES102-00	1522	EX 100Y	269.00	86.47	92.81		92.83	0.000161	1.08	249.87	58.10	0.09
ES102	ES102-00	1522	ULT 10Y	140.00	86.47	91.21		91.22	0.000152	0.86	162.71	51.19	0.09
ES102	ES102-00	1522	ULT 25Y	180.00	86.47	91.76		91.77	0.000155	0.94	191.52	53.27	0.09
ES102	ES102-00	1522	ULT 100Y	270.00	86.47	92.82		92.84	0.000161	1.08	250.49	58.18	0.09
ES102	ES102-00	1920	EX 10Y	138.00	86.01	91.23		91.24	0.000089	0.64	215.48	71.13	0.06
ES102	ES102-00	1920	EX 25Y	178.00	86.01	91.79		91.79	0.000087	0.70	255.44	73.02	0.07
ES102	ES102-00	1920	EX 100Y	269.00	86.01	92.87		92.88	0.000085	0.80	336.45	76.74	0.07
ES102	ES102-00	1920	ULT 10Y	140.00	86.01	91.26		91.27	0.000089	0.64	217.46	71.22	0.06
ES102	ES102-00	1920	ULT 25Y	180.00	86.01	91.81		91.82	0.000087	0.70	257.36	73.11	0.07
ES102	ES102-00	1920	ULT 100Y	270.00	86.01	92.88		92.89	0.000085	0.80	337.27	76.77	0.07
ES102	ES102-00	2160	EX 10Y	138.00	86.70	91.25		91.26	0.000110	0.74	186.17	57.85	0.07
ES102	ES102-00	2160	EX 25Y	178.00	86.70	91.81		91.82	0.000116	0.81	220.09	62.15	0.08
ES102	ES102-00	2160	EX 100Y	269.00	86.70	92.89		92.90	0.000115	0.93	288.93	65.25	0.08
ES102	ES102-00	2160	ULT 10Y	140.00	86.70	91.28		91.29	0.000113	0.75	187.81	59.06	0.07
ES102	ES102-00	2160	ULT 25Y	180.00	86.70	91.83		91.84	0.000116	0.81	221.72	62.22	0.08
ES102	ES102-00	2160	ULT 100Y	270.00	86.70	92.90		92.91	0.000115	0.93	289.63	65.28	0.08
ES102	ES102-00	2666	EX 10Y	138.00	86.11	91.29		91.30	0.000057	0.61	225.59	56.15	0.05
ES102	ES102-00	2666	EX 25Y	178.00	86.11	91.85		91.86	0.000067	0.69	258.28	60.73	0.06
ES102	ES102-00	2666	EX 100Y	269.00	86.11	92.94		92.95	0.000076	0.82	326.36	64.46	0.06
ES102	ES102-00	2666	ULT 10Y	140.00	86.11	91.32		91.33	0.000057	0.62	227.21	56.39	0.05
ES102	ES102-00	2666	ULT 25Y	180.00	86.11	91.88		91.89	0.000067	0.69	259.88	60.94	0.06
ES102	ES102-00	2666	ULT 100Y	270.00	86.11	92.95		92.96	0.000076	0.83	327.06	64.49	0.06
ES102	ES102-00	3110	EX 10Y	138.00	85.83	91.33		91.34	0.000110	0.76	181.48	53.83	0.07
ES102	ES102-00	3110	EX 25Y	178.00	85.83	91.89		91.90	0.000114	0.84	212.24	55.44	0.08
ES102	ES102-00	3110	EX 100Y	269.00	85.83	92.98		92.99	0.000121	0.98	274.22	58.53	0.08
ES102	ES102-00	3110	ULT 10Y	140.00	85.83	91.36		91.36	0.000111	0.76	183.04	53.91	0.07
ES102	ES102-00	3110	ULT 25Y	180.00	85.83	91.92		91.93	0.000114	0.84	213.71	55.51	0.08
ES102	ES102-00	3110	ULT 100Y	270.00	85.83	92.99		93.00	0.000121	0.98	274.85	58.55	0.08
ES102	ES102-00A	3552	EX 10Y	85.00	85.93	91.36		91.37	0.000044	0.52	163.87	42.00	0.05
ES102	ES102-00A	3552	EX 25Y	109.00	85.93	91.93		91.94	0.000048	0.58	188.16	43.78	0.05
ES102	ES102-00A	3552	EX 100Y	165.00	85.93	93.03		93.03	0.000061	0.69	240.62	51.61	0.06
ES102	ES102-00A	3552	ULT 10Y	90.00	85.93	91.39		91.40	0.000048	0.55	165.13	42.10	0.05
ES102	ES102-00A	3552	ULT 25Y	110.00	85.93	91.96		91.96	0.000048	0.58	189.32	43.87	0.05
ES102	ES102-00A	3552	ULT 100Y	170.00	85.93	93.04		93.04	0.000064	0.70	241.20	51.64	0.06
ES102	ES102-00A	3926	EX 10Y	85.00	85.76	91.38		91.38	0.000039	0.49	172.34	43.44	0.04
ES102	ES102-00A	3926	EX 25Y	109.00	85.76	91.95		91.95	0.000043	0.55	197.37	44.73	0.05
ES102	ES102-00A	3926	EX 100Y	165.00	85.76	93.05		93.05	0.000050	0.67	247.87	47.22	0.05
ES102	ES102-00A	3926	ULT 10Y	90.00	85.76	91.41		91.42	0.000042	0.52	173.70	43.51	0.05
ES102	ES102-00A	3926	ULT 25Y	110.00	85.76	91.97		91.98	0.000043	0.55	198.56	44.79	0.05
ES102	ES102-00A	3926	ULT 100Y	170.00	85.76	93.06		93.07	0.000053	0.68	248.46	47.25	0.05
ES102	ES102-00A	4248	EX 10Y	85.00	85.77	91.39		91.40	0.000047	0.54	158.75	41.14	0.05
ES102	ES102-00A	4248	EX 25Y	109.00	85.77	91.96		91.97	0.000052	0.60	182.85	43.55	0.05
ES102	ES102-00A	4248	EX 100Y	165.00	85.77	93.06		93.07	0.000060	0.71	233.28	48.00	0.06
ES102	ES102-00A	4248	ULT 10Y	90.00	85.77	91.43		91.43	0.000051	0.56	160.09	41.27	0.05
ES102	ES102-00A	4248	ULT 25Y	110.00	85.77	91.99		91.99	0.000052	0.60	184.01	43.66	0.05
ES102	ES102-00A	4248	ULT 100Y	170.00	85.77	93.08		93.09	0.000064	0.73	233.92	48.05	0.06
ES102-01	ES102-01	470	EX 10Y	20.00	87.33	91.37		91.37	0.000020	0.26	78.02	32.14	0.03
ES102-01	ES102-01	470	EX 25Y	26.00	87.33	91.94		91.94	0.000018	0.27	96.69	33.97	0.03
ES102-01	ES102-01	470	EX 100Y	41.00	87.33	93.03		93.03	0.000017	0.30	135.72	37.52	0.03
ES102-01	ES102-01	470	ULT 10Y	20.00	87.33	91.40		91.40	0.000019	0.25	78.95	32.23	0.03
ES102-01	ES102-01	470	ULT 25Y	30.00	87.33	91.97		91.97	0.000023	0.31	97.62	34.06	0.03
ES102-01	ES102-01	470	ULT 100Y	50.00	87.33	93.04		93.04	0.000024	0.37	136.19	37.56	0.03
ES102-01	ES102-01	899	EX 10Y	20.00	86.87	91.38		91.38	0.000012	0.21	93.65	33.41	0.02
ES102-01	ES102-01	899	EX 25Y	26.00	86.87	91.94		91.95	0.000011	0.23	112.82	34.53	0.02
ES102-01	ES102-01	899	EX 100Y	41.00	86.87	93.04		93.04	0.000011	0.27	151.70	36.69	0.02
ES102-01	ES102-01	899	ULT 10Y	20.00	86.87	91.41		91.41	0.000011	0.21	94.61	33.47	0.02
ES102-01	ES102-01	899	ULT 25Y	30.00	86.87	91.97		91.97	0.000014	0.26	113.83	34.59	0.03
ES102-01	ES102-01	899	ULT 100Y	50.00	86.87	93.05		93.05	0.000017	0.33	152.25	36.72	0.03
ES102-01	ES102-01	1152	EX 10Y	20.00	86.51	91.38		91.38	0.000003	0.13	149.82	39.75	0.01
ES102-01	ES102-01	1152	EX 25Y	26.00	86.51	91.95		91.95	0.000003	0.15	172.57	40.85	0.01
ES102-01	ES102-01	1152	EX 100Y	41.00	86.51	93.04		93.04	0.000004	0.19	218.36	43.17	0.01
ES102-01	ES102-01	1152	ULT 10Y	20.00	86.51	91.41		91.41	0.000003	0.13	150.97	39.81	0.01
ES102-01	ES102-01	1152	ULT 25Y	30.00	86.51	91.98		91.98	0.000004	0.17	173.80	40.91	0.01

HEC-RAS Plan: BASE (Continued)

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
ES102-01	ES102-01	1152	ULT 100Y	50.00	86.51	93.05		93.06	0.000006	0.23	219.06	43.23	0.02
ES102-01	ES102-01	1581	EX 10Y	20.00	87.20	91.38		91.38	0.000010	0.20	101.76	37.12	0.02
ES102-01	ES102-01	1581	EX 25Y	26.00	87.20	91.95		91.95	0.000009	0.21	123.45	39.80	0.02
ES102-01	ES102-01	1581	EX 100Y	41.00	87.20	93.04		93.04	0.000010	0.24	172.02	79.12	0.02
ES102-01	ES102-01	1581	ULT 10Y	20.00	87.20	91.41		91.41	0.000009	0.19	102.83	37.25	0.02
ES102-01	ES102-01	1581	ULT 25Y	30.00	87.20	91.98		91.98	0.000012	0.24	124.67	39.96	0.02
ES102-01	ES102-01	1581	ULT 100Y	50.00	87.20	93.06		93.06	0.000014	0.29	173.44	83.49	0.03
ES102-01	ES102-01	1904	EX 10Y	20.00	88.32	91.39		91.39	0.000024	0.28	70.30	28.34	0.03
ES102-01	ES102-01	1904	EX 25Y	26.00	88.32	91.95		91.95	0.000022	0.30	86.63	29.55	0.03
ES102-01	ES102-01	1904	EX 100Y	41.00	88.32	93.04		93.05	0.000020	0.34	133.87	102.82	0.03
ES102-01	ES102-01	1904	ULT 10Y	20.00	88.32	91.42		91.42	0.000023	0.28	71.11	28.40	0.03
ES102-01	ES102-01	1904	ULT 25Y	30.00	88.32	91.98		91.99	0.000028	0.34	87.57	29.62	0.04
ES102-01	ES102-01	1904	ULT 100Y	50.00	88.32	93.06		93.07	0.000029	0.41	135.84	103.20	0.04
ES102-01	ES102-01	2464	EX 10Y	20.00	88.31	91.40		91.41	0.000037	0.33	59.88	25.98	0.04
ES102-01	ES102-01	2464	EX 25Y	26.00	88.31	91.97		91.97	0.000032	0.35	74.89	27.39	0.04
ES102-01	ES102-01	2464	EX 100Y	41.00	88.31	93.06		93.06	0.000030	0.38	107.04	31.61	0.04
ES102-01	ES102-01	2464	ULT 10Y	20.00	88.31	91.43		91.43	0.000035	0.33	60.61	26.05	0.04
ES102-01	ES102-01	2464	ULT 25Y	30.00	88.31	92.00		92.00	0.000041	0.40	75.87	27.48	0.04
ES102-01	ES102-01	2464	ULT 100Y	50.00	88.31	93.08		93.09	0.000043	0.46	107.84	31.71	0.04
ES102-01	ES102-01	3180	EX 10Y	20.00	85.86	91.41		91.41	0.000003	0.14	140.04	35.76	0.01
ES102-01	ES102-01	3180	EX 25Y	26.00	85.86	91.97		91.97	0.000004	0.16	160.56	37.16	0.01
ES102-01	ES102-01	3180	EX 100Y	41.00	85.86	93.07		93.07	0.000005	0.20	202.66	39.94	0.02
ES102-01	ES102-01	3180	ULT 10Y	20.00	85.86	91.44		91.44	0.000003	0.14	141.03	35.83	0.01
ES102-01	ES102-01	3180	ULT 25Y	30.00	85.86	92.01		92.01	0.000005	0.19	161.98	37.26	0.02
ES102-01	ES102-01	3180	ULT 100Y	50.00	85.86	93.10		93.10	0.000007	0.25	203.83	40.01	0.02
ES102-01	ES102-01	3865	EX 10Y	20.00	86.20	91.41		91.41	0.000006	0.18	111.43	29.14	0.02
ES102-01	ES102-01	3865	EX 25Y	26.00	86.20	91.98		91.98	0.000006	0.20	128.20	30.41	0.02
ES102-01	ES102-01	3865	EX 100Y	41.00	86.20	93.07		93.07	0.000008	0.25	162.78	32.92	0.02
ES102-01	ES102-01	3865	ULT 10Y	20.00	86.20	91.44		91.44	0.000006	0.18	112.24	29.20	0.02
ES102-01	ES102-01	3865	ULT 25Y	30.00	86.20	92.02		92.02	0.000008	0.23	129.39	30.49	0.02
ES102-01	ES102-01	3865	ULT 100Y	50.00	86.20	93.10		93.10	0.000012	0.31	163.81	33.05	0.02
ES102-01	ES102-01	4243	EX 10Y	20.00	85.01	91.42		91.42	0.000004	0.16	126.75	32.47	0.01
ES102-01	ES102-01	4243	EX 25Y	26.00	85.01	91.98		91.98	0.000005	0.18	145.61	34.50	0.02
ES102-01	ES102-01	4243	EX 100Y	41.00	85.01	93.07		93.07	0.000006	0.22	185.56	38.52	0.02
ES102-01	ES102-01	4243	ULT 10Y	20.00	85.01	91.44		91.44	0.000004	0.16	127.65	32.57	0.01
ES102-01	ES102-01	4243	ULT 25Y	30.00	85.01	92.02		92.02	0.000006	0.20	146.99	34.65	0.02
ES102-01	ES102-01	4243	ULT 100Y	50.00	85.01	93.11		93.11	0.000009	0.27	186.81	38.63	0.02
ES102-01	ES102-01	4848	EX 10Y	20.00	84.84	91.42		91.42	0.000002	0.12	164.60	36.63	0.01
ES102-01	ES102-01	4848	EX 25Y	26.00	84.84	91.98		91.98	0.000002	0.14	202.94	150.39	0.01
ES102-01	ES102-01	4848	EX 100Y	41.00	84.84	93.08		93.08	0.000002	0.15	445.74	244.05	0.01
ES102-01	ES102-01	4848	ULT 10Y	20.00	84.84	91.45		91.45	0.000002	0.12	165.62	36.97	0.01
ES102-01	ES102-01	4848	ULT 25Y	30.00	84.84	92.02		92.02	0.000003	0.16	209.48	175.37	0.01
ES102-01	ES102-01	4848	ULT 100Y	50.00	84.84	93.11		93.11	0.000003	0.18	454.11	252.47	0.01
ES102-01	ES102-01	5391	EX 10Y	20.00	84.49	91.42		91.42	0.000001	0.10	277.08	252.66	0.01
ES102-01	ES102-01	5391	EX 25Y	26.00	84.49	91.98		91.98	0.000001	0.10	425.54	271.12	0.01
ES102-01	ES102-01	5391	EX 100Y	41.00	84.49	93.08		93.08	0.000001	0.09	735.43	293.05	0.01
ES102-01	ES102-01	5391	ULT 10Y	20.00	84.49	91.45		91.45	0.000001	0.10	284.11	254.29	0.01
ES102-01	ES102-01	5391	ULT 25Y	30.00	84.49	92.02		92.02	0.000002	0.11	436.58	272.09	0.01
ES102-01	ES102-01	5391	ULT 100Y	50.00	84.49	93.11		93.11	0.000001	0.11	745.41	293.52	0.01

ES100 Plan: ES100

ES100 ES100-00

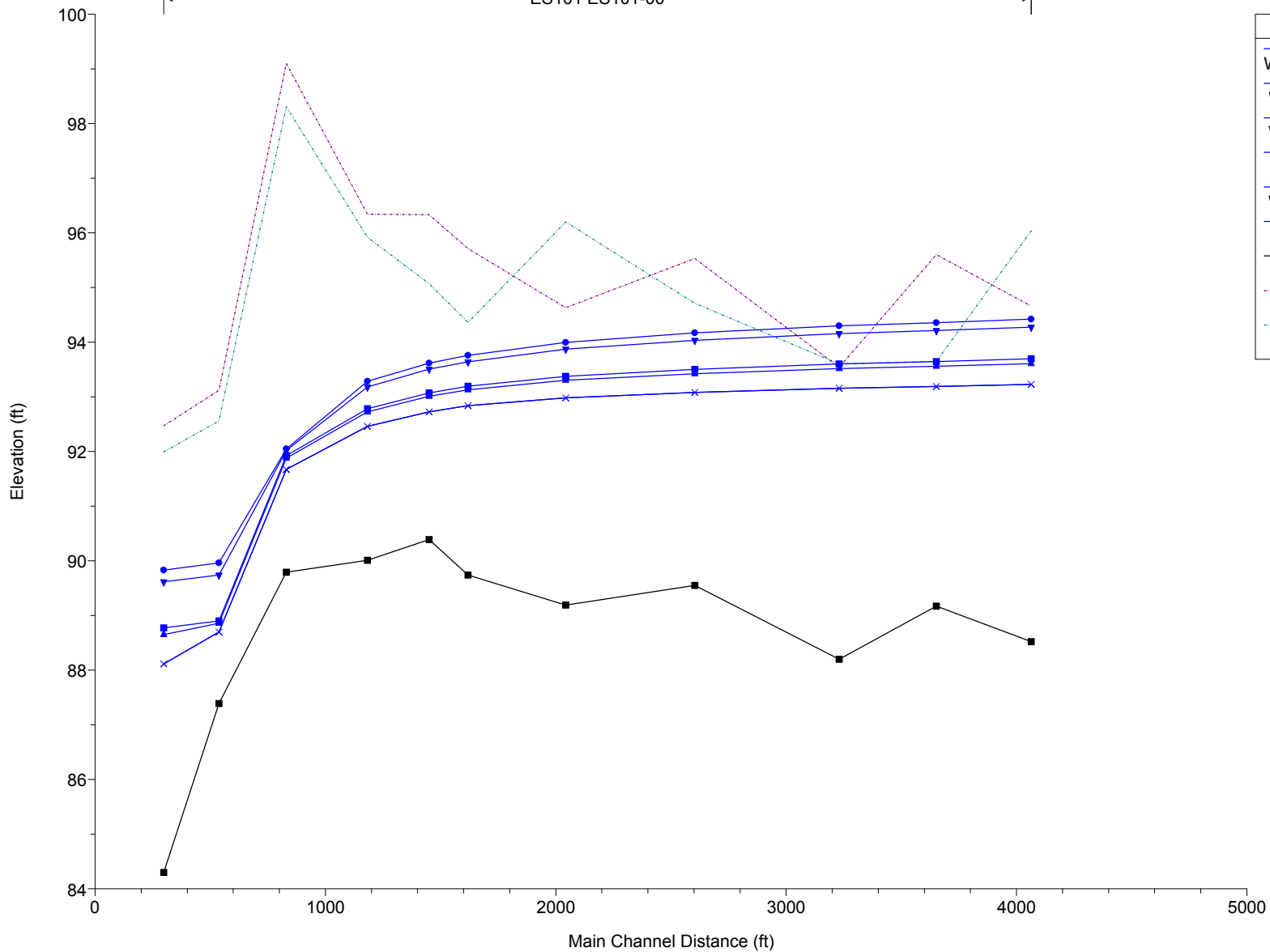


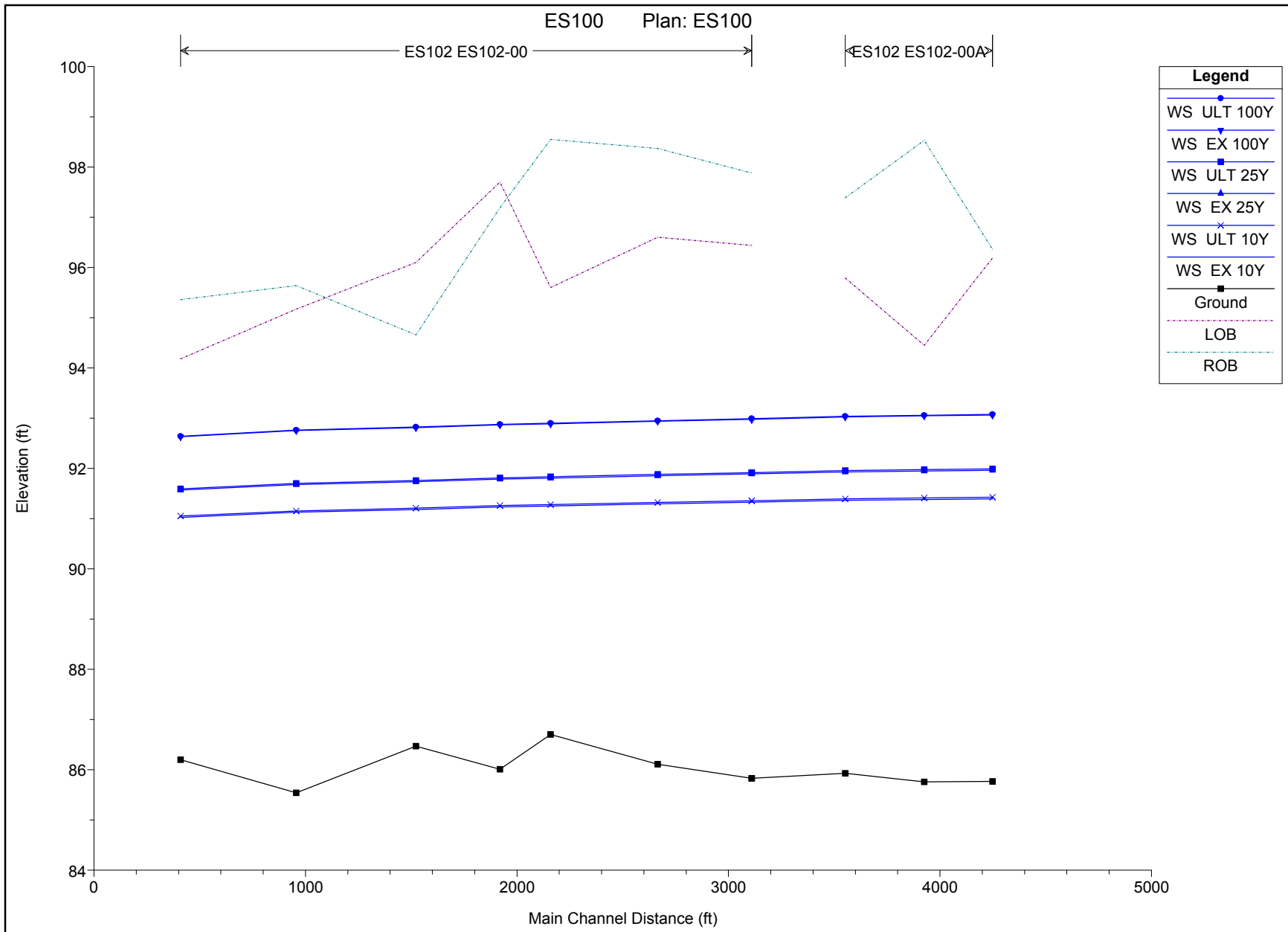
Legend

- WS ULT 100Y (Blue line with diamond markers)
- WS EX 100Y (Blue line with inverted triangle markers)
- WS ULT 25Y (Blue line with square markers)
- WS EX 25Y (Blue line with triangle markers)
- WS ULT 10Y (Blue line with 'x' markers)
- WS EX 10Y (Blue line with 'x' markers)
- Ground (Black line with square markers)
- LOB (Dashed magenta line)
- ROB (Dotted green line)

ES100 Plan: ES100

ES101 ES101-00

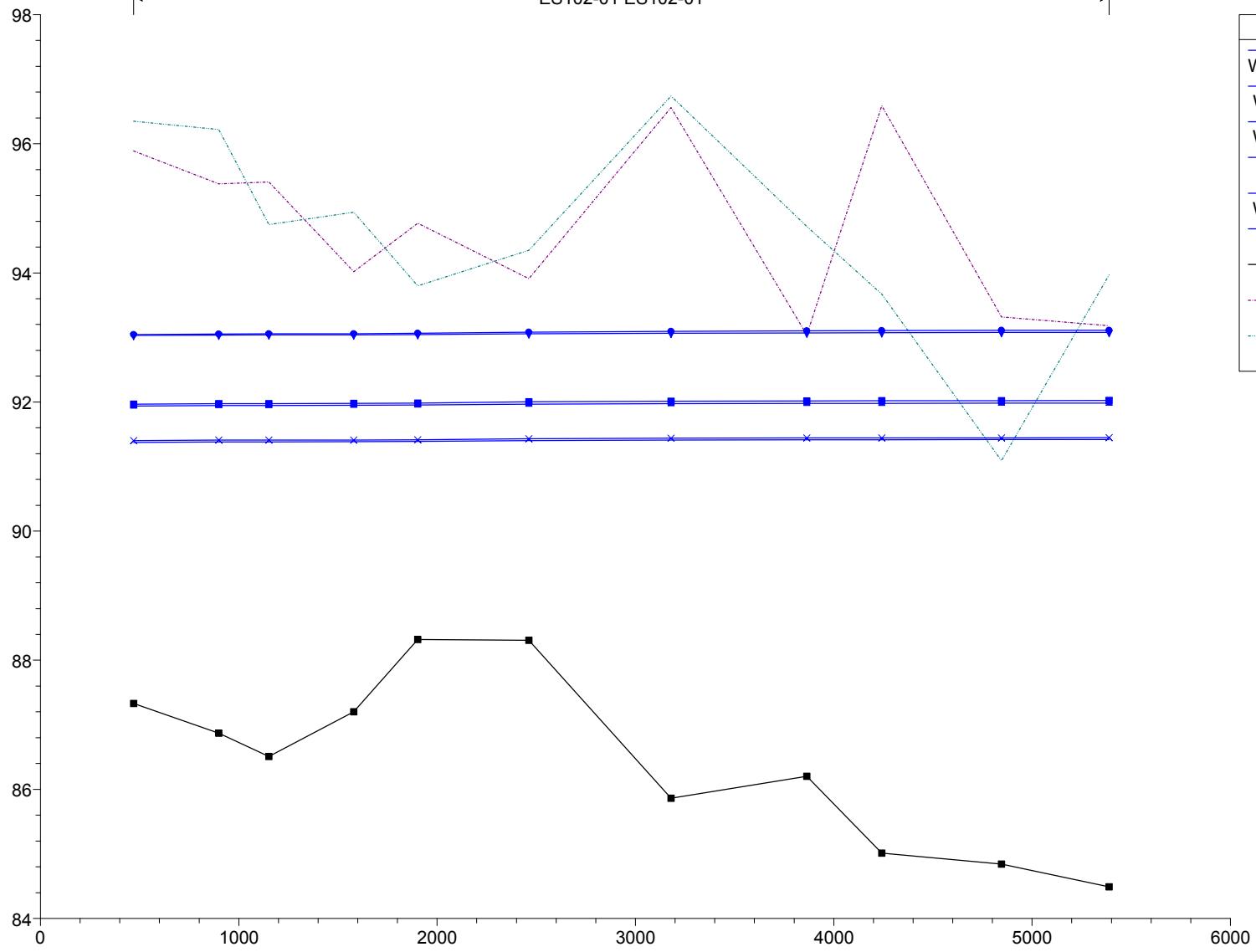




ES100 Plan: ES100

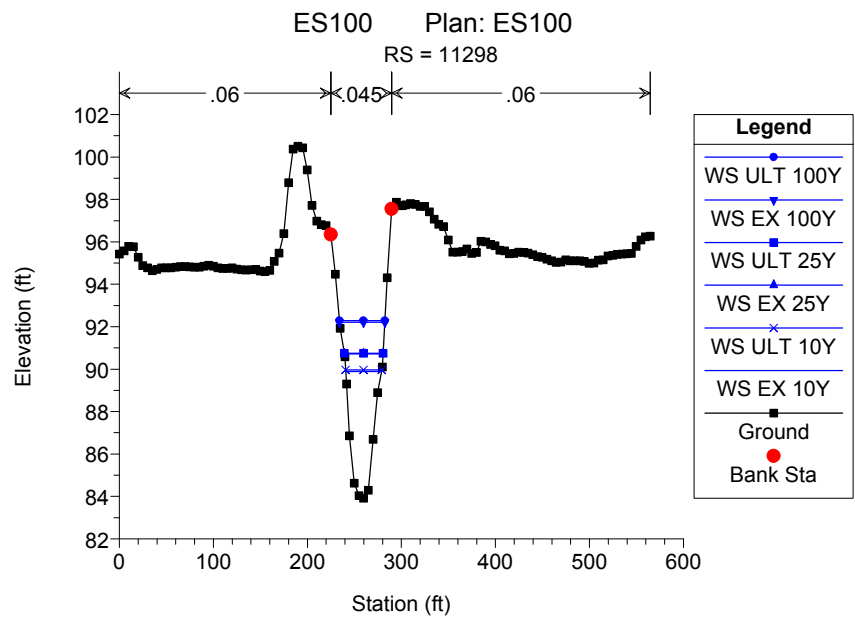
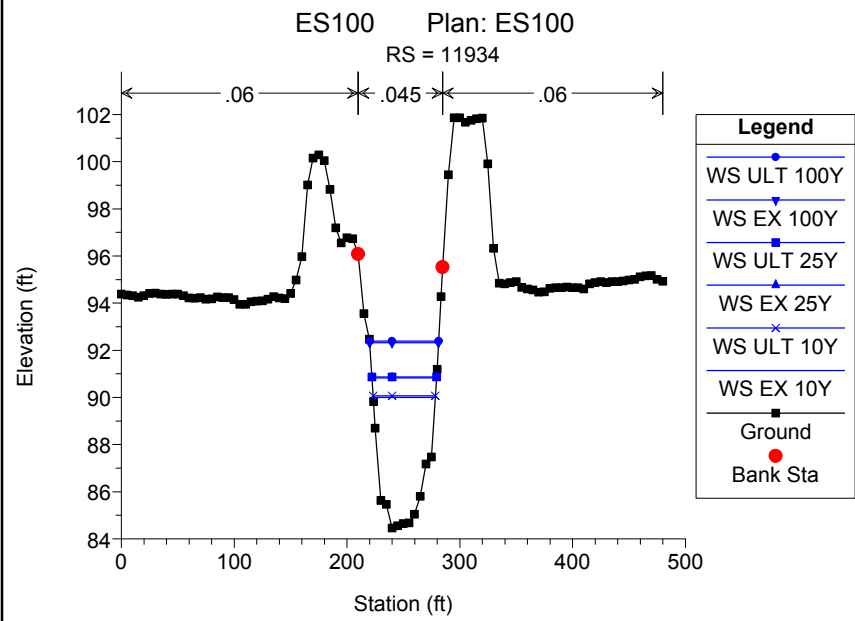
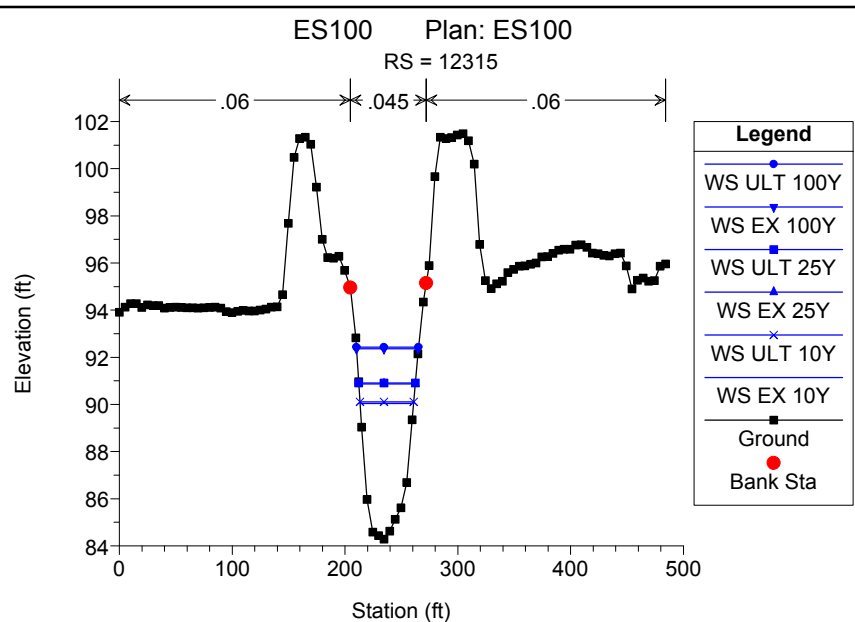
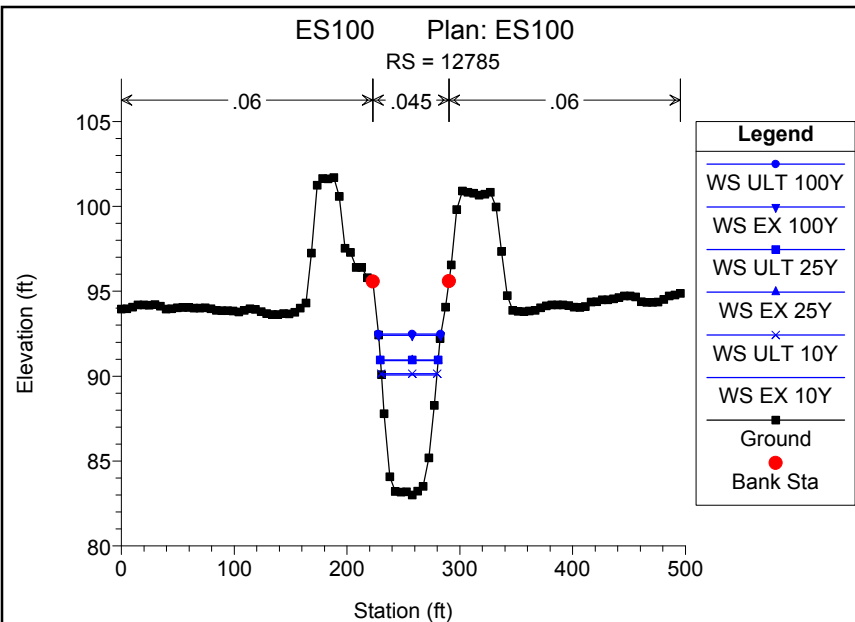
ES102-01 ES102-01

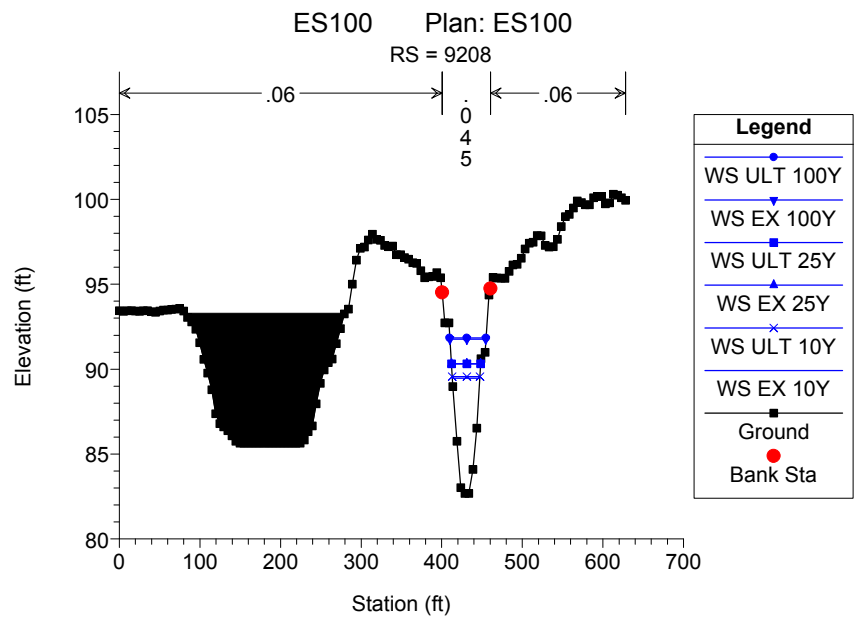
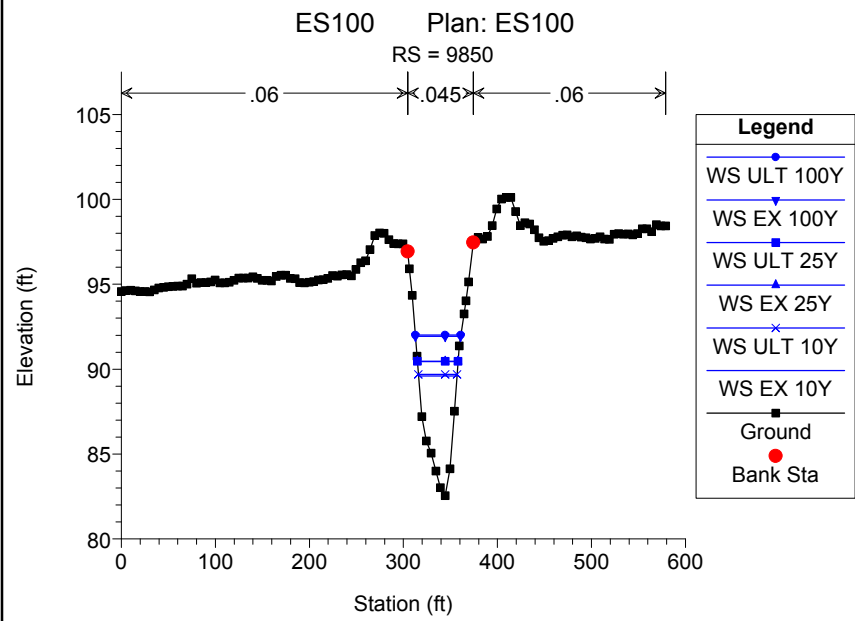
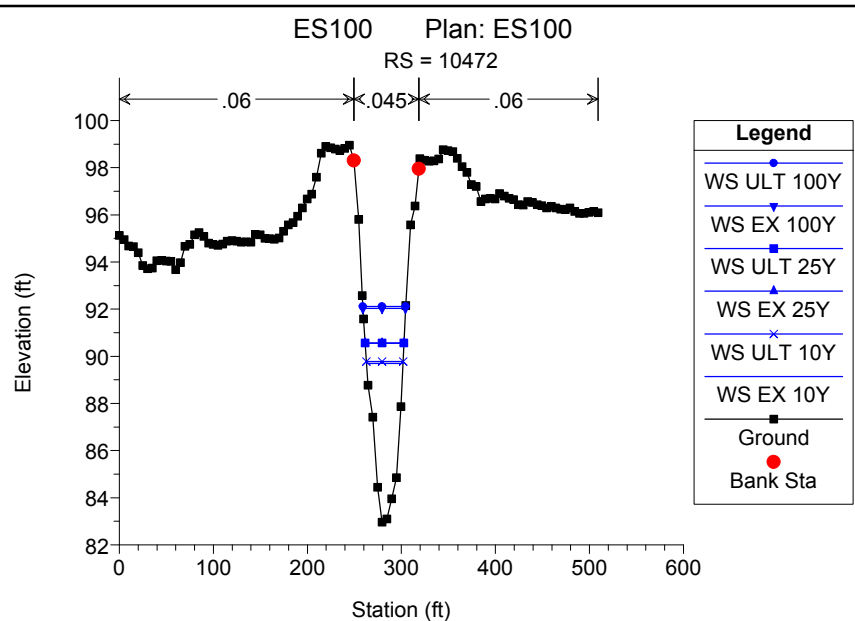
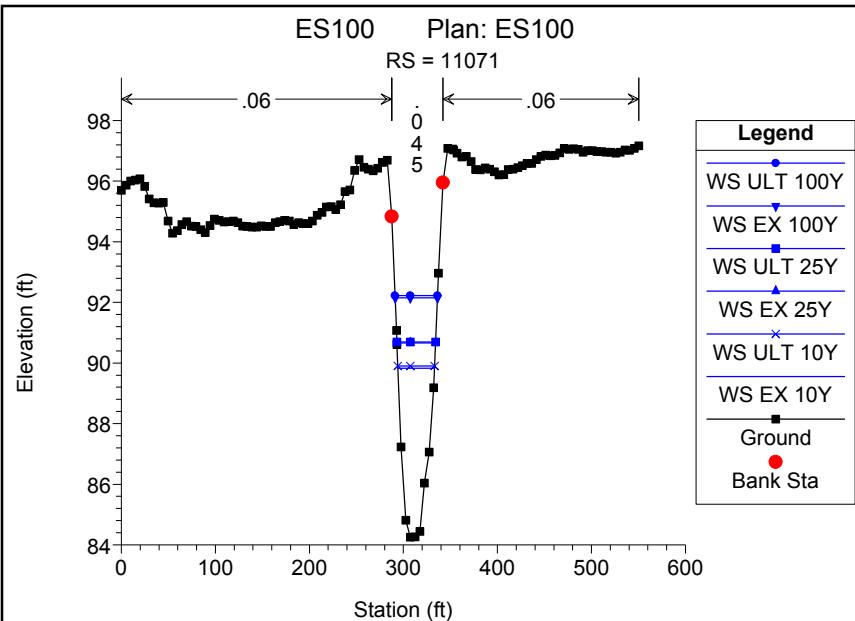
Elevation (ft)

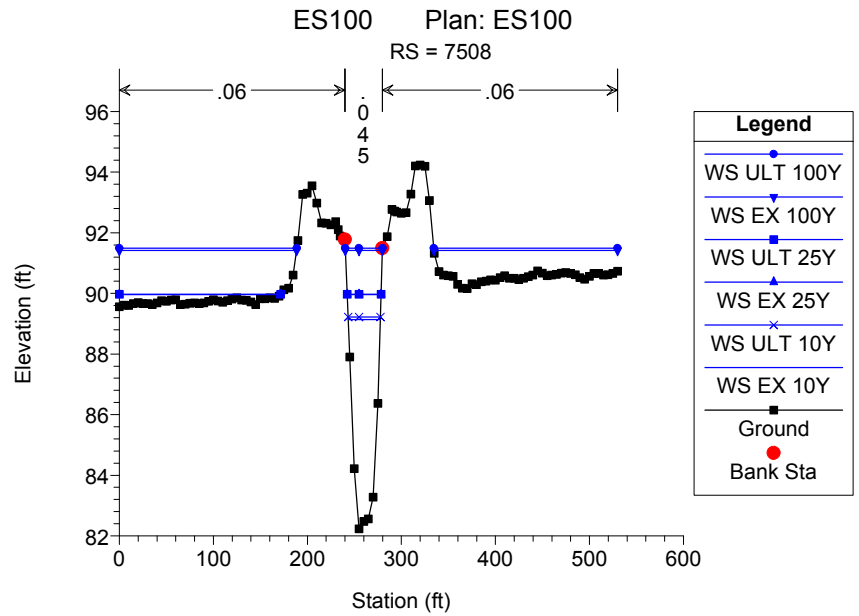
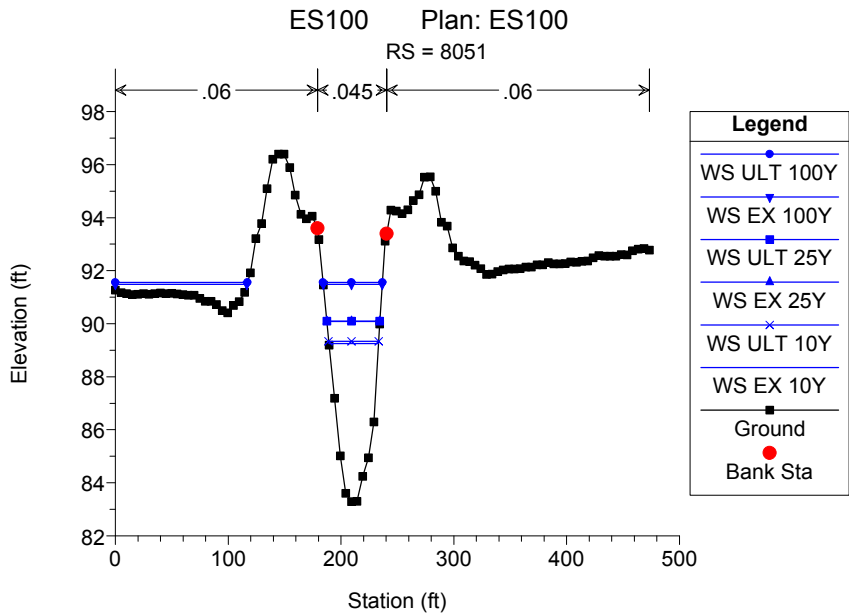
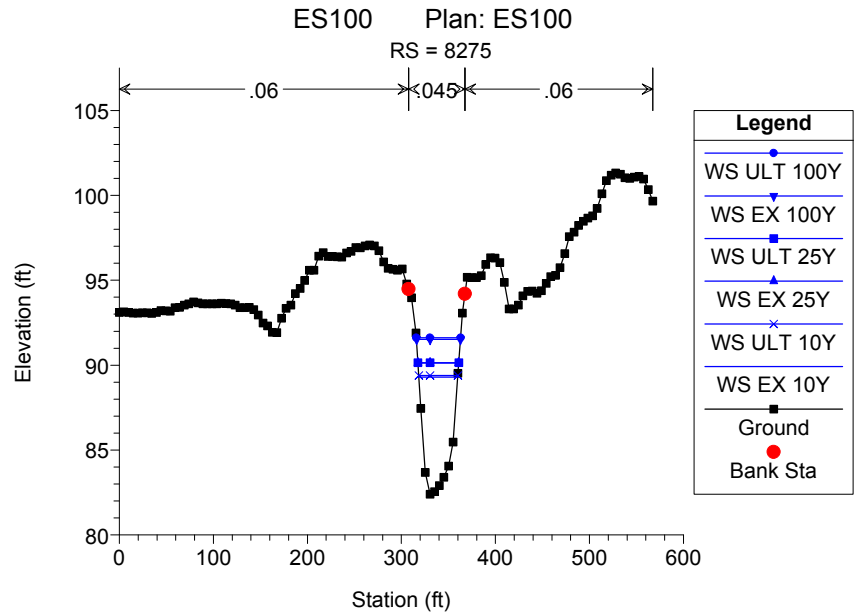
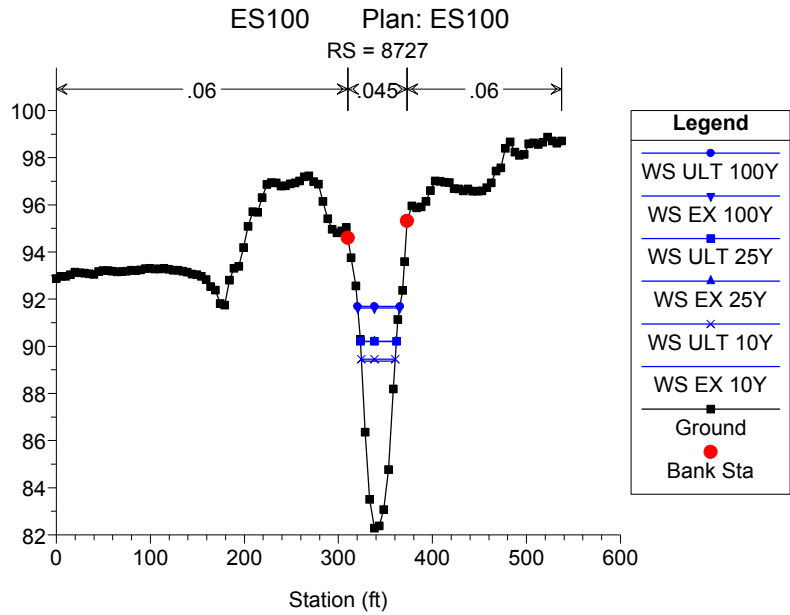


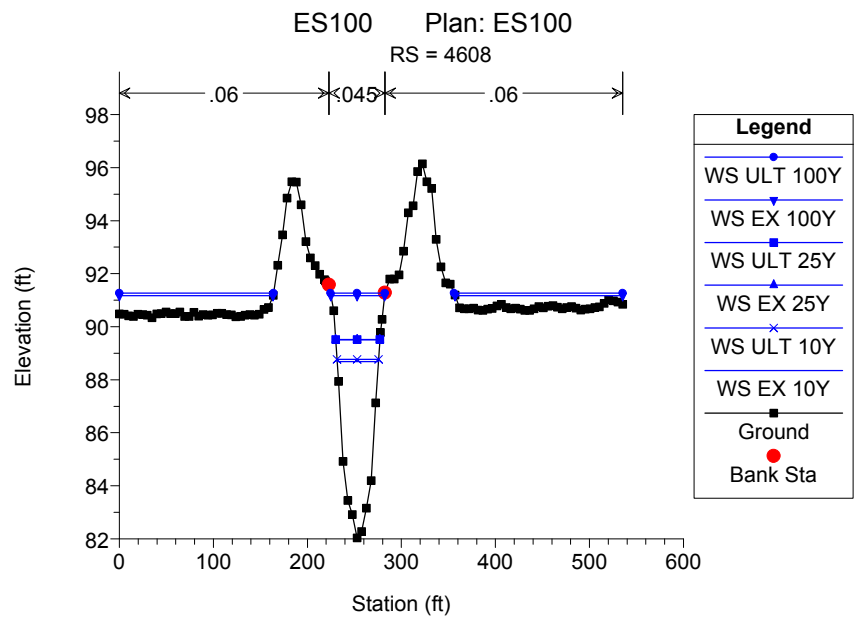
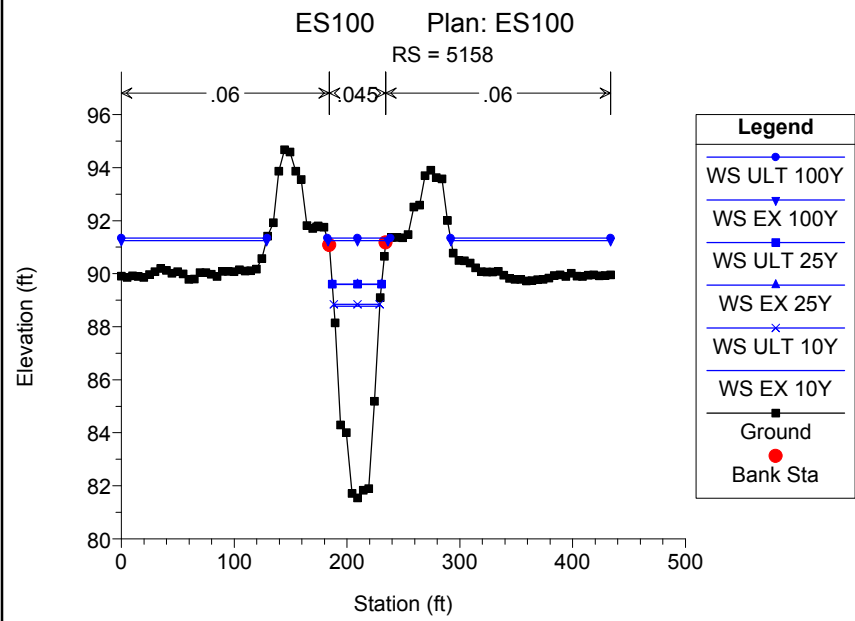
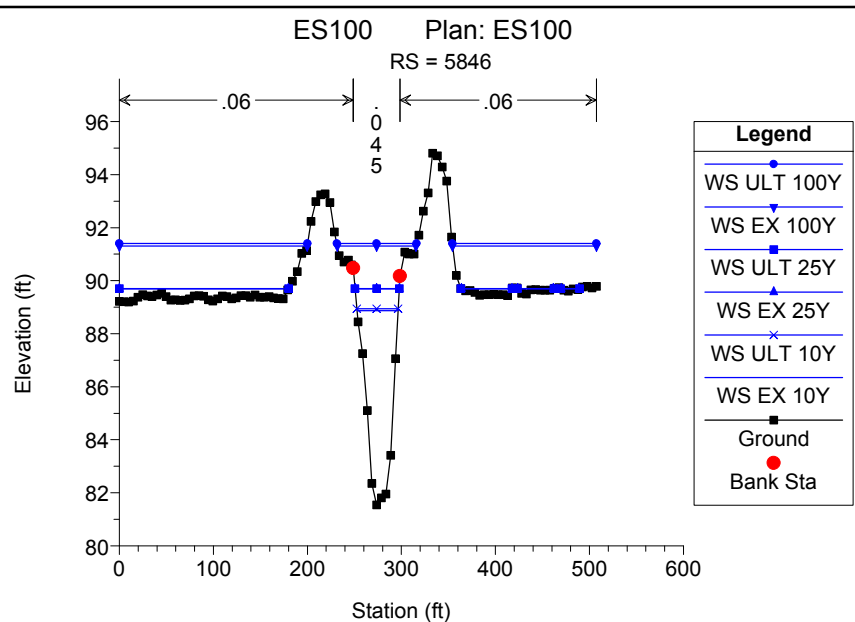
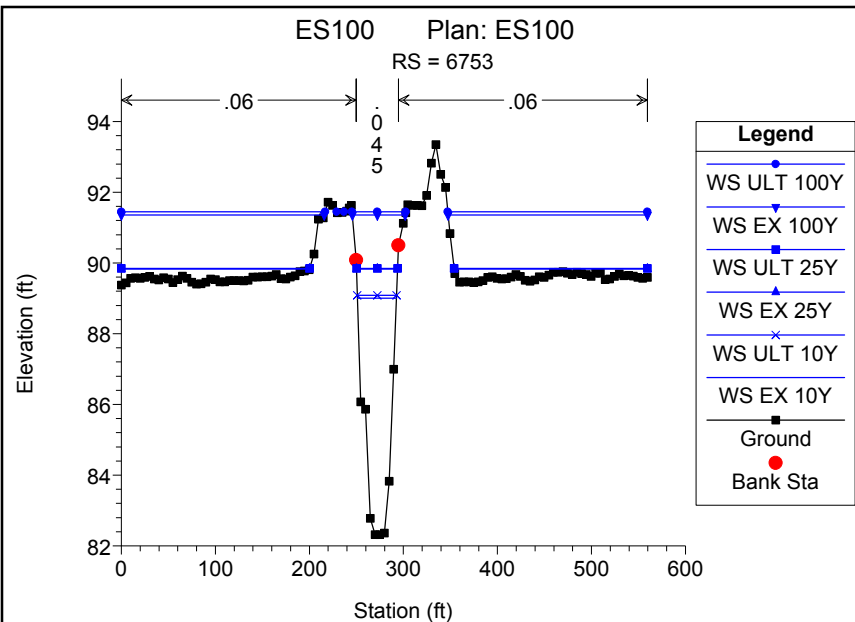
Legend

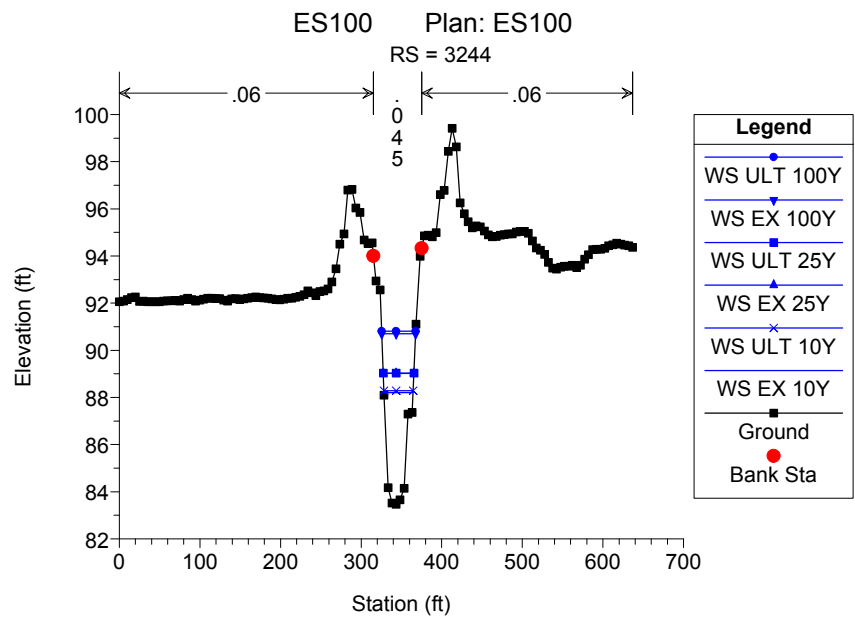
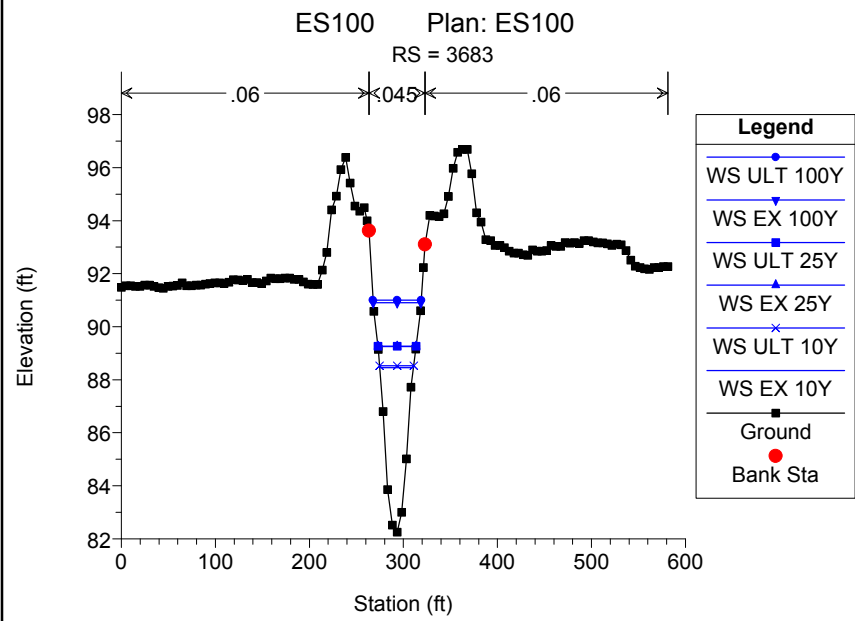
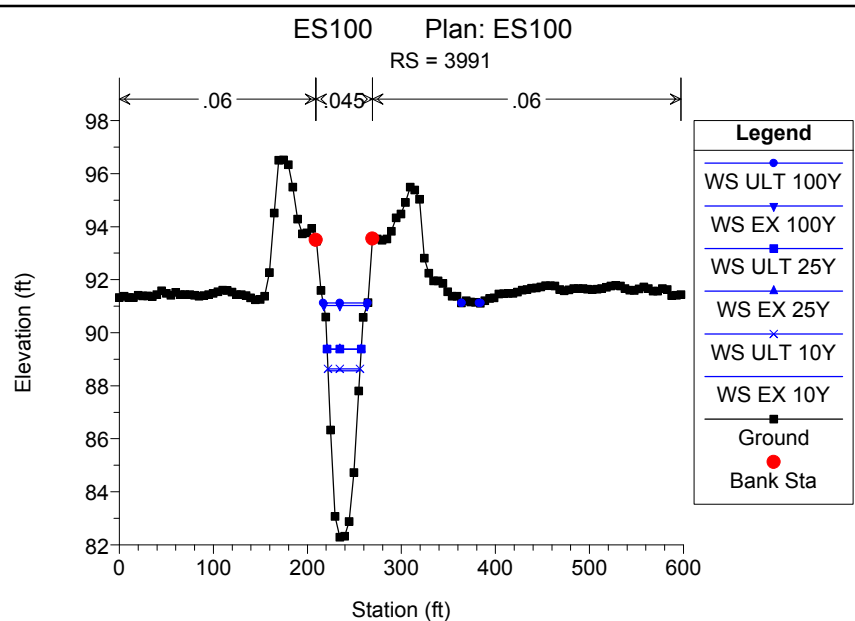
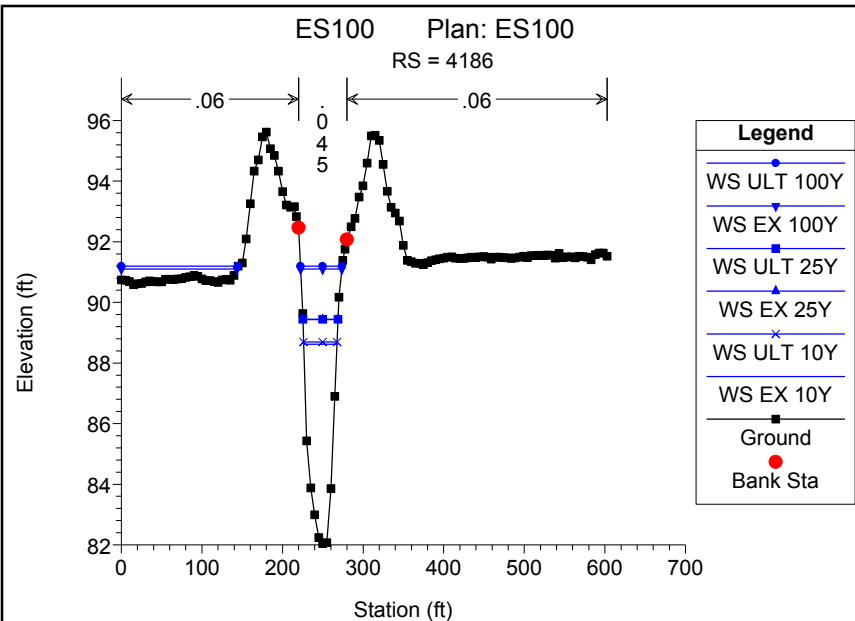
- WS ULT 100Y
- WS EX 100Y
- WS ULT 25Y
- WS EX 25Y
- WS ULT 10Y
- WS EX 10Y
- Ground
- LOB
- ROB

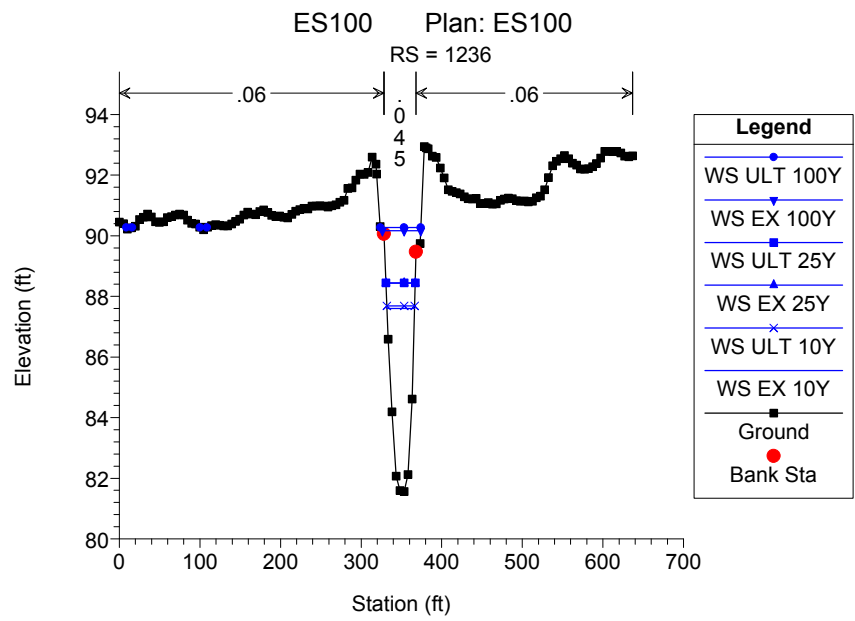
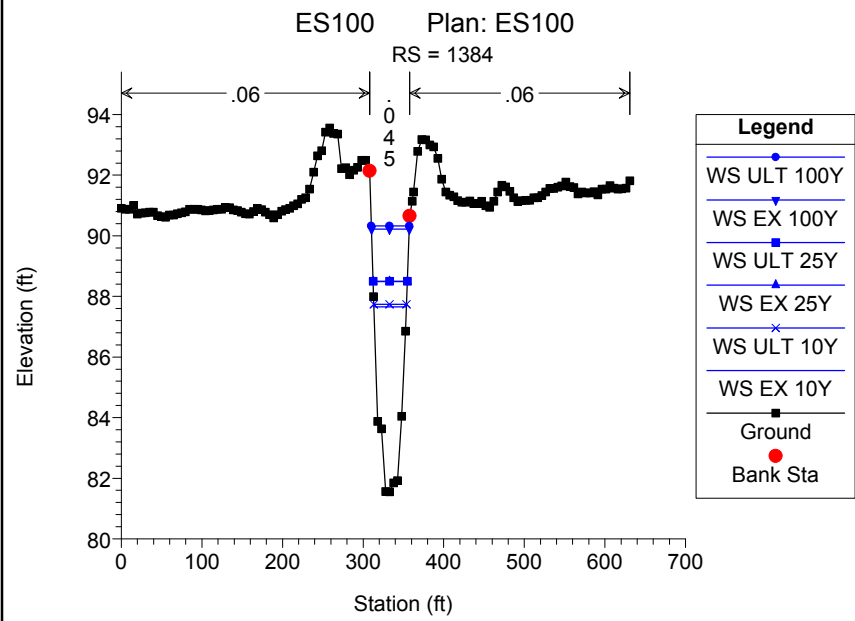
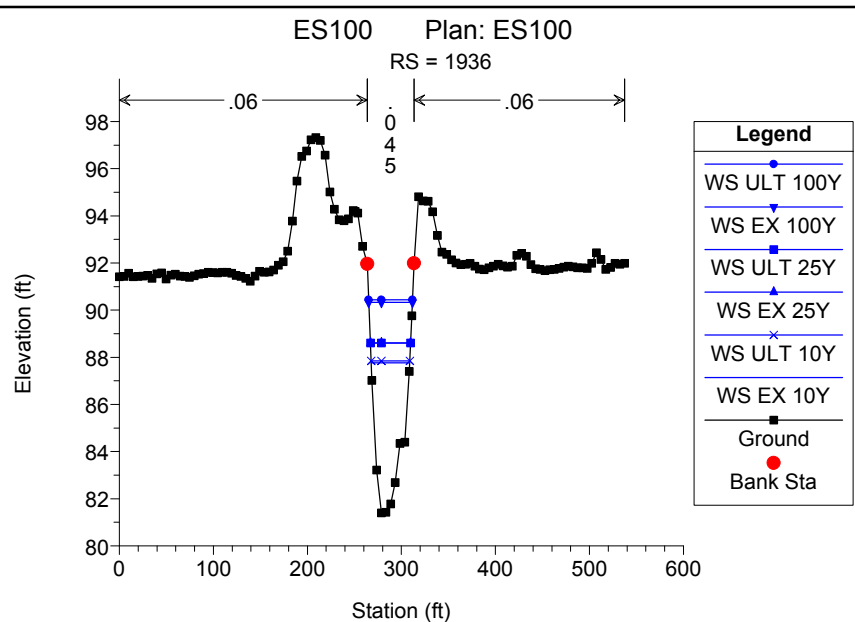
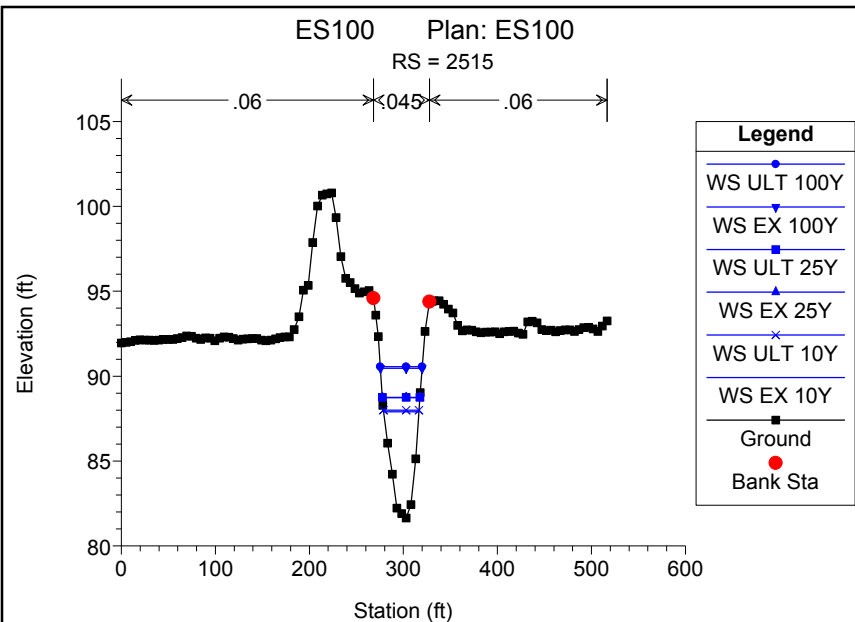


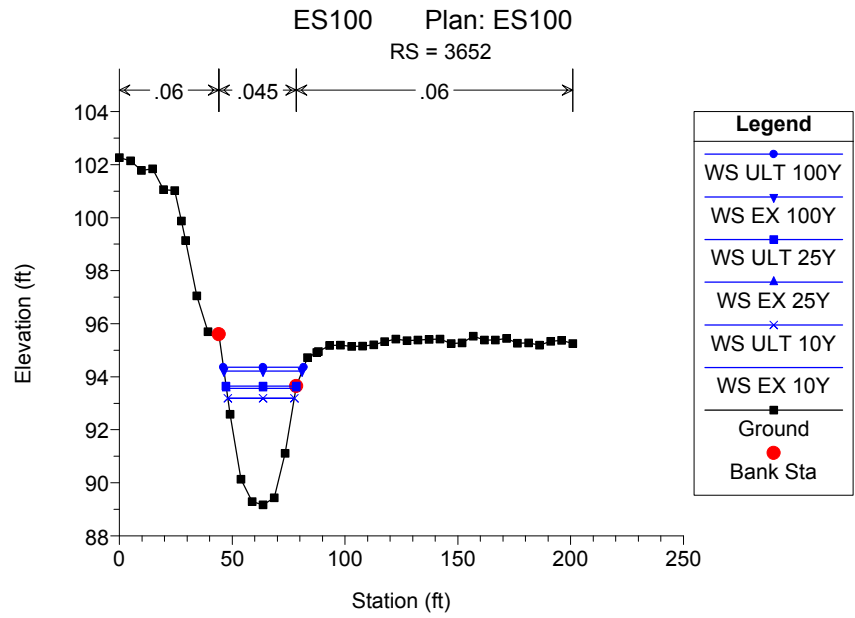
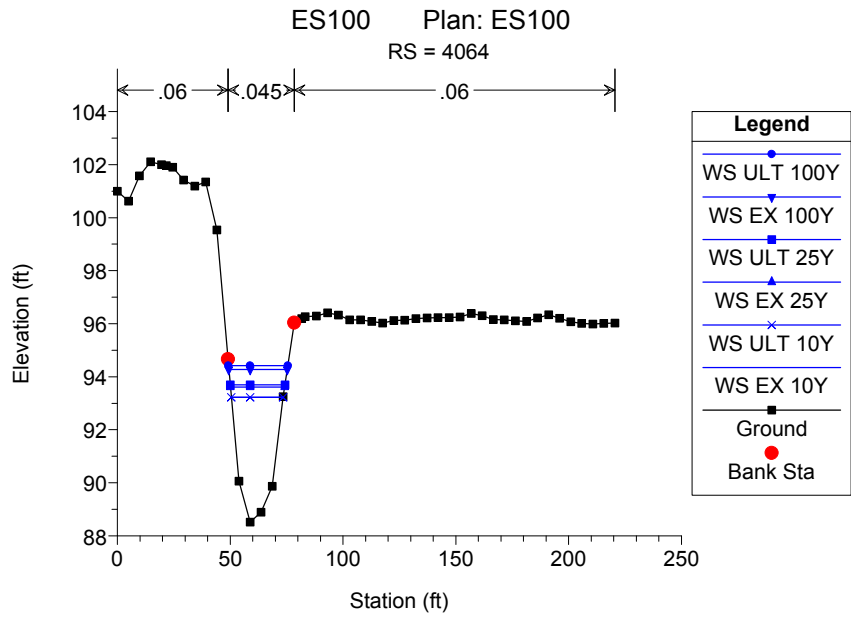
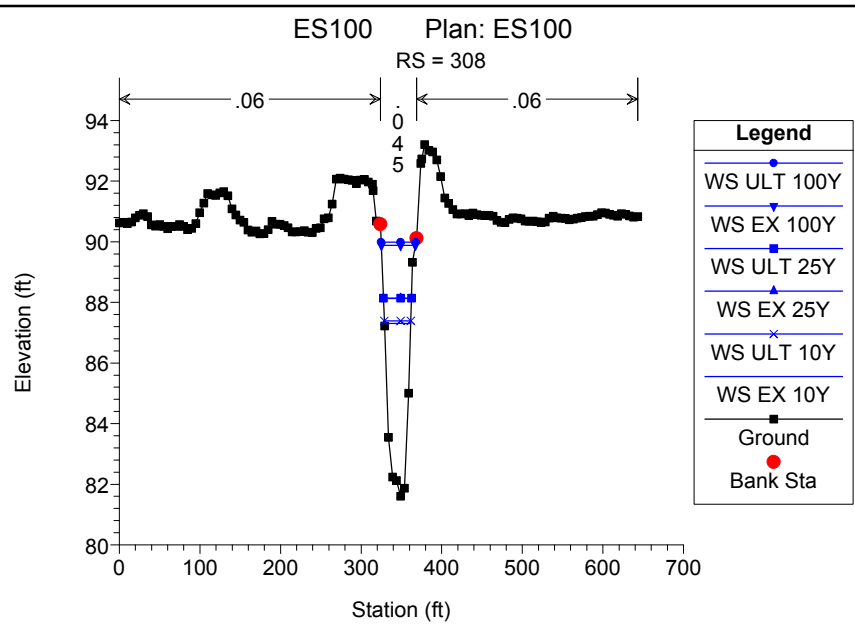
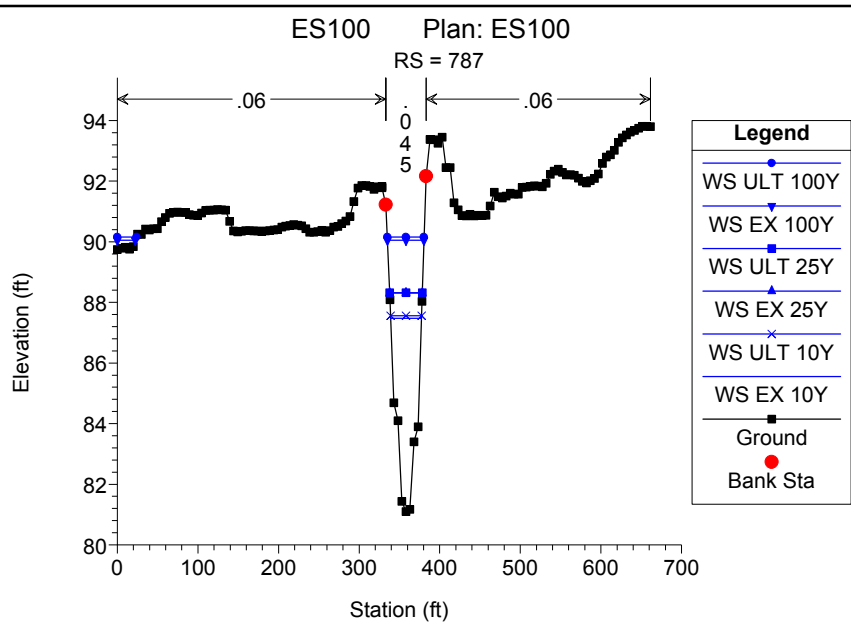


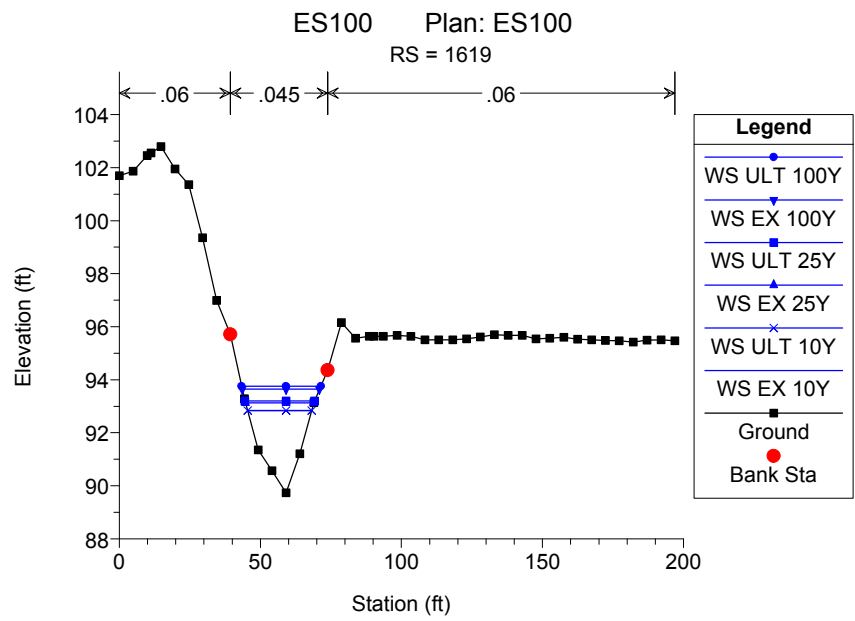
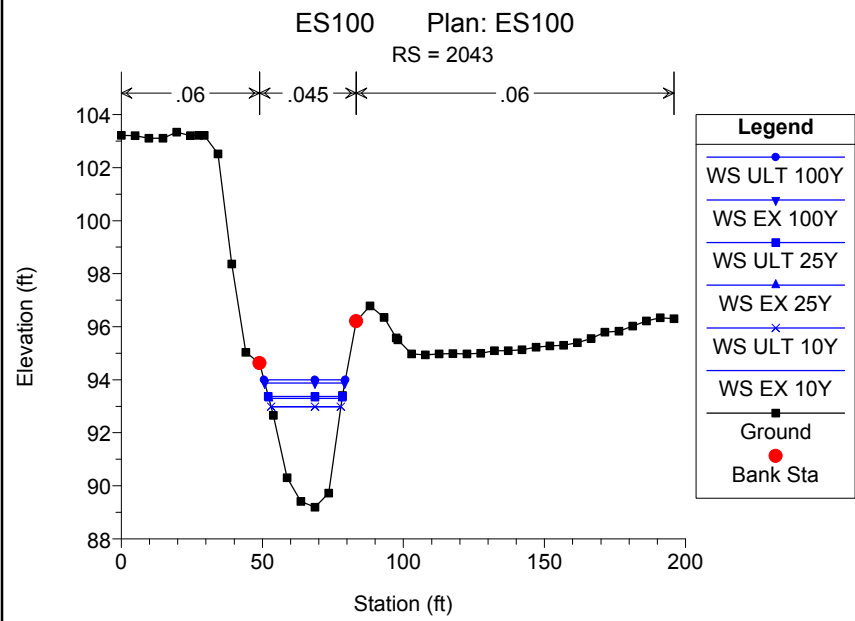
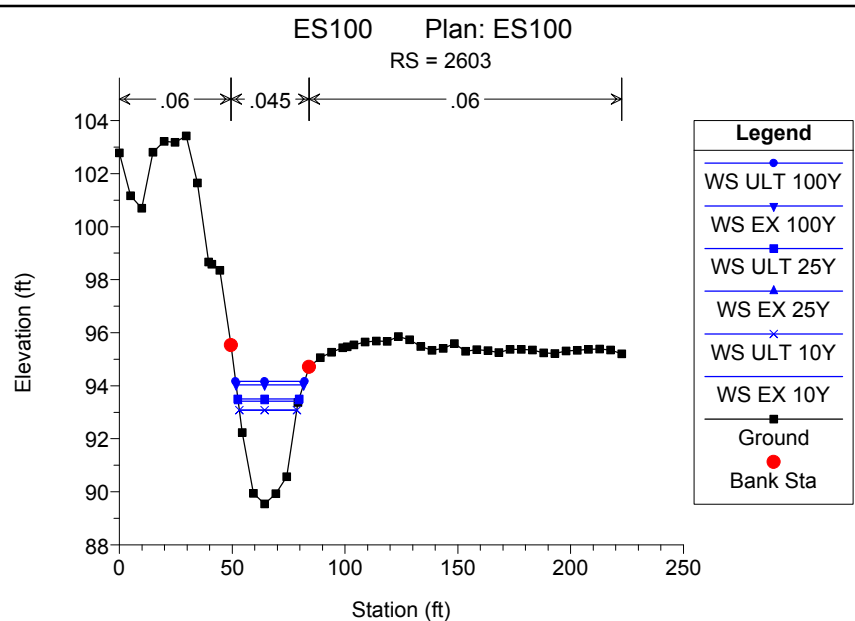
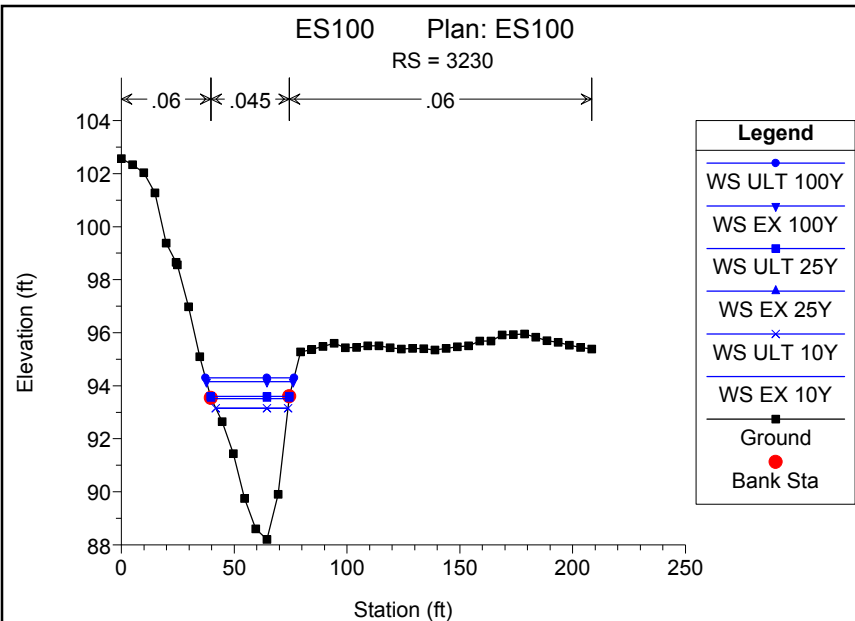






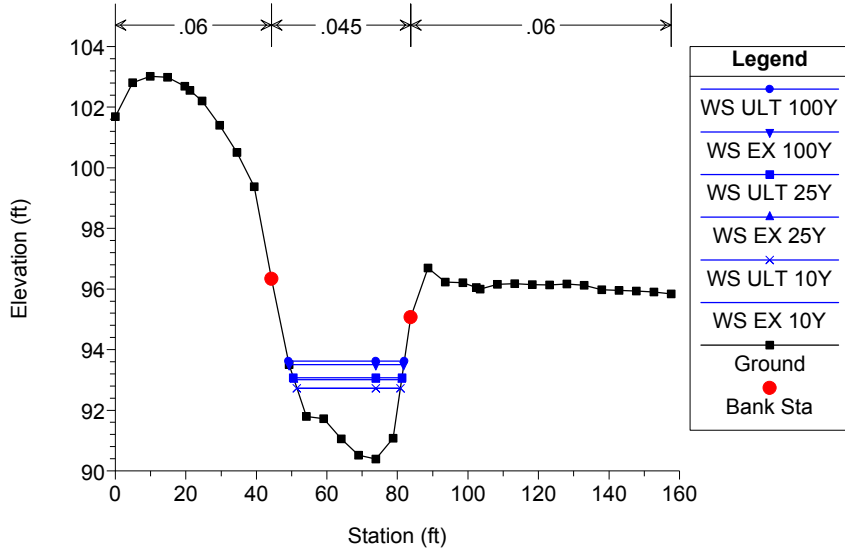






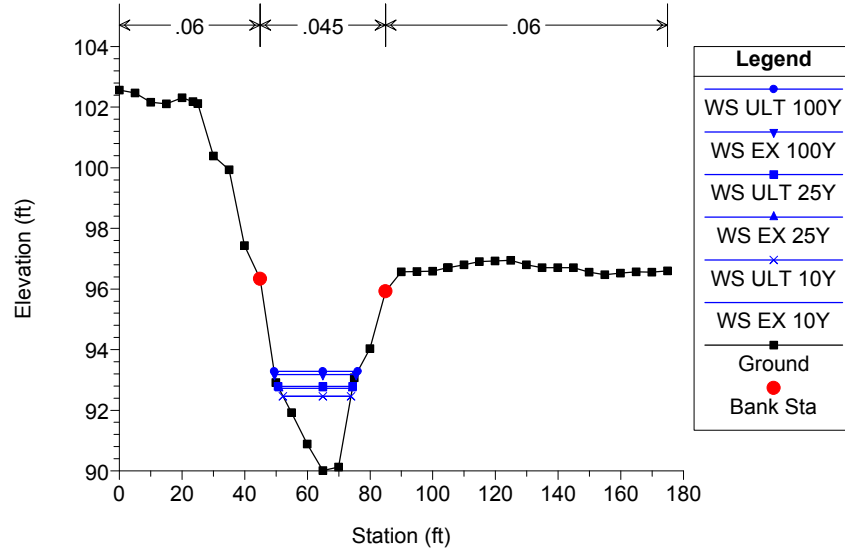
ES100 Plan: ES100

RS = 1450



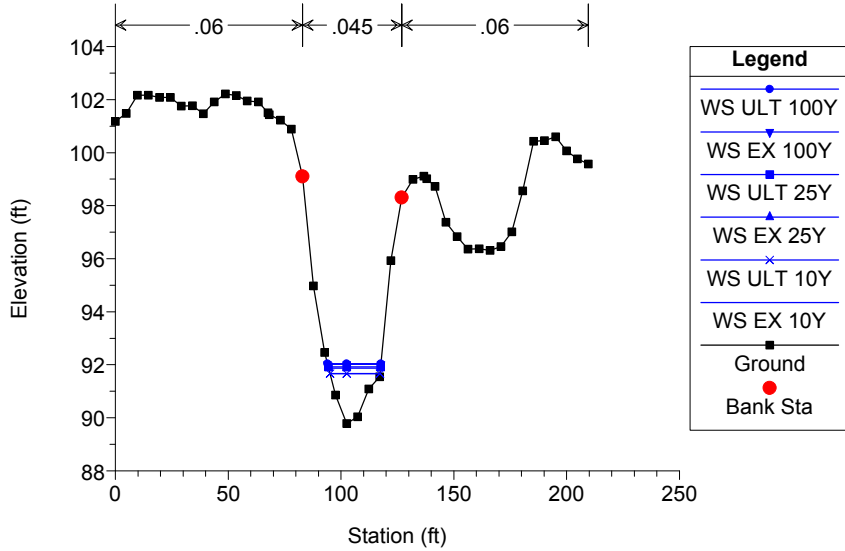
ES100 Plan: ES100

RS = 1182



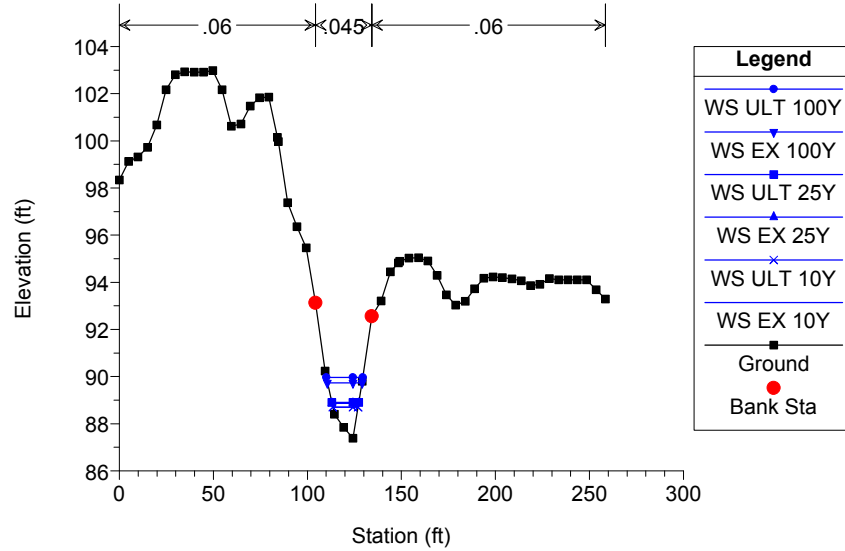
ES100 Plan: ES100

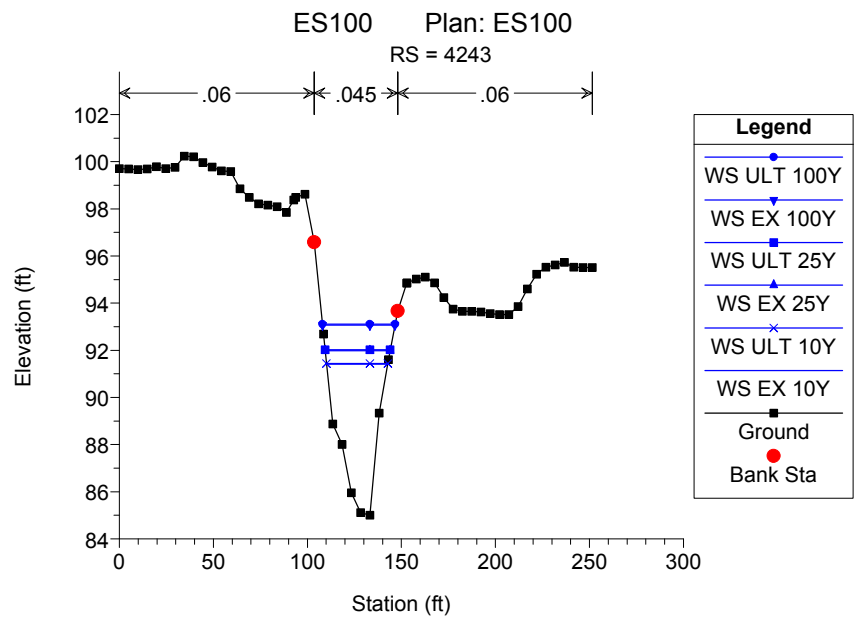
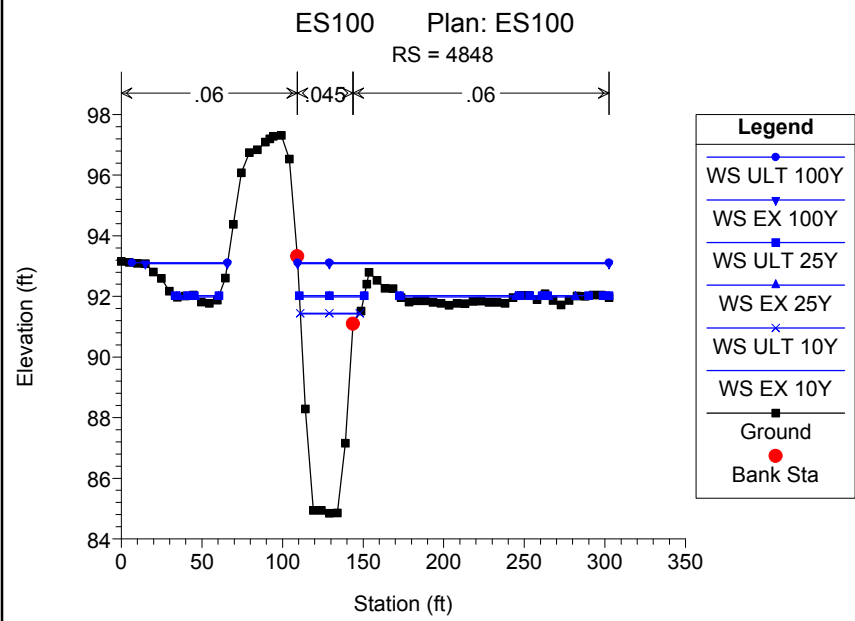
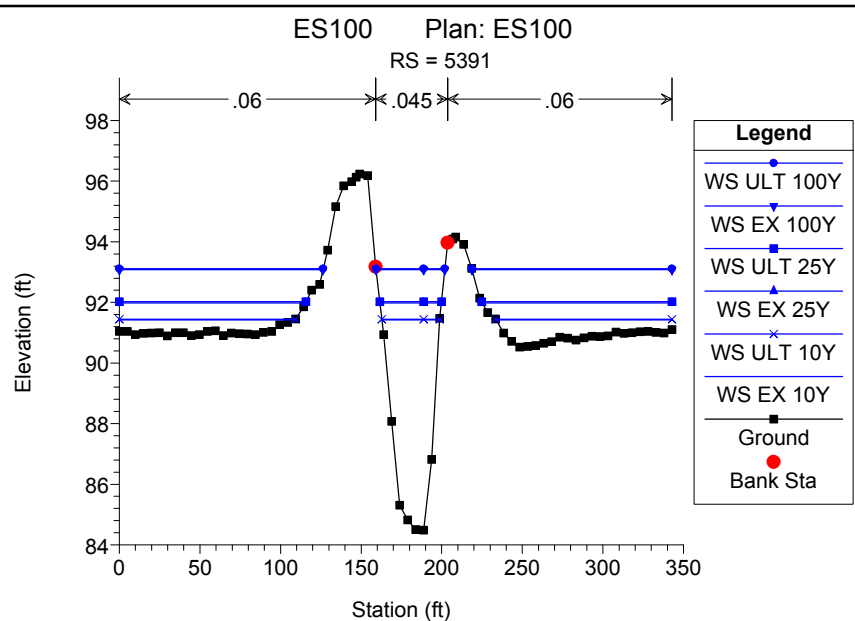
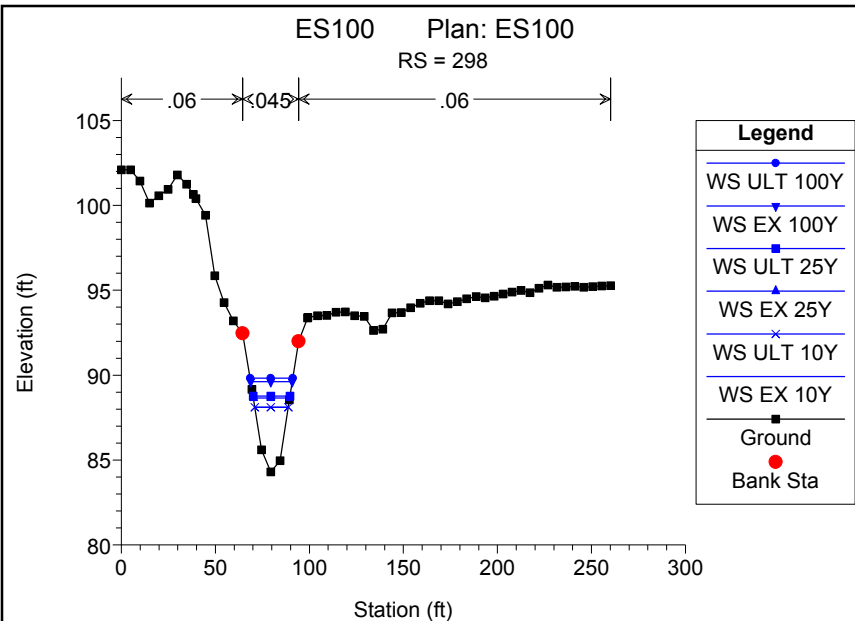
RS = 830



ES100 Plan: ES100

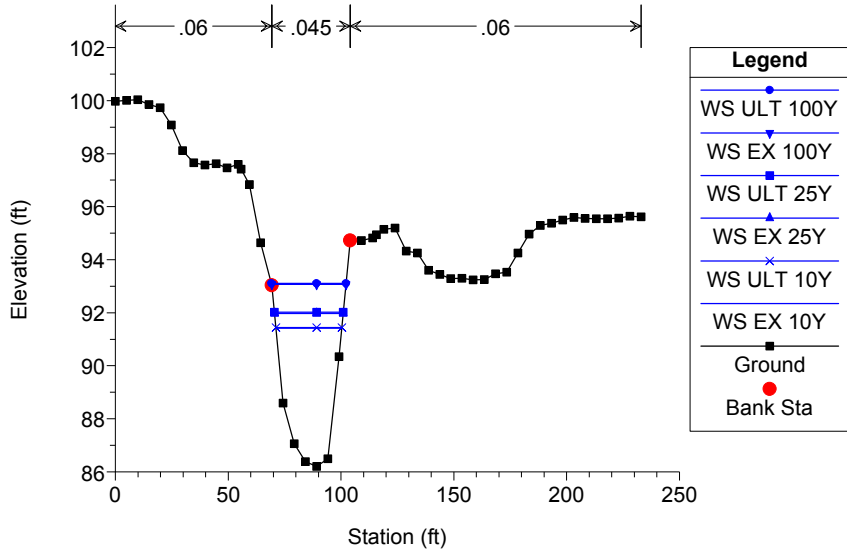
RS = 538





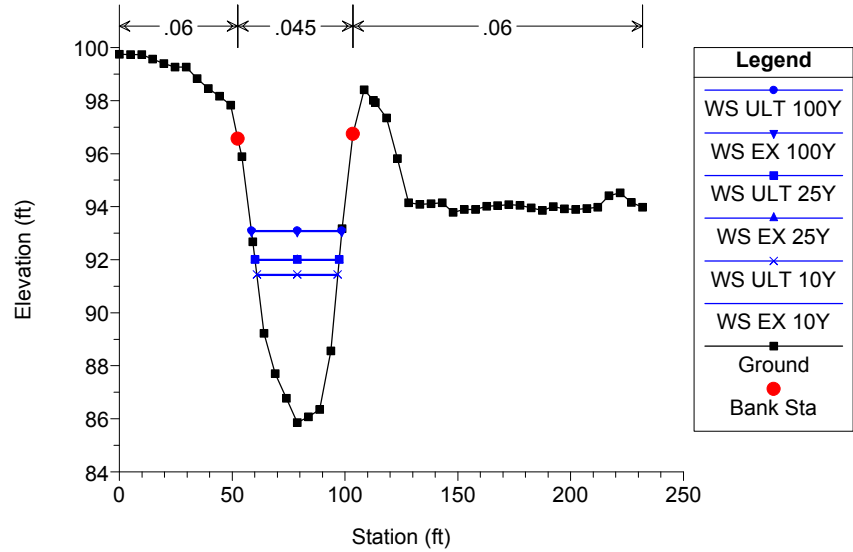
ES100 Plan: ES100

RS = 3865



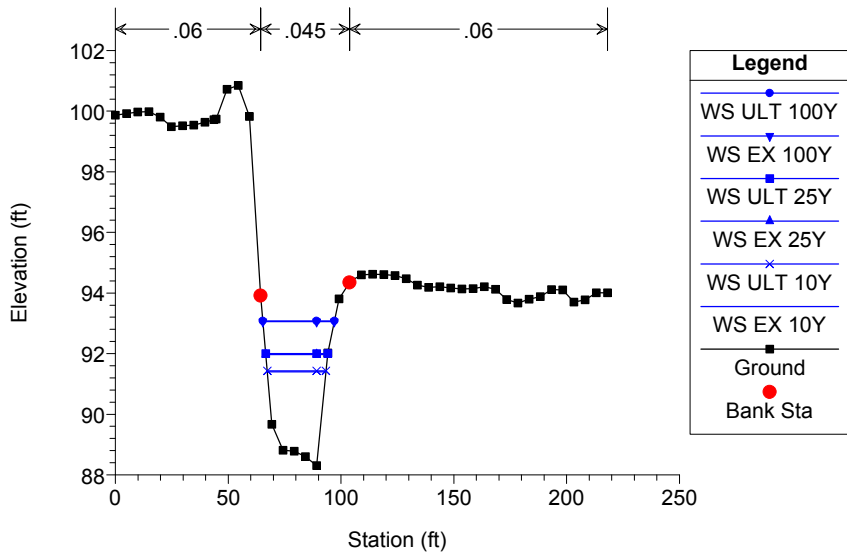
ES100 Plan: ES100

RS = 3180



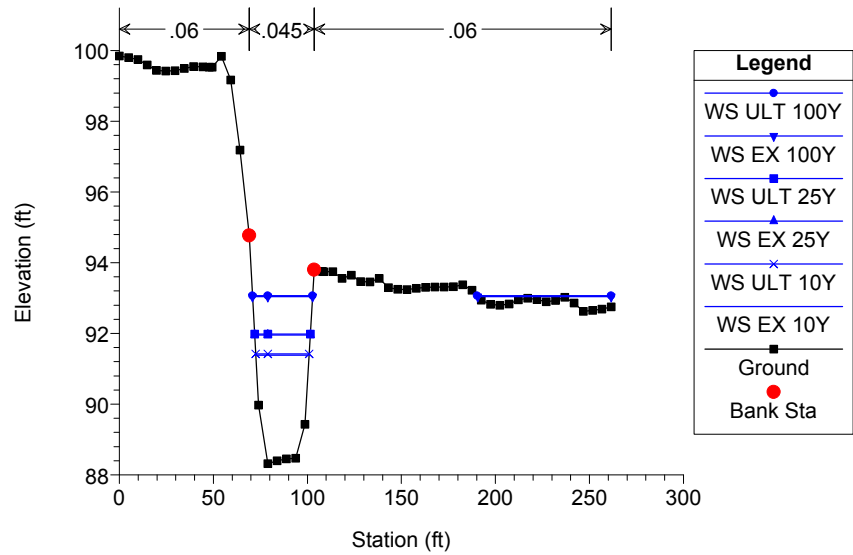
ES100 Plan: ES100

RS = 2464



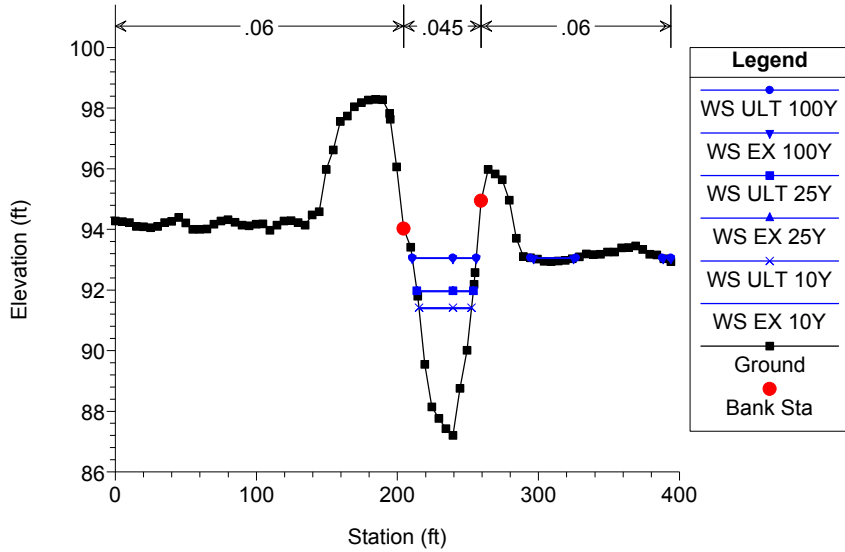
ES100 Plan: ES100

RS = 1904



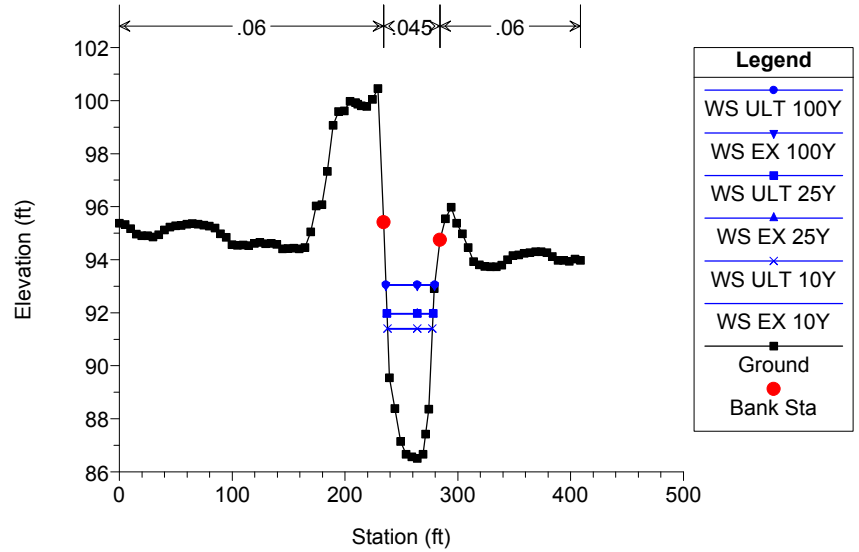
ES100 Plan: ES100

RS = 1581



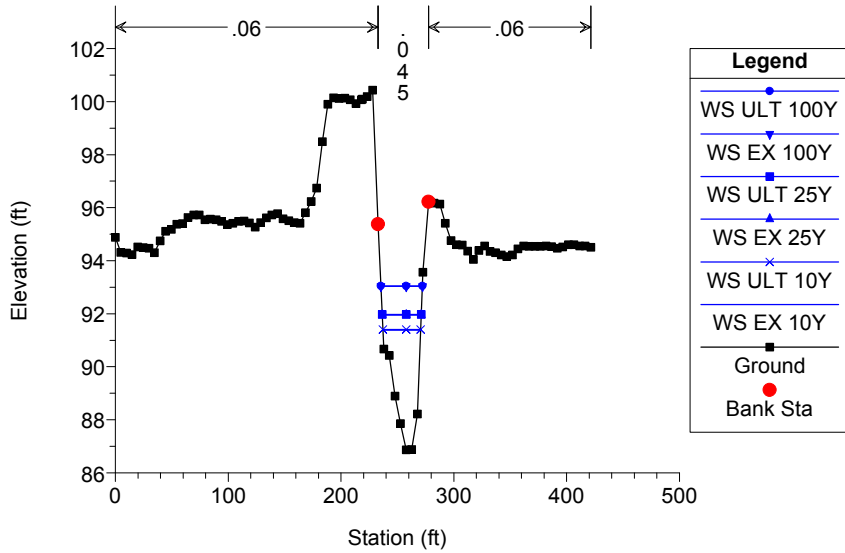
ES100 Plan: ES100

RS = 1152



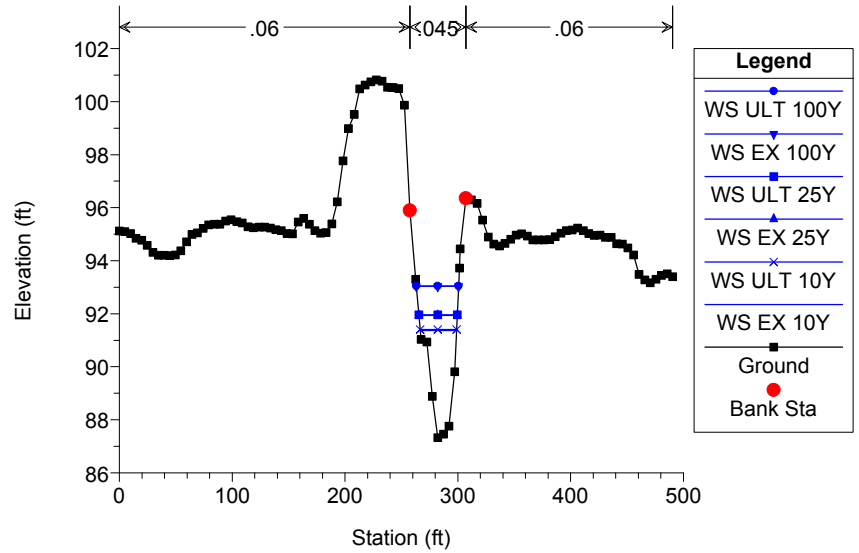
ES100 Plan: ES100

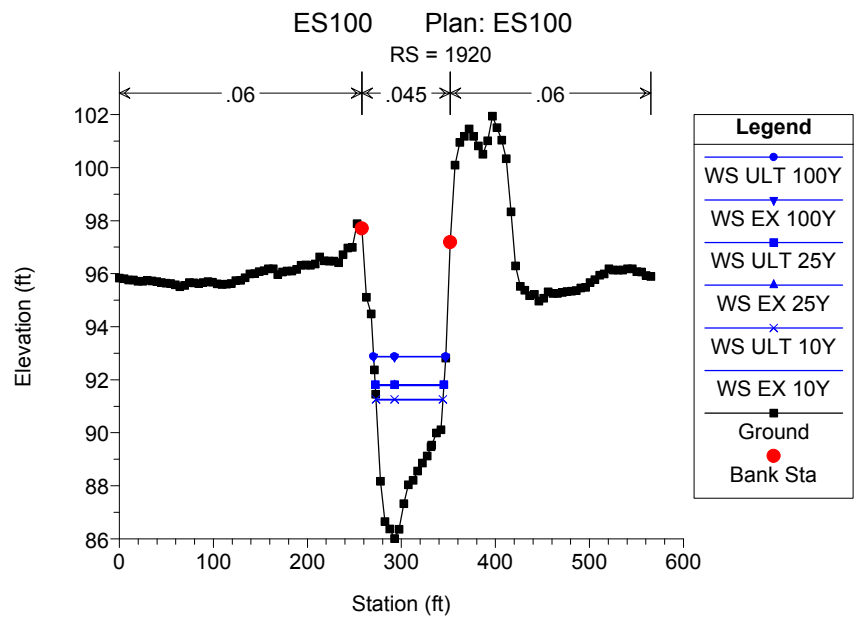
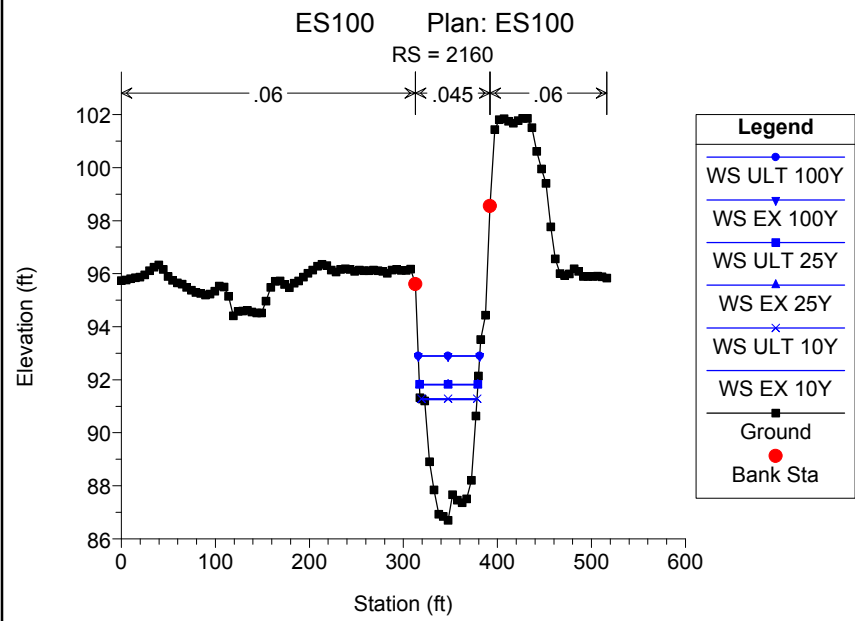
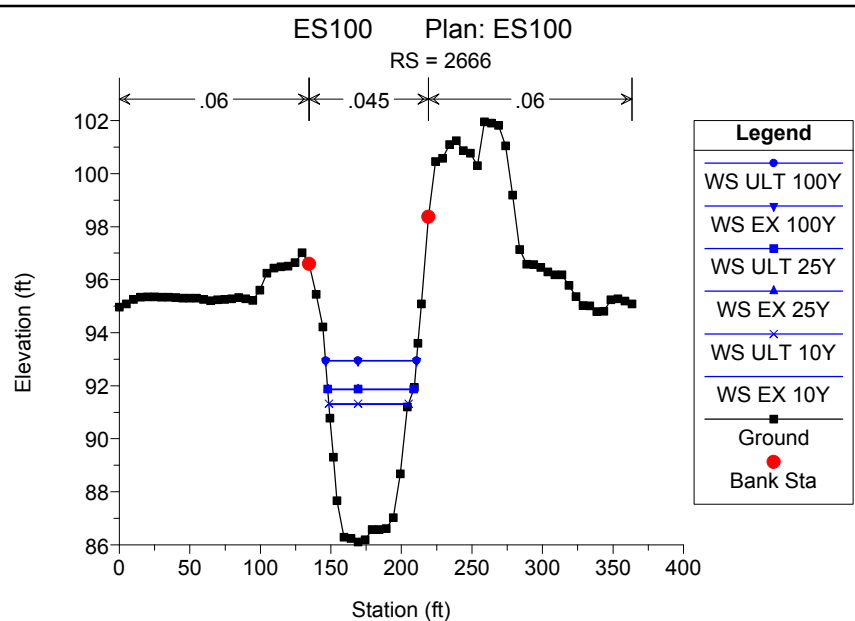
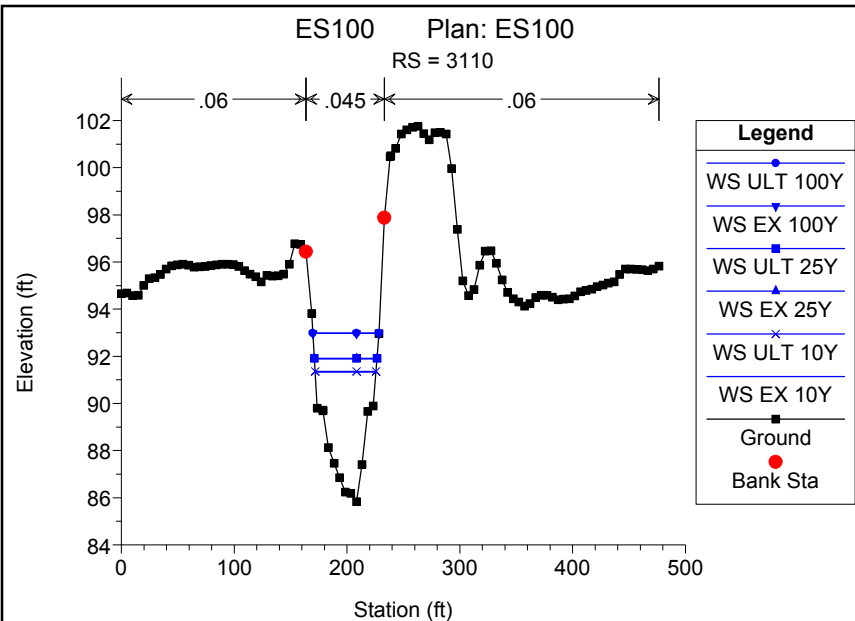
RS = 899

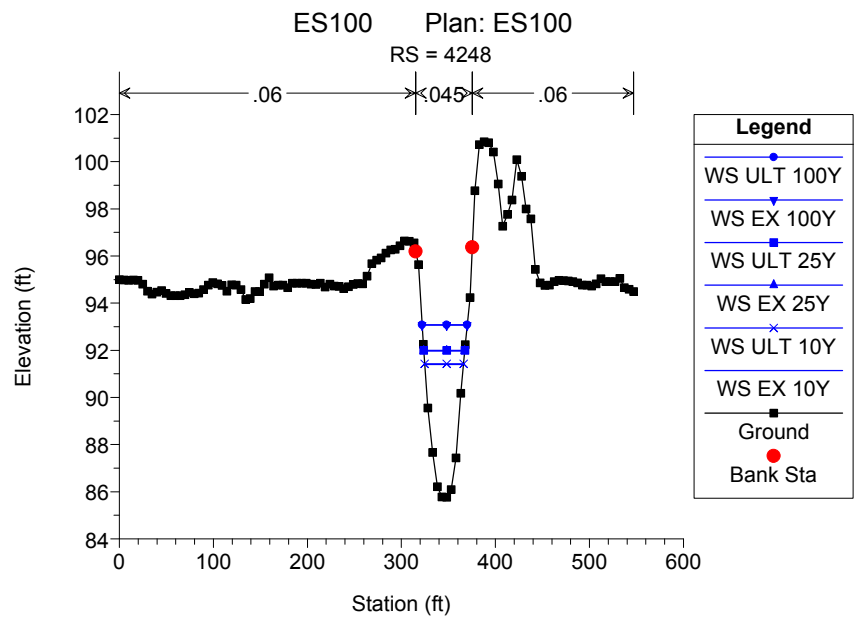
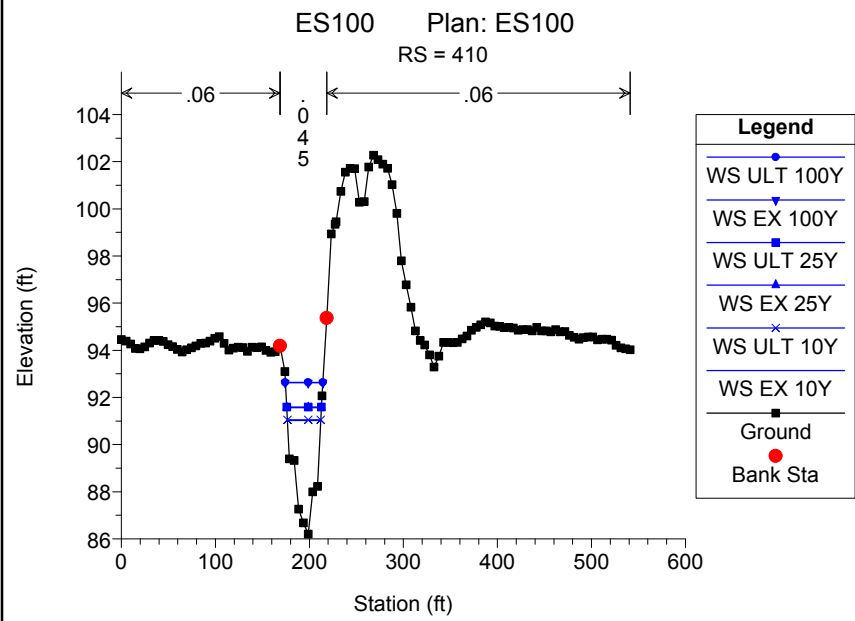
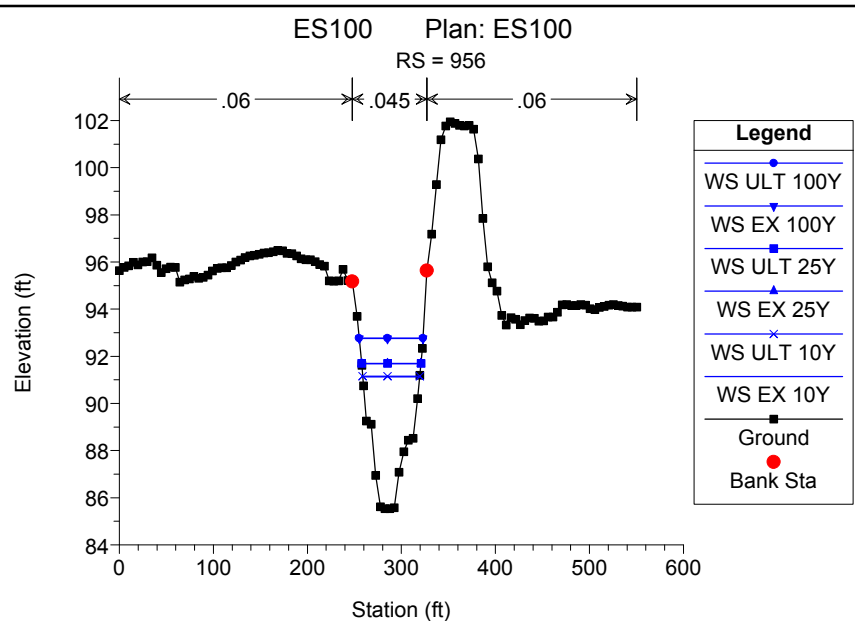
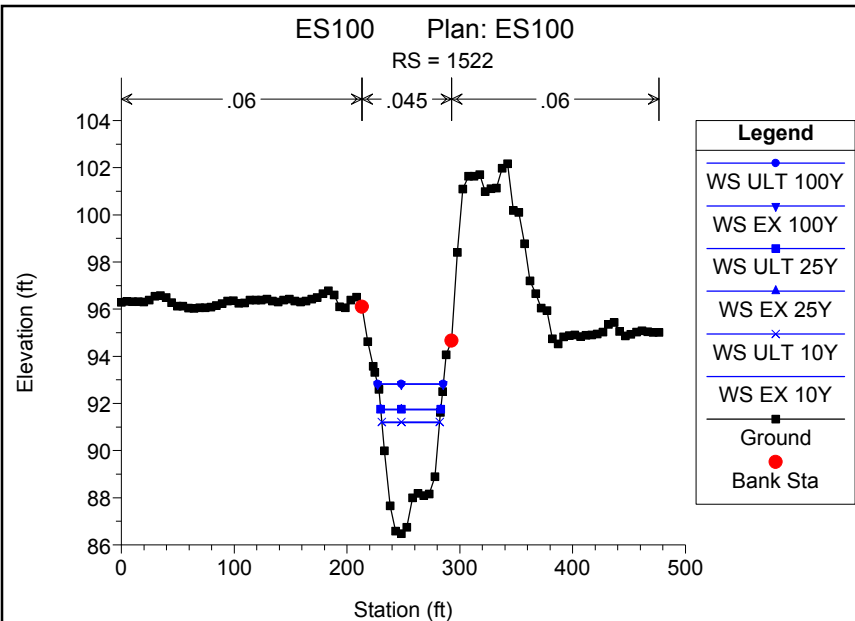


ES100 Plan: ES100

RS = 470

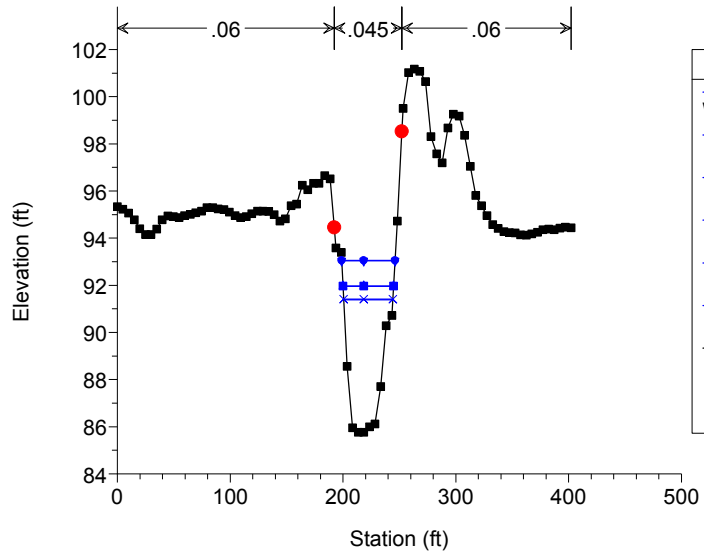






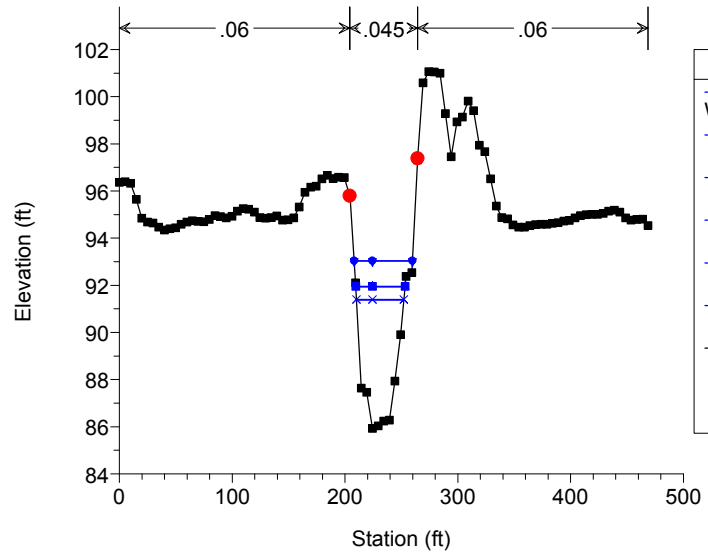
ES100 Plan: ES100

RS = 3926



ES100 Plan: ES100

RS = 3552



ES100 OUTPUT REPORT.pdf

HEC-RAS Version 4.1.0 Jan 2010
U. S. Army Corps of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

```

X      X  XXXXXX      XXXX      XXXX      XX      XXXX
X      X  X          X      X      X  X      X
X      X  X          X          X  X      X
XXXXXXXX XXXX      X      XXX XXXX      XXXXXX      XXXX
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```

PROJECT DATA

Project Title: ES100
Project File : ES100.prj

Project in English units

PLAN DATA

Plan Title: ES100
Plan File : K:\2014PROJECTS\COE_MDP_TEDSI\MODEL\APPENDIX C -
HYDRAULICS\ES100\ES100.p01

Geometry Title: ES100
Geometry File : K:\2014PROJECTS\COE_MDP_TEDSI\MODEL\APPENDIX C -
HYDRAULICS\ES100\ES100.g01

Flow Title : ES100 FLOW
Flow File : K:\2014PROJECTS\COE_MDP_TEDSI\MODEL\APPENDIX C -
HYDRAULICS\ES100\ES100.f01

Plan Summary Information:

Number of:	Cross Sections	=	58	Multiple Openings	=	0
	Culverts	=	0	Inline Structures	=	0
	Bridges	=	0	Lateral Structures	=	0

Computational Information

Water surface calculation tolerance	=	0.01
Critical depth calculation tolerance	=	0.01
Maximum number of iterations	=	20
Maximum difference tolerance	=	0.3
Flow tolerance factor	=	0.001

Computation Options

Critical depth computed only where necessary	
Conveyance Calculation Method:	At breaks in n values only
Friction Slope Method:	Average Conveyance
Computational Flow Regime:	Subcritical Flow

ES100 OUTPUT REPORT.pdf

FLOW DATA

Flow Title: ES100 FLOW
 Flow File : K:\2014PROJECTS\COE_MDP_TEDSI\MODEL\APPENDIX C -
 HYDRAULICS\ES100\ES100.f01

Flow Data (cfs)

River EX 100Y	Reach ULT 10Y	RS ULT 25Y	EX 10Y ULT 100Y	EX 25Y
ES100 368	ES100-00 190	12785 250	187 370	242
ES100 431	ES100-00 220	9208 280	214 440	279
ES101 101	ES101-00 50	4064 70	50 110	66
ES102-01 41	ES102-01 20	5391 30	20 50	26
ES102 269	ES102-00 140	3110 180	138 270	178
ES102 165	ES102-00A 90	4248 110	85 170	109

Boundary Conditions

River Downstream	Reach	Profile	Upstream
ES100 Normal S = 0.0004	ES100-00	EX 10Y	
ES100 Normal S = 0.0004	ES100-00	EX 25Y	
ES100 Normal S = 0.0004	ES100-00	EX 100Y	
ES100 Normal S = 0.0004	ES100-00	ULT 10Y	
ES101 Normal S = 0.0004	ES101-00	EX 10Y	
ES101 Normal S = 0.0004	ES101-00	EX 25Y	
ES101 Normal S = 0.0004	ES101-00	EX 100Y	
ES101 Normal S = 0.0004	ES101-00	ULT 10Y	
ES102 Normal S = 0.0004	ES102-00	EX 10Y	
ES102 Normal S = 0.0004	ES102-00	EX 25Y	
ES102 Normal S = 0.0004	ES102-00	EX 100Y	
ES102 Normal S = 0.0004	ES102-00	ULT 10Y	

GEOMETRY DATA

ES100 OUTPUT REPORT.pdf

Geometry Title: ES100
 Geometry File : K:\2014PROJECTS\COE_MDP_TEDSI\MODEL\APPENDIX C -
 HYDRAULICS\ES100\ES100.g01

Reach Connection Table

River	Reach	Upstream Boundary	Downstream Boundary
ES100	ES100-00		
ES101	ES101-00		
ES102-01	ES102-01		ES102
ES102	ES102-00	ES102	
ES102	ES102-00A		ES102

JUNCTION INFORMATION

Name: ES102
 Description:
 Energy computation Method

Length across Junction River	Reach	Tributary River	Reach	Length	Angle
ES102-01	ES102-01	to ES102	ES102-00	470	
ES102	ES102-00A	to ES102	ES102-00	442	

CROSS SECTION

RIVER: ES100
 REACH: ES100-00 RS: 12785

INPUT

Description:

Station Elevation Data num= 103

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	93.96	4.96	93.98	9.91	94.07	14.87	94.19	19.82	94.2
24.78	94.18	29.73	94.22	34.69	94.13	39.64	93.95	44.6	93.97
49.55	94.03	54.51	94.04	59.46	94.05	64.42	94.01	69.37	94.01
74.33	94.03	79.28	93.97	84.24	93.88	89.19	93.86	94.15	93.86
99.1	93.84	104.06	93.79	109.01	93.87	113.97	93.98	118.92	93.94
123.88	93.8	128.83	93.69	133.79	93.63	138.74	93.64	143.7	93.68
148.65	93.67	153.61	93.77	158.56	94	163.52	94.31	168.47	97.26
173.43	101.24	178.38	101.65	183.34	101.62	188.29	101.71	193.25	100.58
198.2	97.53	203.16	97.29	208.11	96.4	213.07	96.41	218.02	95.79
222.98	95.58	227.93	92.43	230.44	90.08	232.89	87.79	237.84	84.07
242.8	83.2	247.75	83.17	252.71	83.19	257.66	83	262.62	83.22
267.57	83.5	272.53	85.19	277.48	88.27	282.44	92.21	287.39	94.07
290.44	95.6	292.35	96.56	297.3	99.82	302.26	100.9	307.21	100.84
312.17	100.77	317.12	100.66	322.08	100.72	327.03	100.83	331.99	99.97
336.94	97.34	341.9	94.75	346.85	93.87	351.81	93.82	356.76	93.81
361.72	93.83	366.68	93.87	371.63	94.02	376.59	94.14	381.54	94.19
386.5	94.2	391.45	94.2	396.41	94.15	401.36	94.07	406.32	94.04
411.27	94.1	416.23	94.36	421.18	94.39	426.14	94.49	431.09	94.5
436.05	94.56	441	94.63	445.96	94.73	450.91	94.73	455.87	94.66
460.82	94.39	465.78	94.34	470.73	94.34	475.69	94.37	480.64	94.51
485.6	94.73	490.55	94.78	495.51	94.88				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	222.98	.045	290.44	.06

ES100 OUTPUT REPORT.pdf

Bank Sta: Left 222.98 Right 290.44 Lengths: Left Channel 469 Right Channel 470 Right 471 Coeff Contr. .1 Expan. .3

CROSS SECTION OUTPUT Profile #EX 10Y

E. G. Elev (ft)	90.08	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	90.08	Reach Len. (ft)	469.00	470.00
471.00 Crit W. S. (ft)		Flow Area (sq ft)		273.02
E. G. Slope (ft/ft)	0.000049	Area (sq ft)		273.02
Q Total (cfs)	187.00	Flow (cfs)		187.00
Top Width (ft)	49.31	Top Width (ft)		49.31
Vel Total (ft/s)	0.68	Avg. Vel. (ft/s)		0.68
Max Chl Dpth (ft)	7.08	Hydr. Depth (ft)		5.54
Conv. Total (cfs)	26776.2	Conv. (cfs)		26776.2
Length Wtd. (ft)	470.00	Wetted Per. (ft)		53.34
Min Ch El (ft)	83.00	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	495.51	0.00
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)		50.48
C & E Loss (ft)	0.00	Cum SA (acres)		11.47

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #EX 25Y

E. G. Elev (ft)	90.92	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	90.91	Reach Len. (ft)	469.00	470.00
471.00 Crit W. S. (ft)		Flow Area (sq ft)		315.01
E. G. Slope (ft/ft)	0.000054	Area (sq ft)		315.01
Q Total (cfs)	242.00	Flow (cfs)		242.00
Top Width (ft)	51.25	Top Width (ft)		51.25
Vel Total (ft/s)	0.77	Avg. Vel. (ft/s)		0.77
Max Chl Dpth (ft)	7.91	Hydr. Depth (ft)		6.15

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Conv. Total (cfs)	32937.7	Conv. (cfs)		32937.7
Length Wtd. (ft)	470.00	Wetted Per. (ft)		55.90
Min Ch El (ft)	83.00	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	495.51	0.00
Frctn Loss (ft) 1.08	0.04	Cum Volume (acre-ft)	2.86	60.26
C & E Loss (ft) 5.69	0.00	Cum SA (acres)	10.02	12.18

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #EX 100Y

E. G. Elev (ft)	92.42	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	92.41	Reach Len. (ft)	469.00	470.00
471.00 Crit W. S. (ft)		Flow Area (sq ft)		394.48
E. G. Slope (ft/ft)	0.000066	Area (sq ft)		394.48
Q Total (cfs)	368.00	Flow (cfs)		368.00
Top Width (ft)	55.02	Top Width (ft)		55.02
Vel Total (ft/s)	0.93	Avg. Vel. (ft/s)		0.93
Max Chl Dpth (ft)	9.41	Hydr. Depth (ft)		7.17
Conv. Total (cfs)	45335.1	Conv. (cfs)		45335.1
Length Wtd. (ft)	470.00	Wetted Per. (ft)		60.75
Min Ch El (ft)	83.00	Shear (lb/sq ft)		0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	495.51	0.00
Frctn Loss (ft) 16.80	0.04	Cum Volume (acre-ft)	24.00	80.59
C & E Loss (ft) 13.64	0.00	Cum SA (acres)	17.60	13.62

CROSS SECTION OUTPUT Profile #ULT 10Y

E. G. Elev (ft)	90.16	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.		0.045

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W. S. Elev (ft)	90.15	Reach Len. (ft)	469.00	470.00
471.00 Crit W. S. (ft)		Flow Area (sq ft)		276.67
E. G. Slope (ft/ft)	0.000048	Area (sq ft)		276.67
Q Total (cfs)	190.00	Flow (cfs)		190.00
Top Width (ft)	49.48	Top Width (ft)		49.48
Vel Total (ft/s)	0.69	Avg. Vel. (ft/s)		0.69
Max Chl Dpth (ft)	7.15	Hydr. Depth (ft)		5.59
Conv. Total (cfs)	27298.1	Conv. (cfs)		27298.1
Length Wtd. (ft)	470.00	Wetted Per. (ft)		53.57
Min Ch El (ft)	83.00	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	495.51	0.00
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)		51.39
C & E Loss (ft)	0.00	Cum SA (acres)		11.54

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 25Y

E. G. Elev (ft)	90.96	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	90.95	Reach Len. (ft)	469.00	470.00
471.00 Crit W. S. (ft)		Flow Area (sq ft)		316.91
E. G. Slope (ft/ft)	0.000057	Area (sq ft)		316.91
Q Total (cfs)	250.00	Flow (cfs)		250.00
Top Width (ft)	51.34	Top Width (ft)		51.34
Vel Total (ft/s)	0.79	Avg. Vel. (ft/s)		0.79
Max Chl Dpth (ft)	7.95	Hydr. Depth (ft)		6.17
Conv. Total (cfs)	33225.1	Conv. (cfs)		33225.1
Length Wtd. (ft)	470.00	Wetted Per. (ft)		56.02
Min Ch El (ft)	83.00	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	495.51	0.00
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	2.98	60.45

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1.15				
C & E Loss (ft)	0.00	Cum SA (acres)	10.03	12.19
5.74				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 100Y

E. G. Elev (ft)	92.49	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	92.48	Reach Len. (ft)	469.00	470.00
471.00				
Crit W. S. (ft)		Flow Area (sq ft)		398.23
E. G. Slope (ft/ft)	0.000065	Area (sq ft)		398.23
Q Total (cfs)	370.00	Flow (cfs)		370.00
Top Width (ft)	55.30	Top Width (ft)		55.30
Vel Total (ft/s)	0.93	Avg. Vel. (ft/s)		0.93
Max Chl Dpth (ft)	9.48	Hydr. Depth (ft)		7.20
Conv. Total (cfs)	45898.7	Conv. (cfs)		45898.7
Length Wtd. (ft)	470.00	Wetted Per. (ft)		61.07
Min Ch El (ft)	83.00	Shear (lb/sq ft)		0.03
Alpha	1.00	Stream Power (lb/ft s)	495.51	0.00
0.00				
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	25.57	81.78
18.00				
C & E Loss (ft)	0.00	Cum SA (acres)	17.97	13.69
13.73				

CROSS SECTION

RIVER: ES100
 REACH: ES100-00 RS: 12315

INPUT

Description:

Station	Elevation	Data	num=	100						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	
0	93.91	4.99	94.13	9.98	94.28	14.97	94.28	19.97	94.11	
24.96	94.22	29.95	94.2	34.94	94.2	39.93	94.08	44.92	94.11	
49.91	94.13	54.91	94.11	59.9	94.1	64.89	94.1	69.88	94.08	
74.87	94.1	79.86	94.11	84.85	94.13	89.85	94.08	94.84	93.94	
99.83	93.9	104.82	93.95	109.81	93.99	114.8	93.97	119.8	93.96	
124.79	94.01	129.78	94.05	134.77	94.12	139.76	94.14	144.75	94.66	
149.74	97.68	154.74	100.48	159.73	101.28	164.72	101.34	169.71	101.04	

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174.7	99.22	179.69	97.01	184.68	96.23	189.68	96.21	194.67	96.29
199.66	95.69	204.65	94.96	209.64	92.83	212.08	90.97	214.63	89.04
219.62	85.97	224.62	84.59	229.61	84.43	234.6	84.29	239.59	84.63
244.58	85.12	249.57	85.62	254.56	86.69	259.56	89.35	264.55	92.15
269.54	94.35	272.09	95.14	274.53	95.89	279.52	99.67	284.51	101.34
289.51	101.28	294.5	101.32	299.49	101.43	304.48	101.48	309.47	101.18
314.46	100.2	319.45	96.79	324.45	95.26	329.44	94.92	334.43	95.12
339.42	95.22	344.41	95.59	349.4	95.73	354.39	95.87	359.39	95.88
364.38	95.94	369.37	96	374.36	96.26	379.35	96.27	384.34	96.41
389.33	96.54	394.33	96.59	399.32	96.58	404.31	96.76	409.3	96.78
414.29	96.66	419.28	96.42	424.27	96.4	429.27	96.32	434.26	96.3
439.25	96.39	444.24	96.42	449.23	95.88	454.22	94.9	459.22	95.27
464.21	95.36	469.2	95.22	474.19	95.25	479.18	95.86	484.17	95.96

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 204.65 .045 272.09 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 204.65 272.09 380 381 382 .1 .3

CROSS SECTION OUTPUT Profile #EX 10Y

E. G. Elev (ft)	90.05	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	90.04	Reach Len. (ft)	380.00	381.00
382.00				
Crit W. S. (ft)		Flow Area (sq ft)		199.65
E. G. Slope (ft/ft)	0.000127	Area (sq ft)		199.65
Q Total (cfs)	187.00	Flow (cfs)		187.00
Top Width (ft)	47.47	Top Width (ft)		47.47
Vel Total (ft/s)	0.94	Avg. Vel. (ft/s)		0.94
Max Chl Dpth (ft)	5.75	Hydr. Depth (ft)		4.21
Conv. Total (cfs)	16619.7	Conv. (cfs)		16619.7
Length Wtd. (ft)	381.00	Wetted Per. (ft)		49.88
Min Ch El (ft)	84.29	Shear (lb/sq ft)		0.03
Alpha	1.00	Stream Power (lb/ft s)	484.17	0.00
0.00				
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)		47.93
C & E Loss (ft)	0.00	Cum SA (acres)		10.95

CROSS SECTION OUTPUT Profile #EX 25Y

E. G. Elev (ft)	90.88	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	Wt. n-Val.		0.045

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W. S. Elev (ft)	90.87	Reach Len. (ft)	380.00	381.00
382.00 Crit W. S. (ft)		Flow Area (sq ft)		240.25
E. G. Slope (ft/ft)	0.000124	Area (sq ft)		240.25
Q Total (cfs)	242.00	Flow (cfs)		242.00
Top Width (ft)	50.05	Top Width (ft)		50.05
Vel Total (ft/s)	1.01	Avg. Vel. (ft/s)		1.01
Max Chl Dpth (ft)	6.58	Hydr. Depth (ft)		4.80
Conv. Total (cfs)	21740.8	Conv. (cfs)		21740.8
Length Wtd. (ft)	381.00	Wetted Per. (ft)		52.96
Min Ch El (ft)	84.29	Shear (lb/sq ft)		0.04
Alpha	1.00	Stream Power (lb/ft s)	484.17	0.00
0.00 Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	2.86	57.27
1.08 C & E Loss (ft)	0.00	Cum SA (acres)	10.02	11.63
5.69				

CROSS SECTION OUTPUT Profile #EX 100Y

E. G. Elev (ft)	92.38	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	92.36	Reach Len. (ft)	380.00	381.00
382.00 Crit W. S. (ft)		Flow Area (sq ft)		318.44
E. G. Slope (ft/ft)	0.000128	Area (sq ft)		318.44
Q Total (cfs)	368.00	Flow (cfs)		368.00
Top Width (ft)	54.77	Top Width (ft)		54.77
Vel Total (ft/s)	1.16	Avg. Vel. (ft/s)		1.16
Max Chl Dpth (ft)	8.07	Hydr. Depth (ft)		5.81
Conv. Total (cfs)	32514.0	Conv. (cfs)		32514.0
Length Wtd. (ft)	381.00	Wetted Per. (ft)		58.56
Min Ch El (ft)	84.29	Shear (lb/sq ft)		0.04
Alpha	1.00	Stream Power (lb/ft s)	484.17	0.00
0.00 Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	24.00	76.75
16.80 C & E Loss (ft)	0.00	Cum SA (acres)	17.60	13.03
13.64				

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CROSS SECTION OUTPUT Profile #ULT 10Y

E. G. Elev (ft)	90.12	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	90.11	Reach Len. (ft)	380.00	381.00
382.00 Crit W. S. (ft)		Flow Area (sq ft)		203.19
E. G. Slope (ft/ft)	0.000124	Area (sq ft)		203.19
Q Total (cfs)	190.00	Flow (cfs)		190.00
Top Width (ft)	47.70	Top Width (ft)		47.70
Vel Total (ft/s)	0.94	Avg. Vel. (ft/s)		0.94
Max Chl Dpth (ft)	5.82	Hydr. Depth (ft)		4.26
Conv. Total (cfs)	17051.1	Conv. (cfs)		17051.1
Length Wtd. (ft)	381.00	Wetted Per. (ft)		50.15
Min Ch El (ft)	84.29	Shear (lb/sq ft)		0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	484.17	0.00
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)		48.80
C & E Loss (ft)	0.00	Cum SA (acres)		11.02

CROSS SECTION OUTPUT Profile #ULT 25Y

E. G. Elev (ft)	90.92	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	90.90	Reach Len. (ft)	380.00	381.00
382.00 Crit W. S. (ft)		Flow Area (sq ft)		242.01
E. G. Slope (ft/ft)	0.000129	Area (sq ft)		242.01
Q Total (cfs)	250.00	Flow (cfs)		250.00
Top Width (ft)	50.16	Top Width (ft)		50.16
Vel Total (ft/s)	1.03	Avg. Vel. (ft/s)		1.03
Max Chl Dpth (ft)	6.61	Hydr. Depth (ft)		4.82
Conv. Total (cfs)	21970.4	Conv. (cfs)		21970.4
Length Wtd. (ft)	381.00	Wetted Per. (ft)		53.09

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Min Ch El (ft)	84.29	Shear (lb/sq ft)		0.04
Alpha	1.00	Stream Power (lb/ft s)	484.17	0.00
0.00				
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	2.98	57.44
1.15				
C & E Loss (ft)	0.00	Cum SA (acres)	10.03	11.65
5.74				

CROSS SECTION OUTPUT Profile #ULT 100Y

E. G. Elev (ft)	92.45	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	92.43	Reach Len. (ft)	380.00	381.00
382.00				
Crit W. S. (ft)		Flow Area (sq ft)		322.22
E. G. Slope (ft/ft)	0.000125	Area (sq ft)		322.22
Q Total (cfs)	370.00	Flow (cfs)		370.00
Top Width (ft)	55.02	Top Width (ft)		55.02
Vel Total (ft/s)	1.15	Avg. Vel. (ft/s)		1.15
Max Chl Dpth (ft)	8.14	Hydr. Depth (ft)		5.86
Conv. Total (cfs)	33053.2	Conv. (cfs)		33053.2
Length Wtd. (ft)	381.00	Wetted Per. (ft)		58.85
Min Ch El (ft)	84.29	Shear (lb/sq ft)		0.04
Alpha	1.00	Stream Power (lb/ft s)	484.17	0.00
0.00				
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	25.57	77.89
18.00				
C & E Loss (ft)	0.00	Cum SA (acres)	17.97	13.10
13.73				

CROSS SECTION

RIVER: ES100
 REACH: ES100-00 RS: 11934

INPUT

Description:

Station	Elevation	Data	num=	99							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	94.38	5	94.35	10	94.32	14.99	94.25	19.99	94.31		
24.99	94.41	29.99	94.43	34.98	94.38	39.98	94.37	44.98	94.39		
49.98	94.38	54.98	94.32	59.97	94.22	64.97	94.21	69.97	94.23		
74.97	94.17	79.96	94.18	84.96	94.26	89.96	94.23	94.96	94.24		
99.95	94.16	104.95	93.95	109.95	93.95	114.95	94.06	119.95	94.09		

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124.94	94.1	129.94	94.17	134.94	94.28	139.94	94.22	144.93	94.19
149.93	94.41	154.93	94.98	159.93	95.97	164.93	99.01	169.92	100.16
174.92	100.29	179.92	100.05	184.92	98.83	189.91	97.19	194.91	96.56
199.91	96.77	204.91	96.73	209.91	96.08	214.9	93.56	219.9	92.47
223.41	89.82	224.9	88.7	229.9	85.63	234.89	85.47	239.89	84.46
244.89	84.56	249.89	84.65	254.88	84.68	259.88	85.04	264.88	85.81
269.88	87.18	274.88	87.48	279.87	91.2	283.43	94.28	284.87	95.52
289.87	99.45	294.87	101.87	299.86	101.86	304.86	101.68	309.86	101.75
314.86	101.82	319.86	101.85	324.85	99.91	329.85	96.33	334.85	94.85
339.85	94.82	344.84	94.88	349.84	94.91	354.84	94.67	359.84	94.6
364.83	94.56	369.83	94.47	374.83	94.48	379.83	94.63	384.83	94.65
389.82	94.65	394.82	94.68	399.82	94.66	404.82	94.65	409.81	94.6
414.81	94.82	419.81	94.88	424.81	94.91	429.81	94.87	434.8	94.91
439.8	94.92	444.8	94.94	449.8	94.98	454.79	95.01	459.79	95.12
464.79	95.16	469.79	95.17	474.78	95.01	479.78	94.93		

Manning's n Values num= 3
 Station Val Station Val Station Val
 0 .06 209.91 .045 284.87 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 209.91 284.87 631 635 640 .1 .3

CROSS SECTION OUTPUT Profile #EX 10Y

E. G. Elev (ft)	90.01	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	89.99	Reach Len. (ft)	631.00	635.00
640.00		Flow Area (sq ft)		227.14
Crit W. S. (ft)		Area (sq ft)		227.14
E. G. Slope (ft/ft)	0.000100	Flow (cfs)		187.00
Q Total (cfs)	187.00	Top Width (ft)		55.07
Top Width (ft)	55.07	Avg. Vel. (ft/s)		0.82
Vel Total (ft/s)	0.82	Hydr. Depth (ft)		4.12
Max Chl Dpth (ft)	5.53	Conv. (cfs)		18725.6
Conv. Total (cfs)	18725.6	Wetted Per. (ft)		57.58
Length Wtd. (ft)	635.00	Shear (lb/sq ft)		0.02
Min Ch El (ft)	84.46	Stream Power (lb/ft s)	479.78	0.00
Alpha	1.00	Cum Volume (acre-ft)		46.06
0.00		Cum SA (acres)		10.50
Frctn Loss (ft)	0.10			
C & E Loss (ft)	0.00			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #EX 25Y

E. G. Elev (ft)	90.84	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	90.83	Reach Len. (ft)	631.00	635.00
640.00 Crit W. S. (ft)		Flow Area (sq ft)		274.04
E. G. Slope (ft/ft)	0.000095	Area (sq ft)		274.04
Q Total (cfs)	242.00	Flow (cfs)		242.00
Top Width (ft)	57.30	Top Width (ft)		57.30
Vel Total (ft/s)	0.88	Avg. Vel. (ft/s)		0.88
Max Chl Dpth (ft)	6.37	Hydr. Depth (ft)		4.78
Conv. Total (cfs)	24810.4	Conv. (cfs)		24810.4
Length Wtd. (ft)	635.00	Wetted Per. (ft)		60.36
Min Ch El (ft)	84.46	Shear (lb/sq ft)		0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	479.78	0.00
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)	2.86	55.02
1.08 C & E Loss (ft)	0.00	Cum SA (acres)	10.02	11.16
5.69				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #EX 100Y

E. G. Elev (ft)	92.34	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	92.32	Reach Len. (ft)	631.00	635.00
640.00 Crit W. S. (ft)		Flow Area (sq ft)		362.44
E. G. Slope (ft/ft)	0.000096	Area (sq ft)		362.44
Q Total (cfs)	368.00	Flow (cfs)		368.00
Top Width (ft)	61.07	Top Width (ft)		61.07
Vel Total (ft/s)	1.02	Avg. Vel. (ft/s)		1.02
Max Chl Dpth (ft)	7.86	Hydr. Depth (ft)		5.93
Conv. Total (cfs)	37565.3	Conv. (cfs)		37565.3

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Length Wtd. (ft)	635.00	Wetted Per. (ft)		65.17
Min Ch El (ft)	84.46	Shear (lb/sq ft)		0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	479.78	0.00
Frctn Loss (ft) 16.80	0.09	Cum Volume (acre-ft)	24.00	73.77
C & E Loss (ft) 13.64	0.00	Cum SA (acres)	17.60	12.52

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 10Y

E. G. Elev (ft)	90.08	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	90.07	Reach Len. (ft)	631.00	635.00
640.00 Crit W. S. (ft)		Flow Area (sq ft)		231.30
E. G. Slope (ft/ft)	0.000097	Area (sq ft)		231.30
Q Total (cfs)	190.00	Flow (cfs)		190.00
Top Width (ft)	55.28	Top Width (ft)		55.28
Vel Total (ft/s)	0.82	Avg. Vel. (ft/s)		0.82
Max Chl Dpth (ft)	5.61	Hydr. Depth (ft)		4.18
Conv. Total (cfs)	19244.0	Conv. (cfs)		19244.0
Length Wtd. (ft)	635.00	Wetted Per. (ft)		57.83
Min Ch El (ft)	84.46	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	479.78	0.00
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)		46.90
C & E Loss (ft)	0.00	Cum SA (acres)		10.57

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 25Y

E. G. Elev (ft)	90.88	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.		0.045

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W. S. Elev (ft)	90.86	Reach Len. (ft)	631.00	635.00
640.00 Crit W. S. (ft)		Flow Area (sq ft)		275.95
E. G. Slope (ft/ft)	0.000099	Area (sq ft)		275.95
Q Total (cfs)	250.00	Flow (cfs)		250.00
Top Width (ft)	57.39	Top Width (ft)		57.39
Vel Total (ft/s)	0.91	Avg. Vel. (ft/s)		0.91
Max Chl Dpth (ft)	6.40	Hydr. Depth (ft)		4.81
Conv. Total (cfs)	25068.5	Conv. (cfs)		25068.5
Length Wtd. (ft)	635.00	Wetted Per. (ft)		60.47
Min Ch El (ft)	84.46	Shear (lb/sq ft)		0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	479.78	0.00
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)	2.98	55.17
1.15 C & E Loss (ft)	0.00	Cum SA (acres)	10.03	11.17
5.74				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 100Y

E. G. Elev (ft)	92.41	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	92.39	Reach Len. (ft)	631.00	635.00
640.00 Crit W. S. (ft)		Flow Area (sq ft)		366.71
E. G. Slope (ft/ft)	0.000094	Area (sq ft)		366.71
Q Total (cfs)	370.00	Flow (cfs)		370.00
Top Width (ft)	61.24	Top Width (ft)		61.24
Vel Total (ft/s)	1.01	Avg. Vel. (ft/s)		1.01
Max Chl Dpth (ft)	7.93	Hydr. Depth (ft)		5.99
Conv. Total (cfs)	38218.6	Conv. (cfs)		38218.6
Length Wtd. (ft)	635.00	Wetted Per. (ft)		65.40
Min Ch El (ft)	84.46	Shear (lb/sq ft)		0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	479.78	0.00

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Frctn Loss (ft)	0.09	Cum Volume (acre-ft)	25.57	74.88
18.00				
C & E Loss (ft)	0.00	Cum SA (acres)	17.97	12.59
13.73				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: ES100
 REACH: ES100-00 RS: 11298

INPUT

Description:

Station	Elevation	Data	num=	116
Sta	Elev	Sta	Elev	Sta
0	95.42	5	95.58	9.99
24.98	94.88	29.98	94.77	34.97
49.96	94.77	54.96	94.78	59.96
74.95	94.82	79.94	94.81	84.94
99.93	94.85	104.93	94.77	109.92
124.91	94.71	129.91	94.69	134.9
149.89	94.62	154.89	94.59	159.89
174.88	96.39	179.87	98.79	184.87
199.86	99.39	204.85	97.71	209.85
224.84	96.34	229.84	94.47	234.83
244.82	86.85	249.82	84.62	254.82
269.81	86.69	274.8	88.89	279.8
294.79	97.86	299.79	97.7	301.68
314.78	97.76	319.77	97.67	324.77
339.76	96.82	344.75	96.72	349.75
364.74	95.55	369.74	95.66	374.73
389.72	96	394.72	95.87	399.71
414.7	95.44	419.7	95.46	424.7
439.69	95.39	444.68	95.3	449.68
464.67	95.03	469.66	95.04	474.66
489.65	95.11	494.65	95.08	499.64
514.63	95.15	519.63	95.34	524.62
539.61	95.44	544.61	95.45	549.61
564.6	96.27			

Manning's n Values	num=	3
Sta n Val	Sta	n Val
0 .06	224.84	.045
		289.79
		.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.	Expan.
224.84	289.79	233	228	223	.1	.3	

CROSS SECTION OUTPUT Profile #EX 10Y

E. G. Elev (ft)	89.91	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	89.88	Reach Len. (ft)	233.00	228.00
223.00				
Crit W. S. (ft)		Flow Area (sq ft)		147.49

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E. G. Slope (ft/ft)	0.000266	Area (sq ft)		147.49
Q Total (cfs)	187.00	Flow (cfs)		187.00
Top Width (ft)	38.13	Top Width (ft)		38.13
Vel Total (ft/s)	1.27	Avg. Vel. (ft/s)		1.27
Max Chl Dpth (ft)	5.97	Hydr. Depth (ft)		3.87
Conv. Total (cfs)	11472.8	Conv. (cfs)		11472.8
Length Wtd. (ft)	228.00	Wetted Per. (ft)		40.79
Min Ch El (ft)	83.91	Shear (lb/sq ft)		0.06
Alpha 0.00	1.00	Stream Power (lb/ft s)	564.60	0.00
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)		43.33
C & E Loss (ft)	0.00	Cum SA (acres)		9.82

CROSS SECTION OUTPUT Profile #EX 25Y

E. G. Elev (ft)	90.75	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	Wt. n-Val.		0.045
W. S. Elev (ft)	90.72	Reach Len. (ft)	233.00	228.00
223.00 Crit W. S. (ft)		Flow Area (sq ft)		180.82
E. G. Slope (ft/ft)	0.000252	Area (sq ft)		180.82
Q Total (cfs)	242.00	Flow (cfs)		242.00
Top Width (ft)	41.23	Top Width (ft)		41.23
Vel Total (ft/s)	1.34	Avg. Vel. (ft/s)		1.34
Max Chl Dpth (ft)	6.81	Hydr. Depth (ft)		4.39
Conv. Total (cfs)	15229.6	Conv. (cfs)		15229.6
Length Wtd. (ft)	228.00	Wetted Per. (ft)		44.39
Min Ch El (ft)	83.91	Shear (lb/sq ft)		0.06
Alpha 0.00	1.00	Stream Power (lb/ft s)	564.60	0.00
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	2.86	51.70
1.08 C & E Loss (ft)	0.00	Cum SA (acres)	10.02	10.45
5.69				

CROSS SECTION OUTPUT Profile #EX 100Y

ES100 OUTPUT REPORT.pdf

E. G. Elev (ft)	92.24	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.03	Wt. n-Val.		0.045
W. S. Elev (ft)	92.21	Reach Len. (ft)	233.00	228.00
223.00				
Crit W. S. (ft)		Flow Area (sq ft)		247.61
E. G. Slope (ft/ft)	0.000253	Area (sq ft)		247.61
Q Total (cfs)	368.00	Flow (cfs)		368.00
Top Width (ft)	48.04	Top Width (ft)		48.04
Vel Total (ft/s)	1.49	Avg. Vel. (ft/s)		1.49
Max Chl Dpth (ft)	8.30	Hydr. Depth (ft)		5.15
Conv. Total (cfs)	23149.5	Conv. (cfs)		23149.5
Length Wtd. (ft)	228.00	Wetted Per. (ft)		51.97
Min Ch El (ft)	83.91	Shear (lb/sq ft)		0.08
Alpha	1.00	Stream Power (lb/ft s)	564.60	0.00
0.00				
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	24.00	69.32
16.80				
C & E Loss (ft)	0.00	Cum SA (acres)	17.60	11.72
13.64				

CROSS SECTION OUTPUT Profile #ULT 10Y

E. G. Elev (ft)	89.98	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	89.96	Reach Len. (ft)	233.00	228.00
223.00				
Crit W. S. (ft)		Flow Area (sq ft)		150.47
E. G. Slope (ft/ft)	0.000260	Area (sq ft)		150.47
Q Total (cfs)	190.00	Flow (cfs)		190.00
Top Width (ft)	38.56	Top Width (ft)		38.56
Vel Total (ft/s)	1.26	Avg. Vel. (ft/s)		1.26
Max Chl Dpth (ft)	6.05	Hydr. Depth (ft)		3.90
Conv. Total (cfs)	11772.8	Conv. (cfs)		11772.8
Length Wtd. (ft)	228.00	Wetted Per. (ft)		41.25
Min Ch El (ft)	83.91	Shear (lb/sq ft)		0.06
Alpha	1.00	Stream Power (lb/ft s)	564.60	0.00

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0.00 Frctn Loss (ft)	0.06	Cum Volume (acre-ft)	44.12
C & E Loss (ft)	0.00	Cum SA (acres)	9.89

CROSS SECTION OUTPUT Profile #ULT 25Y

E. G. Elev (ft)	90.78	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	Wt. n-Val.		0.045
W. S. Elev (ft)	90.75	Reach Len. (ft)	233.00	228.00
223.00 Crit W. S. (ft)		Flow Area (sq ft)		181.98
E. G. Slope (ft/ft)	0.000265	Area (sq ft)		181.98
Q Total (cfs)	250.00	Flow (cfs)		250.00
Top Width (ft)	41.36	Top Width (ft)		41.36
Vel Total (ft/s)	1.37	Avg. Vel. (ft/s)		1.37
Max Chl Dpth (ft)	6.84	Hydr. Depth (ft)		4.40
Conv. Total (cfs)	15357.3	Conv. (cfs)		15357.3
Length Wtd. (ft)	228.00	Wetted Per. (ft)		44.54
Min Ch El (ft)	83.91	Shear (lb/sq ft)		0.07
Alpha	1.00	Stream Power (lb/ft s)	564.60	0.00
0.00 Frctn Loss (ft)	0.06	Cum Volume (acre-ft)	2.98	51.83
1.15 C & E Loss (ft)	0.00	Cum SA (acres)	10.03	10.46
5.74				

CROSS SECTION OUTPUT Profile #ULT 100Y

E. G. Elev (ft)	92.32	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	Wt. n-Val.		0.045
W. S. Elev (ft)	92.28	Reach Len. (ft)	233.00	228.00
223.00 Crit W. S. (ft)		Flow Area (sq ft)		251.11
E. G. Slope (ft/ft)	0.000246	Area (sq ft)		251.11
Q Total (cfs)	370.00	Flow (cfs)		370.00
Top Width (ft)	48.27	Top Width (ft)		48.27
Vel Total (ft/s)	1.47	Avg. Vel. (ft/s)		1.47

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Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	89.82	Reach Len. (ft)	599.00	598.00
597.00 Crit W. S. (ft)		Flow Area (sq ft)		151.91
E. G. Slope (ft/ft)	0.000246	Area (sq ft)		151.91
Q Total (cfs)	187.00	Flow (cfs)		187.00
Top Width (ft)	38.91	Top Width (ft)		38.91
Vel Total (ft/s)	1.23	Avg. Vel. (ft/s)		1.23
Max Chl Dpth (ft)	5.57	Hydr. Depth (ft)		3.90
Conv. Total (cfs)	11933.5	Conv. (cfs)		11933.5
Length Wtd. (ft)	598.00	Wetted Per. (ft)		41.40
Min Ch El (ft)	84.25	Shear (lb/sq ft)		0.06
Alpha 0.00	1.00	Stream Power (lb/ft s)	550.46	0.00
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)		42.54
C & E Loss (ft)	0.00	Cum SA (acres)		9.62

CROSS SECTION OUTPUT Profile #EX 25Y

E. G. Elev (ft)	90.69	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	Wt. n-Val.		0.045
W. S. Elev (ft)	90.67	Reach Len. (ft)	599.00	598.00
597.00 Crit W. S. (ft)		Flow Area (sq ft)		185.56
E. G. Slope (ft/ft)	0.000230	Area (sq ft)		185.56
Q Total (cfs)	242.00	Flow (cfs)		242.00
Top Width (ft)	41.10	Top Width (ft)		41.10
Vel Total (ft/s)	1.30	Avg. Vel. (ft/s)		1.30
Max Chl Dpth (ft)	6.42	Hydr. Depth (ft)		4.51
Conv. Total (cfs)	15955.3	Conv. (cfs)		15955.3
Length Wtd. (ft)	598.00	Wetted Per. (ft)		44.16
Min Ch El (ft)	84.25	Shear (lb/sq ft)		0.06
Alpha 0.00	1.00	Stream Power (lb/ft s)	550.46	0.00
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)	2.86	50.74
1.08 C & E Loss (ft)	0.00	Cum SA (acres)	10.02	10.23

5.69

CROSS SECTION OUTPUT Profile #EX 100Y

E. G. Elev (ft)	92.19	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	Wt. n-Val.		0.045
W. S. Elev (ft)	92.15	Reach Len. (ft)	599.00	598.00
597.00 Crit W. S. (ft)		Flow Area (sq ft)		249.66
E. G. Slope (ft/ft)	0.000228	Area (sq ft)		249.66
Q Total (cfs)	368.00	Flow (cfs)		368.00
Top Width (ft)	45.00	Top Width (ft)		45.00
Vel Total (ft/s)	1.47	Avg. Vel. (ft/s)		1.47
Max Chl Dpth (ft)	7.90	Hydr. Depth (ft)		5.55
Conv. Total (cfs)	24387.8	Conv. (cfs)		24387.8
Length Wtd. (ft)	598.00	Wetted Per. (ft)		49.07
Min Ch El (ft)	84.25	Shear (lb/sq ft)		0.07
Alpha 0.00	1.00	Stream Power (lb/ft s)	550.46	0.00
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)	24.00	68.02
16.80 C & E Loss (ft)	0.00	Cum SA (acres)	17.60	11.48
13.64				

CROSS SECTION OUTPUT Profile #ULT 10Y

E. G. Elev (ft)	89.93	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	89.90	Reach Len. (ft)	599.00	598.00
597.00 Crit W. S. (ft)		Flow Area (sq ft)		154.98
E. G. Slope (ft/ft)	0.000239	Area (sq ft)		154.98
Q Total (cfs)	190.00	Flow (cfs)		190.00
Top Width (ft)	39.11	Top Width (ft)		39.11
Vel Total (ft/s)	1.23	Avg. Vel. (ft/s)		1.23
Max Chl Dpth (ft)	5.65	Hydr. Depth (ft)		3.96
Conv. Total (cfs)	12287.9	Conv. (cfs)		12287.9

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Length Wtd. (ft)	598.00	Wetted Per. (ft)		41.66
Min Ch El (ft)	84.25	Shear (lb/sq ft)		0.06
Alpha 0.00	1.00	Stream Power (lb/ft s)	550.46	0.00
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)		43.32
C & E Loss (ft)	0.00	Cum SA (acres)		9.68

CROSS SECTION OUTPUT Profile #ULT 25Y

E. G. Elev (ft)	90.72	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	Wt. n-Val.		0.045
W. S. Elev (ft)	90.69	Reach Len. (ft)	599.00	598.00
597.00 Crit W. S. (ft)		Flow Area (sq ft)		186.60
E. G. Slope (ft/ft)	0.000242	Area (sq ft)		186.60
Q Total (cfs)	250.00	Flow (cfs)		250.00
Top Width (ft)	41.17	Top Width (ft)		41.17
Vel Total (ft/s)	1.34	Avg. Vel. (ft/s)		1.34
Max Chl Dpth (ft)	6.44	Hydr. Depth (ft)		4.53
Conv. Total (cfs)	16084.5	Conv. (cfs)		16084.5
Length Wtd. (ft)	598.00	Wetted Per. (ft)		44.24
Min Ch El (ft)	84.25	Shear (lb/sq ft)		0.06
Alpha 0.00	1.00	Stream Power (lb/ft s)	550.46	0.00
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)	2.98	50.87
1.15 C & E Loss (ft)	0.00	Cum SA (acres)	10.03	10.24
5.74				

CROSS SECTION OUTPUT Profile #ULT 100Y

E. G. Elev (ft)	92.26	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	Wt. n-Val.		0.045
W. S. Elev (ft)	92.23	Reach Len. (ft)	599.00	598.00
597.00 Crit W. S. (ft)		Flow Area (sq ft)		253.00
E. G. Slope (ft/ft)	0.000222	Area (sq ft)		253.00
Q Total (cfs)	370.00	Flow (cfs)		370.00

ES100 OUTPUT REPORT.pdf

Top Width (ft)	45.20	Top Width (ft)	45.20
Vel Total (ft/s)	1.46	Avg. Vel. (ft/s)	1.46
Max Chl Dpth (ft)	7.98	Hydr. Depth (ft)	5.60
Conv. Total (cfs)	24851.3	Conv. (cfs)	24851.3
Length Wtd. (ft)	598.00	Wetted Per. (ft)	49.31
Min Ch El (ft)	84.25	Shear (lb/sq ft)	0.07
Alpha	1.00	Stream Power (lb/ft s)	550.46
0.00			0.00
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)	25.57
18.00			69.06
C & E Loss (ft)	0.00	Cum SA (acres)	17.97
13.73			11.55

CROSS SECTION

RIVER: ES100
 REACH: ES100-00 RS: 10472

INPUT

Description:

Station	Elevation	Data	num=	105
Sta	Elev	Sta	Elev	Sta
0	95.13	4.99	94.95	9.98
24.96	93.85	29.96	93.71	34.95
49.93	94.04	54.92	94.03	59.91
74.89	94.74	79.88	95.15	84.87
99.85	94.75	104.84	94.7	109.83
124.81	94.88	129.8	94.84	134.8
149.77	95.16	154.77	95	159.76
174.74	95.3	179.73	95.58	184.72
199.7	96.67	204.69	96.88	209.68
224.66	98.85	229.65	98.79	234.65
249.62	98.3	254.62	95.8	258.43
269.59	87.41	274.59	84.45	279.58
294.56	84.85	299.55	87.86	304.54
318.43	97.95	319.52	98.38	324.51
339.49	98.37	344.48	98.77	349.47
364.45	98.04	369.44	97.8	374.44
389.41	96.68	394.41	96.7	399.4
414.38	96.7	419.37	96.65	424.36
439.34	96.53	444.33	96.43	449.32
464.3	96.3	469.29	96.24	474.29
489.26	96.07	494.26	96.06	499.25
			94.68	14.98
			93.74	39.94
			93.68	64.9
			95.25	89.86
			94.76	114.83
			94.85	139.79
			94.99	164.75
			95.67	189.71
			97.6	214.68
			98.72	239.64
			92.58	259.61
			83.1	289.56
			95.58	314.53
			98.31	329.5
			98.72	354.47
			97.28	379.43
			96.68	404.39
			96.43	429.35
			96.39	454.32
			96.22	479.28
			96.11	504.24
			94.65	19.97
			94.06	44.93
			93.97	69.89
			95.09	94.86
			94.88	119.82
			94.84	144.78
			94.97	169.74
			95.94	194.71
			98.62	219.67
			98.82	244.63
			91.59	264.6
			98.28	334.5
			98.68	359.46
			97.21	384.42
			96.9	409.38
			96.42	434.35
			96.3	459.31
			96.3	484.27
			96.15	509.23

Manning's n Values	num=	3
Sta	n Val	Sta
0	.06	249.62
		.045
		318.43
		.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.	Expan.
249.62	318.43	622	623	623	.1		.3

CROSS SECTION OUTPUT Profile #EX 10Y

ES100 OUTPUT REPORT.pdf

E. G. El ev (ft)	89.72	El ement	Left OB	Channel
Right OB Vel Head (ft)	0.02	Wt. n-Val .		0.045
W. S. El ev (ft)	89.70	Reach Len. (ft)	622.00	623.00
623.00 Cri t W. S. (ft)		Flow Area (sq ft)		166.81
E. G. Slope (ft/ft)	0.000182	Area (sq ft)		166.81
Q Total (cfs)	187.00	Flow (cfs)		187.00
Top Width (ft)	38.72	Top Width (ft)		38.72
Vel Total (ft/s)	1.12	Avg. Vel. (ft/s)		1.12
Max Chl Dpth (ft)	6.74	Hydr. Depth (ft)		4.31
Conv. Total (cfs)	13847.3	Conv. (cfs)		13847.3
Length Wtd. (ft)	623.00	Wetted Per. (ft)		41.85
Min Ch El (ft)	82.96	Shear (lb/sq ft)		0.05
Alpha 0.00	1.00	Stream Power (lb/ft s)	509.23	0.00
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)		40.36
C & E Loss (ft)	0.00	Cum SA (acres)		9.09

CROSS SECTION OUTPUT Profile #EX 25Y

E. G. El ev (ft)	90.57	El ement	Left OB	Channel
Right OB Vel Head (ft)	0.02	Wt. n-Val .		0.045
W. S. El ev (ft)	90.55	Reach Len. (ft)	622.00	623.00
623.00 Cri t W. S. (ft)		Flow Area (sq ft)		200.59
E. G. Slope (ft/ft)	0.000181	Area (sq ft)		200.59
Q Total (cfs)	242.00	Flow (cfs)		242.00
Top Width (ft)	41.20	Top Width (ft)		41.20
Vel Total (ft/s)	1.21	Avg. Vel. (ft/s)		1.21
Max Chl Dpth (ft)	7.59	Hydr. Depth (ft)		4.87
Conv. Total (cfs)	17975.4	Conv. (cfs)		17975.4
Length Wtd. (ft)	623.00	Wetted Per. (ft)		44.87
Min Ch El (ft)	82.96	Shear (lb/sq ft)		0.05
Alpha 0.00	1.00	Stream Power (lb/ft s)	509.23	0.00

ES100 OUTPUT REPORT.pdf

Frctn Loss (ft)	0.10	Cum Volume (acre-ft)	2.86	48.09
1.08				
C & E Loss (ft)	0.00	Cum SA (acres)	10.02	9.66
5.69				

CROSS SECTION OUTPUT Profile #EX 100Y

E. G. Elev (ft)	92.06	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.03	Wt. n-Val.		0.045
W. S. Elev (ft)	92.03	Reach Len. (ft)	622.00	623.00
623.00				
Crit W. S. (ft)		Flow Area (sq ft)		265.03
E. G. Slope (ft/ft)	0.000191	Area (sq ft)		265.03
Q Total (cfs)	368.00	Flow (cfs)		368.00
Top Width (ft)	45.31	Top Width (ft)		45.31
Vel Total (ft/s)	1.39	Avg. Vel. (ft/s)		1.39
Max Chl Dpth (ft)	9.07	Hydr. Depth (ft)		5.85
Conv. Total (cfs)	26617.7	Conv. (cfs)		26617.7
Length Wtd. (ft)	623.00	Wetted Per. (ft)		49.96
Min Ch El (ft)	82.96	Shear (lb/sq ft)		0.06
Alpha	1.00	Stream Power (lb/ft s)	509.23	0.00
0.00				
Frctn Loss (ft)	0.11	Cum Volume (acre-ft)	24.00	64.49
16.80				
C & E Loss (ft)	0.00	Cum SA (acres)	17.60	10.86
13.64				

CROSS SECTION OUTPUT Profile #ULT 10Y

E. G. Elev (ft)	89.80	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	89.78	Reach Len. (ft)	622.00	623.00
623.00				
Crit W. S. (ft)		Flow Area (sq ft)		169.99
E. G. Slope (ft/ft)	0.000178	Area (sq ft)		169.99
Q Total (cfs)	190.00	Flow (cfs)		190.00
Top Width (ft)	38.96	Top Width (ft)		38.96
Vel Total (ft/s)	1.12	Avg. Vel. (ft/s)		1.12
Max Chl Dpth (ft)	6.82	Hydr. Depth (ft)		4.36

ES100 OUTPUT REPORT.pdf

Conv. Total (cfs)	14223.8	Conv. (cfs)	14223.8
Length Wtd. (ft)	623.00	Wetted Per. (ft)	42.14
Min Ch El (ft)	82.96	Shear (lb/sq ft)	0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	509.23
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)	41.09
C & E Loss (ft)	0.00	Cum SA (acres)	9.15

CROSS SECTION OUTPUT Profile #ULT 25Y

E. G. Elev (ft)	90.59	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	90.57	Reach Len. (ft)	622.00	623.00
623.00 Crit W. S. (ft)		Flow Area (sq ft)		201.37
E. G. Slope (ft/ft)	0.000191	Area (sq ft)		201.37
Q Total (cfs)	250.00	Flow (cfs)		250.00
Top Width (ft)	41.26	Top Width (ft)		41.26
Vel Total (ft/s)	1.24	Avg. Vel. (ft/s)		1.24
Max Chl Dpth (ft)	7.61	Hydr. Depth (ft)		4.88
Conv. Total (cfs)	18073.9	Conv. (cfs)		18073.9
Length Wtd. (ft)	623.00	Wetted Per. (ft)		44.94
Min Ch El (ft)	82.96	Shear (lb/sq ft)		0.05
Alpha 0.00	1.00	Stream Power (lb/ft s)	509.23	0.00
Frctn Loss (ft)	0.11	Cum Volume (acre-ft)	2.98	48.21
1.15 C & E Loss (ft)	0.00	Cum SA (acres)	10.03	9.67
5.74				

CROSS SECTION OUTPUT Profile #ULT 100Y

E. G. Elev (ft)	92.14	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	Wt. n-Val.		0.045
W. S. Elev (ft)	92.11	Reach Len. (ft)	622.00	623.00
623.00 Crit W. S. (ft)		Flow Area (sq ft)		268.53

ES100 OUTPUT REPORT.pdf

E. G. Slope (ft/ft)	0.000186	Area (sq ft)	268.53
Q Total (cfs)	370.00	Flow (cfs)	370.00
Top Width (ft)	45.49	Top Width (ft)	45.49
Vel Total (ft/s)	1.38	Avg. Vel. (ft/s)	1.38
Max Chl Dpth (ft)	9.15	Hydr. Depth (ft)	5.90
Conv. Total (cfs)	27121.2	Conv. (cfs)	27121.2
Length Wtd. (ft)	623.00	Wetted Per. (ft)	50.20
Min Ch El (ft)	82.96	Shear (lb/sq ft)	0.06
Alpha	1.00	Stream Power (lb/ft s)	509.23
0.00			0.00
Frctn Loss (ft)	0.11	Cum Volume (acre-ft)	25.57
18.00			65.48
C & E Loss (ft)	0.00	Cum SA (acres)	17.97
13.73			10.93

CROSS SECTION

RIVER: ES100
 REACH: ES100-00 RS: 9850

INPUT

Description:

Station	Elevation	Data	num=	119	Station	Elevation	Station	Elevation	Station	Elevation
0	94.57	4.99	94.63	9.98	94.65	14.97	94.61	19.96	94.57	
24.95	94.57	29.95	94.56	34.94	94.66	39.93	94.78	44.92	94.81	
49.91	94.85	54.9	94.87	59.89	94.9	64.88	94.89	69.87	95	
74.86	95.33	79.85	95.06	84.85	95.11	89.84	95.11	94.83	95.14	
99.82	95.25	104.81	95.08	109.8	95.09	114.79	95.13	119.78	95.24	
124.77	95.36	129.76	95.37	134.75	95.36	139.75	95.44	144.74	95.35	
149.73	95.24	154.72	95.24	159.71	95.2	164.7	95.46	169.69	95.53	
174.68	95.53	179.67	95.35	184.66	95.32	189.65	95.11	194.65	95.08	
199.64	95.12	204.63	95.15	209.62	95.26	214.61	95.28	219.6	95.35	
224.59	95.51	229.58	95.48	234.57	95.55	239.56	95.57	244.55	95.5	
249.55	95.87	254.54	96.28	259.53	96.38	264.52	97.05	269.51	97.88	
274.5	98.03	279.49	98	284.48	97.63	289.47	97.41	294.46	97.38	
299.45	97.38	304.45	96.93	306.41	95.92	309.44	94.35	314.43	90.77	
319.42	87.21	324.41	85.77	329.4	85.05	334.39	84	339.38	83.01	
344.37	82.55	349.36	84.12	354.35	87.53	359.35	91.36	364.34	93.25	
366.41	94.03	369.33	95.14	374.32	97.46	379.31	97.76	384.3	97.66	
389.29	97.81	394.28	98.45	399.27	99.43	404.26	100.02	409.25	100.12	
414.25	100.12	419.24	99.29	424.23	98.45	429.22	98.62	434.21	98.55	
439.2	98.21	444.19	97.74	449.18	97.54	454.17	97.57	459.16	97.7	
464.15	97.79	469.15	97.89	474.14	97.91	479.13	97.8	484.12	97.85	
489.11	97.78	494.1	97.74	499.09	97.67	504.08	97.7	509.07	97.79	
514.06	97.67	519.06	97.65	524.05	97.95	529.04	97.99	534.03	97.94	
539.02	97.96	544.01	97.92	549	97.98	553.99	98.26	558.98	98.26	
563.97	98.1	568.96	98.52	573.96	98.43	578.95	98.43			

Manning's n	Values	num=	3
Station	n Val	Station	n Val
0	.06	304.45	.045
		374.32	.06

ES100 OUTPUT REPORT.pdf

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 304.45 374.32 636 642 644 .1 .3

CROSS SECTION OUTPUT Profile #EX 10Y

E. G. Elev (ft)	89.62	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	89.60	Reach Len. (ft)	636.00	642.00
644.00				
Crit W. S. (ft)		Flow Area (sq ft)		183.21
E. G. Slope (ft/ft)	0.000144	Area (sq ft)		183.21
Q Total (cfs)	187.00	Flow (cfs)		187.00
Top Width (ft)	40.99	Top Width (ft)		40.99
Vel Total (ft/s)	1.02	Avg. Vel. (ft/s)		1.02
Max Chl Dpth (ft)	7.05	Hydr. Depth (ft)		4.47
Conv. Total (cfs)	15602.1	Conv. (cfs)		15602.1
Length Wtd. (ft)	642.00	Wetted Per. (ft)		44.24
Min Ch El (ft)	82.55	Shear (lb/sq ft)		0.04
Alpha	1.00	Stream Power (lb/ft s)	578.95	0.00
0.00				
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)		37.85
C & E Loss (ft)	0.00	Cum SA (acres)		8.52

CROSS SECTION OUTPUT Profile #EX 25Y

E. G. Elev (ft)	90.47	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	90.45	Reach Len. (ft)	636.00	642.00
644.00				
Crit W. S. (ft)		Flow Area (sq ft)		218.83
E. G. Slope (ft/ft)	0.000145	Area (sq ft)		218.83
Q Total (cfs)	242.00	Flow (cfs)		242.00
Top Width (ft)	43.28	Top Width (ft)		43.28
Vel Total (ft/s)	1.11	Avg. Vel. (ft/s)		1.11
Max Chl Dpth (ft)	7.90	Hydr. Depth (ft)		5.06
Conv. Total (cfs)	20124.5	Conv. (cfs)		20124.5

ES100 OUTPUT REPORT.pdf

Length Wtd. (ft)	642.00	Wetted Per. (ft)		47.08
Min Ch El (ft)	82.55	Shear (lb/sq ft)		0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	578.95	0.00
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)	2.86	45.09
1.08 C & E Loss (ft)	0.00	Cum SA (acres)	10.02	9.06
5.69				

CROSS SECTION OUTPUT Profile #EX 100Y

E. G. Elev (ft)	91.95	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	Wt. n-Val.		0.045
W. S. Elev (ft)	91.93	Reach Len. (ft)	636.00	642.00
644.00 Crit W. S. (ft)		Flow Area (sq ft)		286.01
E. G. Slope (ft/ft)	0.000159	Area (sq ft)		286.01
Q Total (cfs)	368.00	Flow (cfs)		368.00
Top Width (ft)	48.03	Top Width (ft)		48.03
Vel Total (ft/s)	1.29	Avg. Vel. (ft/s)		1.29
Max Chl Dpth (ft)	9.38	Hydr. Depth (ft)		5.95
Conv. Total (cfs)	29157.3	Conv. (cfs)		29157.3
Length Wtd. (ft)	642.00	Wetted Per. (ft)		52.72
Min Ch El (ft)	82.55	Shear (lb/sq ft)		0.05
Alpha 0.00	1.00	Stream Power (lb/ft s)	578.95	0.00
Frctn Loss (ft)	0.15	Cum Volume (acre-ft)	24.00	60.55
16.80 C & E Loss (ft)	0.00	Cum SA (acres)	17.60	10.19
13.64				

CROSS SECTION OUTPUT Profile #ULT 10Y

E. G. Elev (ft)	89.70	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	89.69	Reach Len. (ft)	636.00	642.00
644.00 Crit W. S. (ft)		Flow Area (sq ft)		186.66
E. G. Slope (ft/ft)	0.000141	Area (sq ft)		186.66
Q Total (cfs)	190.00	Flow (cfs)		190.00

ES100 OUTPUT REPORT.pdf

Top Width (ft)	41.22	Top Width (ft)		41.22
Vel Total (ft/s)	1.02	Avg. Vel. (ft/s)		1.02
Max Chl Dpth (ft)	7.14	Hydr. Depth (ft)		4.53
Conv. Total (cfs)	16026.9	Conv. (cfs)		16026.9
Length Wtd. (ft)	642.00	Wetted Per. (ft)		44.52
Min Ch El (ft)	82.55	Shear (lb/sq ft)		0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	578.95	0.00
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)		38.54
C & E Loss (ft)	0.00	Cum SA (acres)		8.57

CROSS SECTION OUTPUT Profile #ULT 25Y

E. G. Elev (ft)	90.48	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	90.46	Reach Len. (ft)	636.00	642.00
644.00 Crit W. S. (ft)		Flow Area (sq ft)		219.40
E. G. Slope (ft/ft)	0.000153	Area (sq ft)		219.40
Q Total (cfs)	250.00	Flow (cfs)		250.00
Top Width (ft)	43.31	Top Width (ft)		43.31
Vel Total (ft/s)	1.14	Avg. Vel. (ft/s)		1.14
Max Chl Dpth (ft)	7.91	Hydr. Depth (ft)		5.07
Conv. Total (cfs)	20199.8	Conv. (cfs)		20199.8
Length Wtd. (ft)	642.00	Wetted Per. (ft)		47.13
Min Ch El (ft)	82.55	Shear (lb/sq ft)		0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	578.95	0.00
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)	2.98	45.20
1.15 C & E Loss (ft)	0.00	Cum SA (acres)	10.03	9.07
5.74				

CROSS SECTION OUTPUT Profile #ULT 100Y

E. G. Elev (ft)	92.03	Element	Left OB	Channel
Right OB				

ES100 OUTPUT REPORT.pdf

Vel Head (ft)	0.03	Wt. n-Val.		0.045
W. S. Elev (ft)	92.01	Reach Len. (ft)	636.00	642.00
644.00 Crit W. S. (ft)		Flow Area (sq ft)		289.86
E. G. Slope (ft/ft)	0.000155	Area (sq ft)		289.86
Q Total (cfs)	370.00	Flow (cfs)		370.00
Top Width (ft)	48.35	Top Width (ft)		48.35
Vel Total (ft/s)	1.28	Avg. Vel. (ft/s)		1.28
Max Chl Dpth (ft)	9.46	Hydr. Depth (ft)		5.99
Conv. Total (cfs)	29679.1	Conv. (cfs)		29679.1
Length Wtd. (ft)	642.00	Wetted Per. (ft)		53.09
Min Ch El (ft)	82.55	Shear (lb/sq ft)		0.05
Alpha 0.00	1.00	Stream Power (lb/ft s)	578.95	0.00
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)	25.57	61.49
18.00 C & E Loss (ft)	0.00	Cum SA (acres)	17.97	10.25
13.73				

CROSS SECTION

RIVER: ES100
REACH: ES100-00 RS: 9208

INPUT

Description:

Station	Elevation	Data	num=	129	Station	Elevation	Station	Elevation	Station	Elevation
0	93.45	4.99	93.41	9.97	93.45	14.96	93.45	19.94	93.42	
24.93	93.41	29.91	93.44	34.9	93.45	39.88	93.38	44.87	93.34	
49.85	93.43	54.84	93.48	59.82	93.48	64.81	93.51	69.79	93.53	
74.78	93.57	79.76	93.43	84.75	93.05	89.73	92.79	94.72	92.35	
99.7	91.56	104.69	90.57	109.67	89.76	114.66	88.79	119.64	87.38	
124.63	86.79	129.61	86.6	134.6	86.38	139.58	86.07	144.57	85.75	
149.55	85.63	154.54	85.63	159.52	85.63	164.51	85.63	169.49	85.63	
174.48	85.63	179.46	85.63	184.45	85.63	189.43	85.63	194.42	85.63	
199.4	85.63	204.39	85.63	209.37	85.63	214.36	85.63	219.34	85.63	
224.33	85.63	229.31	85.82	234.3	86.32	239.28	86.66	244.27	87.96	
249.25	89.16	254.24	89.96	259.22	90.39	264.21	90.6	269.19	91.5	
274.18	92.39	279.16	93.25	284.15	93.53	289.13	95	294.12	96.42	
299.1	97.11	304.09	97.19	309.07	97.61	314.06	97.94	319.04	97.65	
324.03	97.59	329.01	97.29	334	97.21	338.98	97.26	343.97	96.74	
348.95	96.74	353.94	96.57	358.92	96.47	363.91	96.27	368.89	96.24	
373.88	95.79	378.86	95.38	383.85	95.44	388.83	95.46	393.82	95.69	
398.8	95.39	400.43	94.51	403.79	92.72	408.78	92.72	413.76	88.98	
418.75	85.75	423.73	83.01	428.72	82.68	433.7	82.68	438.69	84.1	
443.67	86.52	448.66	90.61	453.64	91	458.63	94.37	460.46	94.75	
463.61	95.41	468.6	95.37	473.58	95.36	478.57	95.34	483.55	95.77	
488.54	96.13	493.52	96.18	498.51	96.53	503.49	97.08	508.48	97.42	
513.46	97.47	518.45	97.88	523.43	97.86	528.42	97.28	533.4	97.2	

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538.39	97.21	543.37	97.64	548.36	98.4	553.34	98.99	558.33	99.11
563.31	99.5	568.3	99.91	573.28	99.81	578.27	99.69	583.25	99.69
588.24	100.09	593.22	100.18	598.21	100.18	603.19	99.74	608.18	99.79
613.16	100.31	618.15	100.25	623.13	100.09	628.12	99.95		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	400.43	.045	460.46	.06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

400.43	460.46	490	481	472	.1	.3
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Blocked Obstructions num= 1

Sta L	Sta R	Elev
0	287.73	93.3

CROSS SECTION OUTPUT Profile #EX 10Y

E. G. Elev (ft)	89.50	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.03	Wt. n-Val.		0.045
W. S. Elev (ft)	89.47	Reach Len. (ft)	490.00	481.00
472.00				
Crit W. S. (ft)		Flow Area (sq ft)		159.25
E. G. Slope (ft/ft)	0.000243	Area (sq ft)		159.25
Q Total (cfs)	214.00	Flow (cfs)		214.00
Top Width (ft)	34.16	Top Width (ft)		34.16
Vel Total (ft/s)	1.34	Avg. Vel. (ft/s)		1.34
Max Chl Dpth (ft)	6.79	Hydr. Depth (ft)		4.66
Conv. Total (cfs)	13715.9	Conv. (cfs)		13715.9
Length Wtd. (ft)	481.00	Wetted Per. (ft)		37.80
Min Ch El (ft)	82.68	Shear (lb/sq ft)		0.06
Alpha	1.00	Stream Power (lb/ft s)	628.12	0.00
0.00				
Frctn Loss (ft)	0.11	Cum Volume (acre-ft)		35.33
C & E Loss (ft)	0.00	Cum SA (acres)		7.97

CROSS SECTION OUTPUT Profile #EX 25Y

E. G. Elev (ft)	90.34	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.03	Wt. n-Val.		0.045
W. S. Elev (ft)	90.31	Reach Len. (ft)	490.00	481.00
472.00				
Crit W. S. (ft)		Flow Area (sq ft)		188.77
E. G. Slope (ft/ft)	0.000257	Area (sq ft)		188.77

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Q Total (cfs)	279.00	Flow (cfs)		279.00
Top Width (ft)	36.30	Top Width (ft)		36.30
Vel Total (ft/s)	1.48	Avg. Vel. (ft/s)		1.48
Max Chl Dpth (ft)	7.63	Hydr. Depth (ft)		5.20
Conv. Total (cfs)	17387.3	Conv. (cfs)		17387.3
Length Wtd. (ft)	481.00	Wetted Per. (ft)		40.52
Min Ch El (ft)	82.68	Shear (lb/sq ft)		0.07
Alpha 0.00	1.00	Stream Power (lb/ft s)	628.12	0.00
Frctn Loss (ft) 1.08	0.11	Cum Volume (acre-ft)	2.86	42.09
C & E Loss (ft) 5.69	0.00	Cum SA (acres)	10.02	8.47

CROSS SECTION OUTPUT Profile #EX 100Y

E. G. Elev (ft)	91.81	Element	Left OB	Channel
Right OB Vel Head (ft)	0.05	Wt. n-Val.		0.045
W. S. Elev (ft)	91.76	Reach Len. (ft)	490.00	481.00
472.00 Crit W. S. (ft)		Flow Area (sq ft)		248.50
E. G. Slope (ft/ft)	0.000323	Area (sq ft)		248.50
Q Total (cfs)	431.00	Flow (cfs)		431.00
Top Width (ft)	44.70	Top Width (ft)		44.70
Vel Total (ft/s)	1.73	Avg. Vel. (ft/s)		1.73
Max Chl Dpth (ft)	9.08	Hydr. Depth (ft)		5.56
Conv. Total (cfs)	23972.5	Conv. (cfs)		23972.5
Length Wtd. (ft)	481.00	Wetted Per. (ft)		49.77
Min Ch El (ft)	82.68	Shear (lb/sq ft)		0.10
Alpha 0.00	1.00	Stream Power (lb/ft s)	628.12	0.00
Frctn Loss (ft) 16.80	0.14	Cum Volume (acre-ft)	24.00	56.61
C & E Loss (ft) 13.64	0.00	Cum SA (acres)	17.60	9.51

CROSS SECTION OUTPUT Profile #ULT 10Y

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		Element	Left OB	Channel
E. G. Elev (ft)	89.58			
Right OB				
Vel Head (ft)	0.03	Wt. n-Val.		0.045
W. S. Elev (ft)	89.55	Reach Len. (ft)	490.00	481.00
472.00				
Crit W. S. (ft)		Flow Area (sq ft)		162.13
E. G. Slope (ft/ft)	0.000245	Area (sq ft)		162.13
Q Total (cfs)	220.00	Flow (cfs)		220.00
Top Width (ft)	34.38	Top Width (ft)		34.38
Vel Total (ft/s)	1.36	Avg. Vel. (ft/s)		1.36
Max Chl Dpth (ft)	6.87	Hydr. Depth (ft)		4.72
Conv. Total (cfs)	14063.9	Conv. (cfs)		14063.9
Length Wtd. (ft)	481.00	Wetted Per. (ft)		38.08
Min Ch El (ft)	82.68	Shear (lb/sq ft)		0.07
Alpha	1.00	Stream Power (lb/ft s)	628.12	0.00
0.00				
Frctn Loss (ft)	0.11	Cum Volume (acre-ft)		35.97
C & E Loss (ft)	0.00	Cum SA (acres)		8.02

CROSS SECTION OUTPUT Profile #ULT 25Y

		Element	Left OB	Channel
E. G. Elev (ft)	90.35			
Right OB				
Vel Head (ft)	0.03	Wt. n-Val.		0.045
W. S. Elev (ft)	90.32	Reach Len. (ft)	490.00	481.00
472.00				
Crit W. S. (ft)		Flow Area (sq ft)		189.17
E. G. Slope (ft/ft)	0.000258	Area (sq ft)		189.17
Q Total (cfs)	280.00	Flow (cfs)		280.00
Top Width (ft)	36.33	Top Width (ft)		36.33
Vel Total (ft/s)	1.48	Avg. Vel. (ft/s)		1.48
Max Chl Dpth (ft)	7.64	Hydr. Depth (ft)		5.21
Conv. Total (cfs)	17438.2	Conv. (cfs)		17438.2
Length Wtd. (ft)	481.00	Wetted Per. (ft)		40.56
Min Ch El (ft)	82.68	Shear (lb/sq ft)		0.08
Alpha	1.00	Stream Power (lb/ft s)	628.12	0.00
0.00				
Frctn Loss (ft)	0.11	Cum Volume (acre-ft)	2.98	42.19

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1.15
 C & E Loss (ft) 0.00 Cum SA (acres) 10.03 8.48
 5.74

CROSS SECTION OUTPUT Profile #ULT 100Y

E. G. Elev (ft)	91.89	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.05	Wt. n-Val.		0.045
W. S. Elev (ft)	91.84	Reach Len. (ft)	490.00	481.00
472.00				
Crit W. S. (ft)		Flow Area (sq ft)		252.10
E. G. Slope (ft/ft)	0.000323	Area (sq ft)		252.10
Q Total (cfs)	440.00	Flow (cfs)		440.00
Top Width (ft)	44.93	Top Width (ft)		44.93
Vel Total (ft/s)	1.75	Avg. Vel. (ft/s)		1.75
Max Chl Dpth (ft)	9.16	Hydr. Depth (ft)		5.61
Conv. Total (cfs)	24463.8	Conv. (cfs)		24463.8
Length Wtd. (ft)	481.00	Wetted Per. (ft)		50.04
Min Ch El (ft)	82.68	Shear (lb/sq ft)		0.10
Alpha	1.00	Stream Power (lb/ft s)	628.12	0.00
0.00				
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)	25.57	57.49
18.00				
C & E Loss (ft)	0.00	Cum SA (acres)	17.97	9.57
13.73				

CROSS SECTION

RIVER: ES100
 REACH: ES100-00 RS: 8727

INPUT

Description:

Station	Elevation	Data	num=	111							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	92.87	4.97	92.97	9.95	92.97	14.92	93.04	19.9	93.15		
24.87	93.12	29.85	93.11	34.82	93.08	39.8	93.05	44.77	93.17		
49.75	93.21	54.72	93.21	59.7	93.19	64.67	93.16	69.65	93.17		
74.62	93.19	79.6	93.23	84.57	93.21	89.55	93.24	94.52	93.3		
99.5	93.31	104.47	93.28	109.45	93.28	114.42	93.31	119.4	93.27		
124.37	93.23	129.35	93.22	134.32	93.18	139.3	93.14	144.27	93.07		
149.25	93.04	154.22	92.97	159.2	92.83	164.17	92.53	169.15	92.38		
174.12	91.81	179.1	91.75	184.07	92.8	189.05	93.31	194.02	93.39		
199	94.19	203.97	95.09	208.95	95.71	213.92	95.69	218.9	96.31		
223.87	96.87	228.85	96.95	233.82	96.93	238.8	96.8	243.77	96.81		
248.75	96.89	253.72	96.93	258.7	97.01	263.67	97.19	268.65	97.23		

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273.62	96.98	278.6	96.88	283.57	96.14	288.55	95.41	293.52	94.96
298.5	94.82	303.47	94.9	308.45	95.05	310.19	94.6	313.42	93.75
318.4	92.56	323.37	90.29	328.35	86.36	333.32	83.51	338.3	82.28
343.27	82.38	348.25	83.07	353.22	84.77	358.2	88.19	363.17	91.13
368.15	92.37	370.22	93.59	373.12	95.31	378.1	95.95	383.07	95.87
388.05	95.91	393.02	96.15	398	96.6	402.97	97.01	407.95	97
412.92	96.96	417.9	96.95	422.87	96.69	427.85	96.67	432.82	96.59
437.8	96.67	442.77	96.58	447.75	96.58	452.72	96.59	457.7	96.73
462.67	96.93	467.65	97.44	472.62	97.57	477.6	98.4	482.57	98.67
487.55	98.24	492.52	98.1	497.5	98.14	502.47	98.59	507.45	98.63
512.42	98.56	517.4	98.65	522.37	98.88	527.35	98.71	532.32	98.61
537.3	98.71								

Manning's n	Values		num=	3	
Sta	n Val	Sta	n Val	Sta	n Val
0	.06	310.19	.045	373.12	.06

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	310.19	373.12		447	452		.1	.3

CROSS SECTION OUTPUT Profile #EX 10Y

E. G. Elev (ft)	89.39	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	89.37	Reach Len. (ft)	447.00	452.00
457.00		Flow Area (sq ft)		170.61
Crit W. S. (ft)		Area (sq ft)		170.61
E. G. Slope (ft/ft)	0.000204	Area (sq ft)		170.61
Q Total (cfs)	214.00	Flow (cfs)		214.00
Top Width (ft)	35.65	Top Width (ft)		35.65
Vel Total (ft/s)	1.25	Avg. Vel. (ft/s)		1.25
Max Chl Dpth (ft)	7.09	Hydr. Depth (ft)		4.79
Conv. Total (cfs)	14988.5	Conv. (cfs)		14988.5
Length Wtd. (ft)	452.00	Wetted Per. (ft)		39.31
Min Ch El (ft)	82.28	Shear (lb/sq ft)		0.06
Alpha	1.00	Stream Power (lb/ft s)	537.30	0.00
0.00		Cum Volume (acre-ft)		33.51
Frctn Loss (ft)	0.07	Cum SA (acres)		7.58
C & E Loss (ft)	0.00			

CROSS SECTION OUTPUT Profile #EX 25Y

E. G. Elev (ft)	90.23	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.03	Wt. n-Val.		0.045

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W. S. Elev (ft)	90.20	Reach Len. (ft)	447.00	452.00
457.00 Crit W. S. (ft)		Flow Area (sq ft)		201.25
E. G. Slope (ft/ft)	0.000220	Area (sq ft)		201.25
Q Total (cfs)	279.00	Flow (cfs)		279.00
Top Width (ft)	38.10	Top Width (ft)		38.10
Vel Total (ft/s)	1.39	Avg. Vel. (ft/s)		1.39
Max Chl Dpth (ft)	7.92	Hydr. Depth (ft)		5.28
Conv. Total (cfs)	18802.1	Conv. (cfs)		18802.1
Length Wtd. (ft)	452.00	Wetted Per. (ft)		42.29
Min Ch El (ft)	82.28	Shear (lb/sq ft)		0.07
Alpha 0.00	1.00	Stream Power (lb/ft s)	537.30	0.00
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)	2.86	39.94
1.08 C & E Loss (ft)	0.00	Cum SA (acres)	10.02	8.06
5.69				

CROSS SECTION OUTPUT Profile #EX 100Y

E. G. Elev (ft)	91.66	Element	Left OB	Channel
Right OB Vel Head (ft)	0.04	Wt. n-Val.		0.045
W. S. Elev (ft)	91.62	Reach Len. (ft)	447.00	452.00
457.00 Crit W. S. (ft)		Flow Area (sq ft)		259.48
E. G. Slope (ft/ft)	0.000278	Area (sq ft)		259.48
Q Total (cfs)	431.00	Flow (cfs)		431.00
Top Width (ft)	44.67	Top Width (ft)		44.67
Vel Total (ft/s)	1.66	Avg. Vel. (ft/s)		1.66
Max Chl Dpth (ft)	9.34	Hydr. Depth (ft)		5.81
Conv. Total (cfs)	25860.7	Conv. (cfs)		25860.7
Length Wtd. (ft)	452.00	Wetted Per. (ft)		49.48
Min Ch El (ft)	82.28	Shear (lb/sq ft)		0.09
Alpha 0.00	1.00	Stream Power (lb/ft s)	537.30	0.00
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)	24.00	53.80
16.80 C & E Loss (ft)	0.00	Cum SA (acres)	17.60	9.02
13.64				

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CROSS SECTION OUTPUT Profile #ULT 10Y

E. G. Elev (ft)	89.47	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	89.45	Reach Len. (ft)	447.00	452.00
457.00 Crit W. S. (ft)		Flow Area (sq ft)		173.59
E. G. Slope (ft/ft)	0.000205	Area (sq ft)		173.59
Q Total (cfs)	220.00	Flow (cfs)		220.00
Top Width (ft)	35.89	Top Width (ft)		35.89
Vel Total (ft/s)	1.27	Avg. Vel. (ft/s)		1.27
Max Chl Dpth (ft)	7.17	Hydr. Depth (ft)		4.84
Conv. Total (cfs)	15349.8	Conv. (cfs)		15349.8
Length Wtd. (ft)	452.00	Wetted Per. (ft)		39.61
Min Ch El (ft)	82.28	Shear (lb/sq ft)		0.06
Alpha 0.00	1.00	Stream Power (lb/ft s)	537.30	0.00
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)		34.12
C & E Loss (ft)	0.00	Cum SA (acres)		7.63

CROSS SECTION OUTPUT Profile #ULT 25Y

E. G. Elev (ft)	90.24	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	Wt. n-Val.		0.045
W. S. Elev (ft)	90.21	Reach Len. (ft)	447.00	452.00
457.00 Crit W. S. (ft)		Flow Area (sq ft)		201.66
E. G. Slope (ft/ft)	0.000221	Area (sq ft)		201.66
Q Total (cfs)	280.00	Flow (cfs)		280.00
Top Width (ft)	38.14	Top Width (ft)		38.14
Vel Total (ft/s)	1.39	Avg. Vel. (ft/s)		1.39
Max Chl Dpth (ft)	7.93	Hydr. Depth (ft)		5.29
Conv. Total (cfs)	18854.7	Conv. (cfs)		18854.7
Length Wtd. (ft)	452.00	Wetted Per. (ft)		42.32

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Min Ch El (ft)	82.28	Shear (lb/sq ft)		0.07
Alpha 0.00	1.00	Stream Power (lb/ft s)	537.30	0.00
Frctn Loss (ft) 1.15	0.08	Cum Volume (acre-ft)	2.98	40.03
C & E Loss (ft) 5.74	0.00	Cum SA (acres)	10.03	8.07

CROSS SECTION OUTPUT Profile #ULT 100Y

E. G. Elev (ft)	91.74	Element	Left OB	Channel
Right OB Vel Head (ft)	0.04	Wt. n-Val.		0.045
W. S. Elev (ft)	91.70	Reach Len. (ft)	447.00	452.00
457.00 Crit W. S. (ft)		Flow Area (sq ft)		263.05
E. G. Slope (ft/ft)	0.000280	Area (sq ft)		263.05
Q Total (cfs)	440.00	Flow (cfs)		440.00
Top Width (ft)	45.16	Top Width (ft)		45.16
Vel Total (ft/s)	1.67	Avg. Vel. (ft/s)		1.67
Max Chl Dpth (ft)	9.42	Hydr. Depth (ft)		5.82
Conv. Total (cfs)	26273.2	Conv. (cfs)		26273.2
Length Wtd. (ft)	452.00	Wetted Per. (ft)		50.01
Min Ch El (ft)	82.28	Shear (lb/sq ft)		0.09
Alpha 0.00	1.00	Stream Power (lb/ft s)	537.30	0.00
Frctn Loss (ft) 18.00	0.10	Cum Volume (acre-ft)	25.57	54.65
C & E Loss (ft) 13.73	0.00	Cum SA (acres)	17.97	9.07

CROSS SECTION

RIVER: ES100
REACH: ES100-00 RS: 8275

INPUT

Description:

Station	Elevation	Data	num=	118	Station	Elevation	Station	Elevation	Station	Elevation
0	93.1	4.93	93.14	9.86	93.1	14.79	93.06	19.72	93.07	
24.65	93.08	29.57	93.08	34.5	93.05	39.43	93.1	44.36	93.21	
49.29	93.19	54.22	93.18	59.15	93.39	64.08	93.41	69.01	93.53	
73.93	93.62	78.86	93.72	83.79	93.67	88.72	93.62	93.65	93.61	
98.58	93.62	103.51	93.62	108.44	93.65	113.37	93.64	118.3	93.62	
123.22	93.54	128.15	93.38	133.08	93.38	138.01	93.4	142.94	93.27	

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147.87	92.95	152.8	92.49	157.73	92.32	162.66	91.93	167.59	91.92
172.51	92.77	177.44	93.34	182.37	93.53	187.3	94.22	192.23	94.52
197.17	94.99	202.1	95.6	207.04	95.6	211.98	96.42	216.91	96.63
221.85	96.41	226.79	96.41	231.72	96.39	236.66	96.37	241.59	96.61
246.53	96.7	251.47	96.93	256.4	96.91	261.34	97.03	266.28	97.08
271.21	97.03	276.15	96.75	281.08	96.08	286.02	95.7	290.96	95.64
295.89	95.59	300.83	95.66	305.77	94.79	307.64	94.48	310.7	93.97
315.64	91.9	320.58	87.44	325.51	83.67	330.45	82.4	335.38	82.55
340.32	82.91	345.26	83.4	350.19	84.05	355.13	85.46	360.07	89.52
365	93.07	367.64	94.2	369.94	95.18	374.87	95.16	379.81	95.15
384.75	95.28	389.68	95.94	394.62	96.32	399.56	96.3	404.49	96.05
409.43	94.88	414.37	93.31	419.3	93.31	424.24	93.54	429.17	94.09
434.11	94.35	439.05	94.36	443.98	94.24	448.92	94.39	453.86	94.82
458.79	95.21	463.73	95.29	468.67	95.75	473.6	96.57	478.54	97.58
483.47	97.84	488.41	98.23	493.35	98.48	498.28	98.67	503.22	98.79
508.16	99.23	513.09	100.1	518.03	100.88	522.96	101.2	527.9	101.32
532.84	101.25	537.77	101.05	542.71	101.01	547.65	101.08	552.58	101.12
557.52	100.97	562.46	100.34	567.39	99.67				

Manning's n	Values	num=	3
Station	Value	Station	Value
0	.06	307.64	.045
		367.64	.06

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	307.64	367.64		224	224		.1	.3

CROSS SECTION OUTPUT Profile #EX 10Y

E. G. Elev (ft)	89.32	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	89.30	Reach Len. (ft)	224.00	224.00
224.00				
Crit W. S. (ft)		Flow Area (sq ft)		206.64
E. G. Slope (ft/ft)	0.000129	Area (sq ft)		206.64
Q Total (cfs)	214.00	Flow (cfs)		214.00
Top Width (ft)	41.28	Top Width (ft)		41.28
Vel Total (ft/s)	1.04	Avg. Vel. (ft/s)		1.04
Max Chl Dpth (ft)	6.90	Hydr. Depth (ft)		5.01
Conv. Total (cfs)	18827.1	Conv. (cfs)		18827.1
Length Wtd. (ft)	224.00	Wetted Per. (ft)		45.09
Min Ch El (ft)	82.40	Shear (lb/sq ft)		0.04
Alpha	1.00	Stream Power (lb/ft s)	567.39	0.00
0.00				
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)		31.55
C & E Loss (ft)	0.00	Cum SA (acres)		7.18

CROSS SECTION OUTPUT Profile #EX 25Y

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E. G. Elev (ft)	90.15	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	90.12	Reach Len. (ft)	224.00	224.00
224.00				
Crit W. S. (ft)		Flow Area (sq ft)		241.55
E. G. Slope (ft/ft)	0.000141	Area (sq ft)		241.55
Q Total (cfs)	279.00	Flow (cfs)		279.00
Top Width (ft)	43.30	Top Width (ft)		43.30
Vel Total (ft/s)	1.16	Avg. Vel. (ft/s)		1.16
Max Chl Dpth (ft)	7.72	Hydr. Depth (ft)		5.58
Conv. Total (cfs)	23520.3	Conv. (cfs)		23520.3
Length Wtd. (ft)	224.00	Wetted Per. (ft)		47.70
Min Ch El (ft)	82.40	Shear (lb/sq ft)		0.04
Alpha	1.00	Stream Power (lb/ft s)	567.39	0.00
0.00				
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	2.86	37.64
1.08				
C & E Loss (ft)	0.00	Cum SA (acres)	10.02	7.64
5.69				

CROSS SECTION OUTPUT Profile #EX 100Y

E. G. Elev (ft)	91.56	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.03	Wt. n-Val.		0.045
W. S. Elev (ft)	91.53	Reach Len. (ft)	224.00	224.00
224.00				
Crit W. S. (ft)		Flow Area (sq ft)		304.78
E. G. Slope (ft/ft)	0.000174	Area (sq ft)		304.78
Q Total (cfs)	431.00	Flow (cfs)		431.00
Top Width (ft)	46.81	Top Width (ft)		46.81
Vel Total (ft/s)	1.41	Avg. Vel. (ft/s)		1.41
Max Chl Dpth (ft)	9.13	Hydr. Depth (ft)		6.51
Conv. Total (cfs)	32633.8	Conv. (cfs)		32633.8
Length Wtd. (ft)	224.00	Wetted Per. (ft)		52.20
Min Ch El (ft)	82.40	Shear (lb/sq ft)		0.06
Alpha	1.00	Stream Power (lb/ft s)	567.39	0.00

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0.00				
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	24.00	50.88
16.80				
C & E Loss (ft)	0.00	Cum SA (acres)	17.60	8.54
13.64				

CROSS SECTION OUTPUT Profile #ULT 10Y

E. G. Elev (ft)	89.40	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	89.38	Reach Len. (ft)	224.00	224.00
224.00				
Crit W. S. (ft)		Flow Area (sq ft)		210.07
E. G. Slope (ft/ft)	0.000130	Area (sq ft)		210.07
Q Total (cfs)	220.00	Flow (cfs)		220.00
Top Width (ft)	41.47	Top Width (ft)		41.47
Vel Total (ft/s)	1.05	Avg. Vel. (ft/s)		1.05
Max Chl Dpth (ft)	6.98	Hydr. Depth (ft)		5.07
Conv. Total (cfs)	19278.0	Conv. (cfs)		19278.0
Length Wtd. (ft)	224.00	Wetted Per. (ft)		45.34
Min Ch El (ft)	82.40	Shear (lb/sq ft)		0.04
Alpha	1.00	Stream Power (lb/ft s)	567.39	0.00
0.00				
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)		32.13
C & E Loss (ft)	0.00	Cum SA (acres)		7.23

CROSS SECTION OUTPUT Profile #ULT 25Y

E. G. Elev (ft)	90.16	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	90.14	Reach Len. (ft)	224.00	224.00
224.00				
Crit W. S. (ft)		Flow Area (sq ft)		242.01
E. G. Slope (ft/ft)	0.000141	Area (sq ft)		242.01
Q Total (cfs)	280.00	Flow (cfs)		280.00
Top Width (ft)	43.33	Top Width (ft)		43.33
Vel Total (ft/s)	1.16	Avg. Vel. (ft/s)		1.16

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Max Chl Dpth (ft)	7.74	Hydr. Depth (ft)		5.59
Conv. Total (cfs)	23584.1	Conv. (cfs)		23584.1
Length Wtd. (ft)	224.00	Wetted Per. (ft)		47.74
Min Ch El (ft)	82.40	Shear (lb/sq ft)		0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	567.39	0.00
Frctn Loss (ft) 1.15	0.04	Cum Volume (acre-ft)	2.98	37.73
C & E Loss (ft) 5.74	0.00	Cum SA (acres)	10.03	7.65

CROSS SECTION OUTPUT Profile #ULT 100Y

E. G. Elev (ft)	91.64	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	Wt. n-Val.		0.045
W. S. Elev (ft)	91.61	Reach Len. (ft)	224.00	224.00
224.00 Crit W. S. (ft)		Flow Area (sq ft)		308.48
E. G. Slope (ft/ft)	0.000176	Area (sq ft)		308.48
Q Total (cfs)	440.00	Flow (cfs)		440.00
Top Width (ft)	47.00	Top Width (ft)		47.00
Vel Total (ft/s)	1.43	Avg. Vel. (ft/s)		1.43
Max Chl Dpth (ft)	9.21	Hydr. Depth (ft)		6.56
Conv. Total (cfs)	33189.1	Conv. (cfs)		33189.1
Length Wtd. (ft)	224.00	Wetted Per. (ft)		52.45
Min Ch El (ft)	82.40	Shear (lb/sq ft)		0.06
Alpha 0.00	1.00	Stream Power (lb/ft s)	567.39	0.00
Frctn Loss (ft) 18.00	0.04	Cum Volume (acre-ft)	25.57	51.68
C & E Loss (ft) 13.73	0.00	Cum SA (acres)	17.97	8.59

CROSS SECTION

RIVER: ES100
 REACH: ES100-00 RS: 8051

INPUT

Description:

Station	Elevation	Data	num=	98	Station	Elevation	Station	Elevation	Station	Elevation
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ES100 OUTPUT REPORT.pdf

0	91.27	4.98	91.17	9.97	91.14	14.95	91.1	19.93	91.11
24.91	91.14	29.9	91.11	34.88	91.14	39.86	91.16	44.85	91.14
49.83	91.15	54.81	91.12	59.79	91.1	64.78	91.07	69.76	91.07
74.74	90.95	79.73	90.85	84.71	90.84	89.69	90.73	94.67	90.49
99.66	90.41	104.64	90.69	109.62	90.83	114.61	91.18	119.59	91.92
124.57	93.21	129.55	93.78	134.54	95.09	139.52	96.2	144.5	96.39
149.49	96.39	154.47	95.89	159.45	94.85	164.43	94.13	169.42	93.96
174.4	94.05	179.38	93.6	180.38	93.17	184.37	91.46	189.35	89.19
194.33	87.19	199.31	85.02	204.3	83.6	209.28	83.29	214.26	83.3
219.24	84.24	224.23	84.94	229.21	86.3	234.19	89.99	239.18	93.11
240.4	93.39	244.16	94.28	249.14	94.25	254.12	94.15	259.11	94.3
264.09	94.65	269.07	94.86	274.06	95.53	279.04	95.54	284.02	94.99
289	93.83	293.99	93.68	298.97	92.86	303.95	92.54	308.94	92.36
313.92	92.34	318.9	92.21	323.88	92.07	328.87	91.86	333.85	91.87
338.83	91.97	343.82	92.03	348.8	92.06	353.78	92.06	358.76	92.07
363.75	92.13	368.73	92.13	373.71	92.22	378.7	92.22	383.68	92.3
388.66	92.26	393.64	92.26	398.63	92.27	403.61	92.33	408.59	92.32
413.58	92.35	418.56	92.36	423.54	92.48	428.52	92.57	433.51	92.55
438.49	92.54	443.47	92.55	448.46	92.61	453.44	92.6	458.42	92.75
463.4	92.81	468.39	92.84	473.37	92.78				

Manning's n Values num= 3
 Station Val Sta n Val Sta n Val
 0 .06 179.38 .045 240.4 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 179.38 240.4 543 542 542 .1 .3

CROSS SECTION OUTPUT Profile #EX 10Y

E. G. Elev (ft)	89.28	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	89.26	Reach Len. (ft)	543.00	542.00
542.00				
Crit W. S. (ft)		Flow Area (sq ft)		178.91
E. G. Slope (ft/ft)	0.000217	Area (sq ft)		178.91
Q Total (cfs)	214.00	Flow (cfs)		214.00
Top Width (ft)	43.99	Top Width (ft)		43.99
Vel Total (ft/s)	1.20	Avg. Vel. (ft/s)		1.20
Max Chl Dpth (ft)	5.97	Hydr. Depth (ft)		4.07
Conv. Total (cfs)	14536.5	Conv. (cfs)		14536.5
Length Wtd. (ft)	542.00	Wetted Per. (ft)		46.35
Min Ch El (ft)	83.29	Shear (lb/sq ft)		0.05
Alpha	1.00	Stream Power (lb/ft s)	473.37	0.00
0.00				
Frctn Loss (ft)	0.11	Cum Volume (acre-ft)		30.56
C & E Loss (ft)	0.00	Cum SA (acres)		6.96

ES100 OUTPUT REPORT.pdf

CROSS SECTION OUTPUT Profile #EX 25Y

E. G. Elev (ft)	90.11	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	Wt. n-Val.		0.045
W. S. Elev (ft)	90.08	Reach Len. (ft)	543.00	542.00
542.00 Crit W. S. (ft)		Flow Area (sq ft)		216.39
E. G. Slope (ft/ft)	0.000215	Area (sq ft)		216.39
Q Total (cfs)	279.00	Flow (cfs)		279.00
Top Width (ft)	46.94	Top Width (ft)		46.94
Vel Total (ft/s)	1.29	Avg. Vel. (ft/s)		1.29
Max Chl Dpth (ft)	6.79	Hydr. Depth (ft)		4.61
Conv. Total (cfs)	19041.2	Conv. (cfs)		19041.2
Length Wtd. (ft)	542.01	Wetted Per. (ft)		49.74
Min Ch El (ft)	83.29	Shear (lb/sq ft)		0.06
Alpha 0.00	1.00	Stream Power (lb/ft s)	473.37	0.00
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)	2.86	36.46
1.08 C & E Loss (ft)	0.00	Cum SA (acres)	10.02	7.41
5.69				

CROSS SECTION OUTPUT Profile #EX 100Y

E. G. Elev (ft)	91.51	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	Wt. n-Val.	0.060	0.045
W. S. Elev (ft)	91.48	Reach Len. (ft)	543.00	542.00
542.00 Crit W. S. (ft)		Flow Area (sq ft)	56.95	285.94
E. G. Slope (ft/ft)	0.000222	Area (sq ft)	56.95	285.94
Q Total (cfs)	431.00	Flow (cfs)	13.00	418.00
Top Width (ft)	168.91	Top Width (ft)	116.65	52.26
Vel Total (ft/s)	1.26	Avg. Vel. (ft/s)	0.23	1.46
Max Chl Dpth (ft)	8.19	Hydr. Depth (ft)	0.49	5.47
Conv. Total (cfs)	28947.8	Conv. (cfs)	873.2	28074.6
Length Wtd. (ft)	542.14	Wetted Per. (ft)	116.92	55.77
Min Ch El (ft)	83.29	Shear (lb/sq ft)	0.01	0.07

ES100 OUTPUT REPORT.pdf

Alpha	1.31	Stream Power (lb/ft s)	473.37	0.00
0.00				
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)	23.85	49.36
16.80				
C & E Loss (ft)	0.01	Cum SA (acres)	17.30	8.29
13.64				

Warning: Divided flow computed for this cross-section.
 Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #ULT 10Y

E. G. Elev (ft)	89.36	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	89.34	Reach Len. (ft)	543.00	542.00
542.00				
Crit W. S. (ft)		Flow Area (sq ft)		182.56
E. G. Slope (ft/ft)	0.000216	Area (sq ft)		182.56
Q Total (cfs)	220.00	Flow (cfs)		220.00
Top Width (ft)	44.29	Top Width (ft)		44.29
Vel Total (ft/s)	1.21	Avg. Vel. (ft/s)		1.21
Max Chl Dpth (ft)	6.05	Hydr. Depth (ft)		4.12
Conv. Total (cfs)	14961.8	Conv. (cfs)		14961.8
Length Wtd. (ft)	542.00	Wetted Per. (ft)		46.69
Min Ch El (ft)	83.29	Shear (lb/sq ft)		0.05
Alpha	1.00	Stream Power (lb/ft s)	473.37	0.00
0.00				
Frctn Loss (ft)	0.11	Cum Volume (acre-ft)		31.12
C & E Loss (ft)	0.00	Cum SA (acres)		7.01

CROSS SECTION OUTPUT Profile #ULT 25Y

E. G. Elev (ft)	90.12	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.03	Wt. n-Val.		0.045
W. S. Elev (ft)	90.09	Reach Len. (ft)	543.00	542.00
542.00				
Crit W. S. (ft)		Flow Area (sq ft)		216.89
E. G. Slope (ft/ft)	0.000215	Area (sq ft)		216.89

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Q Total (cfs)	280.00	Flow (cfs)	280.00
Top Width (ft)	46.98	Top Width (ft)	46.98
Vel Total (ft/s)	1.29	Avg. Vel. (ft/s)	1.29
Max Chl Dpth (ft)	6.80	Hydr. Depth (ft)	4.62
Conv. Total (cfs)	19102.7	Conv. (cfs)	19102.7
Length Wtd. (ft)	542.01	Wetted Per. (ft)	49.79
Min Ch El (ft)	83.29	Shear (lb/sq ft)	0.06
Alpha 0.00	1.00	Stream Power (lb/ft s)	473.37
Frctn Loss (ft) 1.15	0.12	Cum Volume (acre-ft)	2.98
C & E Loss (ft) 5.74	0.00	Cum SA (acres)	10.03

CROSS SECTION OUTPUT Profile #ULT 100Y

E. G. Elev (ft)	91.59	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	Wt. n-Val.	0.060	0.045
W. S. Elev (ft)	91.56	Reach Len. (ft)	543.00	542.00
542.00 Crit W. S. (ft)		Flow Area (sq ft)	66.29	290.13
E. G. Slope (ft/ft)	0.000219	Area (sq ft)	66.29	290.13
Q Total (cfs)	440.00	Flow (cfs)	16.57	423.43
Top Width (ft)	169.76	Top Width (ft)	117.18	52.57
Vel Total (ft/s)	1.23	Avg. Vel. (ft/s)	0.25	1.46
Max Chl Dpth (ft)	8.27	Hydr. Depth (ft)	0.57	5.52
Conv. Total (cfs)	29762.9	Conv. (cfs)	1120.7	28642.2
Length Wtd. (ft)	542.15	Wetted Per. (ft)	117.54	56.12
Min Ch El (ft)	83.29	Shear (lb/sq ft)	0.01	0.07
Alpha 0.00	1.35	Stream Power (lb/ft s)	473.37	0.00
Frctn Loss (ft) 18.00	0.08	Cum Volume (acre-ft)	25.39	50.14
C & E Loss (ft) 13.73	0.01	Cum SA (acres)	17.67	8.34

Warning: Divided flow computed for this cross-section.
 Warning: The cross-section end points had to be extended vertically for the computed water surface.
 Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance)

ES100 OUTPUT REPORT.pdf

is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: ES100
REACH: ES100-00

RS: 7508

INPUT

Description:

Station	Elevation	Data	num=	109	Station	Elevation	Station	Elevation	Station	Elevation
0	89.56	5	89.61	10	89.6	15	89.66	19.99	89.7	
24.99	89.67	29.99	89.66	34.99	89.63	39.99	89.69	44.99	89.76	
49.99	89.74	54.98	89.78	59.98	89.79	64.98	89.63	69.98	89.64	
74.98	89.68	79.98	89.69	84.97	89.67	89.97	89.69	94.97	89.74	
99.97	89.79	104.97	89.75	109.97	89.71	114.97	89.76	119.96	89.81	
124.96	89.85	129.96	89.78	134.96	89.77	139.96	89.72	144.96	89.63	
149.95	89.82	154.95	89.82	159.95	89.85	164.95	89.83	169.95	89.91	
174.95	90.12	179.95	90.17	184.94	90.6	189.94	91.75	194.94	93.27	
199.94	93.31	204.94	93.55	209.94	92.98	214.94	92.33	219.93	92.31	
224.93	92.26	229.93	92.37	232.77	92.1	234.93	91.89	239.93	91.78	
244.93	87.9	249.92	84.22	254.92	82.23	259.92	82.47	264.92	82.56	
269.92	83.28	274.92	86.37	279.92	91.49	284.91	91.87	289.91	92.77	
292.77	92.72	294.91	92.68	299.91	92.64	304.91	92.66	309.91	93.28	
314.91	94.21	319.9	94.24	324.9	94.19	329.9	93.07	334.9	91.32	
339.9	90.72	344.9	90.6	349.9	90.58	354.89	90.56	359.89	90.3	
364.89	90.17	369.89	90.16	374.89	90.32	379.89	90.29	384.88	90.38	
389.88	90.4	394.88	90.45	399.88	90.44	404.88	90.52	409.88	90.58	
414.88	90.5	419.87	90.5	424.87	90.46	429.87	90.5	434.87	90.55	
439.87	90.61	444.87	90.74	449.86	90.67	454.86	90.58	459.86	90.61	
464.86	90.63	469.86	90.67	474.86	90.69	479.86	90.66	484.85	90.62	
489.85	90.52	494.85	90.47	499.85	90.56	504.85	90.66	509.85	90.66	
514.85	90.61	519.84	90.62	524.84	90.66	529.84	90.73			

Manning's n	Values	num=	3
Sta	n Val	Sta	n Val
0	.06	239.93	.045
		279.92	.06

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	239.93	279.92		757	755		.1	.3
					754			

CROSS SECTION OUTPUT Profile #EX 10Y

E. G. Elev (ft)	89.16	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	89.14	Reach Len. (ft)	757.00	755.00
754.00		Flow Area (sq ft)		169.41
Crit W. S. (ft)		Area (sq ft)		169.41
E. G. Slope (ft/ft)	0.000202	Flow (cfs)		214.00
Q Total (cfs)	214.00	Top Width (ft)		34.29
Top Width (ft)	34.29	Avg. Vel. (ft/s)		1.26
Vel Total (ft/s)	1.26	Hydr. Depth (ft)		4.94
Max Chl Dpth (ft)	6.91			

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Conv. Total (cfs)	15044.9	Conv. (cfs)	15044.9
Length Wtd. (ft)	755.00	Wetted Per. (ft)	38.41
Min Ch El (ft)	82.23	Shear (lb/sq ft)	0.06
Alpha 0.00	1.00	Stream Power (lb/ft s)	529.84
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)	28.39
C & E Loss (ft)	0.00	Cum SA (acres)	6.48

CROSS SECTION OUTPUT Profile #EX 25Y

E. G. Elev (ft)	89.99	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	Wt. n-Val.	0.060	0.045
W. S. Elev (ft)	89.96	Reach Len. (ft)	757.00	755.00
754.00 Crit W. S. (ft)		Flow Area (sq ft)	40.13	198.35
E. G. Slope (ft/ft)	0.000212	Area (sq ft)	40.13	198.35
Q Total (cfs)	279.00	Flow (cfs)	5.50	273.50
Top Width (ft)	207.32	Top Width (ft)	171.17	36.15
Vel Total (ft/s)	1.17	Avg. Vel. (ft/s)	0.14	1.38
Max Chl Dpth (ft)	7.73	Hydr. Depth (ft)	0.23	5.49
Conv. Total (cfs)	19143.4	Conv. (cfs)	377.3	18766.1
Length Wtd. (ft)	755.04	Wetted Per. (ft)	171.58	40.90
Min Ch El (ft)	82.23	Shear (lb/sq ft)	0.00	0.06
Alpha 0.00	1.36	Stream Power (lb/ft s)	529.84	0.00
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)	2.61	33.88
1.08 C & E Loss (ft)	0.00	Cum SA (acres)	8.95	6.89
5.69				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #EX 100Y

E. G. Elev (ft)	91.43	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.	0.060	0.045
0.060				

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W. S. Elev (ft)	91.41	Reach Len. (ft)	757.00	755.00
754.00		Flow Area (sq ft)	306.72	253.23
Crit W. S. (ft)		Area (sq ft)	306.72	253.23
169.25	0.000113	Flow (cfs)	110.86	279.77
E. G. Slope (ft/ft)		Top Width (ft)	188.47	39.44
169.25		Avg. Vel. (ft/s)	0.36	1.10
Q Total (cfs)	431.00	Hydr. Depth (ft)	1.63	6.42
40.38		Conv. (cfs)	10436.6	26338.4
Top Width (ft)	423.12	Wetted Per. (ft)	190.45	45.30
195.21		Shear (lb/sq ft)	0.01	0.04
Vel Total (ft/s)	0.59	Stream Power (lb/ft s)	529.84	0.00
0.24		Cum Volume (acre-ft)	21.59	46.00
Max Chl Dpth (ft)	9.18	Cum SA (acres)	15.40	7.72
0.87				
Conv. Total (cfs)	40576.3			
3801.2				
Length Wtd. (ft)	755.32			
195.96				
Min Ch El (ft)	82.23			
0.01				
Alpha	2.38			
0.00				
Frctn Loss (ft)	0.06			
15.74				
C & E Loss (ft)	0.00			
12.42				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 10Y

E. G. Elev (ft)	89.25	Element	Left OB	Channel
Right OB		Wt. n-Val.		0.045
Vel Head (ft)	0.03	Reach Len. (ft)	757.00	755.00
W. S. Elev (ft)	89.22	Flow Area (sq ft)		172.24
754.00		Area (sq ft)		172.24
Crit W. S. (ft)		Flow (cfs)		220.00
E. G. Slope (ft/ft)	0.000204	Top Width (ft)		34.48
Q Total (cfs)	220.00	Avg. Vel. (ft/s)		1.28
Top Width (ft)	34.48	Hydr. Depth (ft)		5.00
Vel Total (ft/s)	1.28	Conv. (cfs)		15398.8
Max Chl Dpth (ft)	6.99	Wetted Per. (ft)		38.66
Conv. Total (cfs)	15398.8	Shear (lb/sq ft)		0.06
Length Wtd. (ft)	755.00			
Min Ch El (ft)	82.23			

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Alpha	1.00	Stream Power (lb/ft s)	529.84	0.00
0.00				
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)		28.91
C & E Loss (ft)	0.00	Cum SA (acres)		6.52

CROSS SECTION OUTPUT Profile #ULT 25Y

E. G. Elev (ft)	90.00	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.03	Wt. n-Val.	0.060	0.045
W. S. Elev (ft)	89.97	Reach Len. (ft)	757.00	755.00
754.00				
Crit W. S. (ft)		Flow Area (sq ft)	41.97	198.74
E. G. Slope (ft/ft)	0.000212	Area (sq ft)	41.97	198.74
Q Total (cfs)	280.00	Flow (cfs)	5.92	274.08
Top Width (ft)	207.60	Top Width (ft)	171.42	36.18
Vel Total (ft/s)	1.16	Avg. Vel. (ft/s)	0.14	1.38
Max Chl Dpth (ft)	7.74	Hydr. Depth (ft)	0.24	5.49
Conv. Total (cfs)	19223.7	Conv. (cfs)	406.2	18817.5
Length Wtd. (ft)	755.04	Wetted Per. (ft)	171.85	40.93
Min Ch El (ft)	82.23	Shear (lb/sq ft)	0.00	0.06
Alpha	1.38	Stream Power (lb/ft s)	529.84	0.00
0.00				
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)	2.71	33.96
1.15				
C & E Loss (ft)	0.00	Cum SA (acres)	8.96	6.90
5.74				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #ULT 100Y

E. G. Elev (ft)	91.51	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	Wt. n-Val.	0.060	0.045
0.060				
W. S. Elev (ft)	91.50	Reach Len. (ft)	757.00	755.00
754.00				
Crit W. S. (ft)		Flow Area (sq ft)	322.45	256.52
185.52				
E. G. Slope (ft/ft)	0.000107	Area (sq ft)	322.45	256.52
185.52				
Q Total (cfs)	440.00	Flow (cfs)	117.07	277.19

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45.74				
Top Width (ft)	423.99	Top Width (ft)	188.84	39.62
195.53				
Vel Total (ft/s)	0.58	Avg. Vel. (ft/s)	0.36	1.08
0.25				
Max Chl Dpth (ft)	9.27	Hydr. Depth (ft)	1.71	6.47
0.95				
Conv. Total (cfs)	42566.1	Conv. (cfs)	11325.3	26815.9
4424.8				
Length Wtd. (ft)	755.33	Wetted Per. (ft)	190.91	45.54
196.38				
Min Ch El (ft)	82.23	Shear (lb/sq ft)	0.01	0.04
0.01				
Alpha	2.35	Stream Power (lb/ft s)	529.84	0.00
0.00				
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	22.97	46.74
16.85				
C & E Loss (ft)	0.00	Cum SA (acres)	15.76	7.76
12.52				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: ES100

REACH: ES100-00

RS: 6753

INPUT

Description:

Station	Elevation	Data	num=	115	Station	Elevation	Station	Elevation	Station	Elevation
0	89.38	4.99	89.44	9.99	89.57	14.98	89.58	19.98	89.57	
24.97	89.59	29.97	89.62	34.96	89.55	39.96	89.52	44.95	89.58	
49.95	89.55	54.94	89.45	59.94	89.53	64.93	89.63	69.93	89.57	
74.92	89.46	79.92	89.4	84.91	89.41	89.91	89.46	94.9	89.55	
99.9	89.53	104.89	89.47	109.89	89.47	114.88	89.5	119.87	89.5	
124.87	89.5	129.86	89.49	134.86	89.51	139.85	89.6	144.85	89.6	
149.84	89.61	154.84	89.61	159.83	89.63	164.83	89.67	169.82	89.56	
174.82	89.55	179.81	89.6	184.81	89.64	189.8	89.76	194.8	89.77	
199.79	89.81	204.79	90.25	209.78	91.24	214.78	91.28	219.77	91.72	
224.77	91.63	229.76	91.42	234.75	91.43	239.75	91.47	242.42	91.56	
244.74	91.63	249.74	90.08	254.73	86.07	259.73	85.86	264.72	82.78	
269.72	82.32	274.71	82.32	279.71	82.36	284.7	83.83	289.7	87	
294.69	90.5	299.69	91.12	302.46	91.42	304.68	91.65	309.68	91.63	
314.67	91.63	319.67	91.62	324.66	91.91	329.66	92.82	334.65	93.35	
339.65	92.51	344.64	92.14	349.64	90.83	354.63	89.7	359.62	89.46	
364.62	89.47	369.61	89.47	374.61	89.45	379.6	89.47	384.6	89.5	
389.59	89.59	394.59	89.61	399.58	89.57	404.58	89.55	409.57	89.56	
414.57	89.6	419.56	89.67	424.56	89.62	429.55	89.51	434.55	89.48	
439.54	89.52	444.54	89.61	449.53	89.59	454.53	89.66	459.52	89.74	
464.51	89.74	469.51	89.76	474.5	89.71	479.5	89.67	484.49	89.74	
489.49	89.7	494.48	89.67	499.48	89.62	504.47	89.71	509.47	89.71	
514.46	89.53	519.46	89.55	524.45	89.62	529.45	89.69	534.44	89.64	
539.44	89.65	544.43	89.63	549.43	89.59	554.42	89.57	559.42	89.59	

ES100 OUTPUT REPORT.pdf

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 249.74 .045 294.69 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 249.74 294.69 910 907 898 .1 .3

CROSS SECTION OUTPUT Profile #EX 10Y

E. G. Elev (ft)	89.03	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	89.01	Reach Len. (ft)	910.00	907.00
898.00 Crit W. S. (ft)		Flow Area (sq ft)		193.29
E. G. Slope (ft/ft)	0.000162	Area (sq ft)		193.29
Q Total (cfs)	214.00	Flow (cfs)		214.00
Top Width (ft)	41.49	Top Width (ft)		41.49
Vel Total (ft/s)	1.11	Avg. Vel. (ft/s)		1.11
Max Chl Dpth (ft)	6.69	Hydr. Depth (ft)		4.66
Conv. Total (cfs)	16818.7	Conv. (cfs)		16818.7
Length Wtd. (ft)	907.00	Wetted Per. (ft)		45.19
Min Ch El (ft)	82.32	Shear (lb/sq ft)		0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	559.42	0.00
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)		25.25
C & E Loss (ft)	0.00	Cum SA (acres)		5.82

CROSS SECTION OUTPUT Profile #EX 25Y

E. G. Elev (ft)	89.85	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	Wt. n-Val.	0.060	0.045
0.060 W. S. Elev (ft)	89.83	Reach Len. (ft)	910.00	907.00
898.00 Crit W. S. (ft)		Flow Area (sq ft)	55.07	228.35
46.02 E. G. Slope (ft/ft)	0.000156	Area (sq ft)	55.07	228.35
46.02 Q Total (cfs)	279.00	Flow (cfs)	7.20	266.56
5.24 Top Width (ft)	449.07	Top Width (ft)	200.02	43.68
205.37 Vel Total (ft/s)	0.85	Avg. Vel. (ft/s)	0.13	1.17
0.11 Max Chl Dpth (ft)	7.51	Hydr. Depth (ft)	0.28	5.23

ES100 OUTPUT REPORT.pdf

0.22				
Conv. Total (cfs)	22344.8	Conv. (cfs)	576.2	21348.5
420.1				
Length Wtd. (ft)	906.98	Wetted Per. (ft)	200.49	47.93
205.64				
Min Ch El (ft)	82.32	Shear (lb/sq ft)	0.00	0.05
0.00				
Alpha	1.82	Stream Power (lb/ft s)	559.42	0.00
0.00				
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)	1.78	30.18
0.68				
C & E Loss (ft)	0.00	Cum SA (acres)	5.73	6.20
3.92				

Warning: Divided flow computed for this cross-section.
 Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #EX 100Y

E. G. Elev (ft)	91.37	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	Wt. n-Val.	0.060	0.045
0.060				
W. S. Elev (ft)	91.36	Reach Len. (ft)	910.00	907.00
898.00				
Crit W. S. (ft)		Flow Area (sq ft)	373.64	296.77
368.32				
E. G. Slope (ft/ft)	0.000054	Area (sq ft)	373.64	296.77
368.32				
Q Total (cfs)	431.00	Flow (cfs)	96.95	238.42
95.63				
Top Width (ft)	483.80	Top Width (ft)	219.82	44.95
219.02				
Vel Total (ft/s)	0.41	Avg. Vel. (ft/s)	0.26	0.80
0.26				
Max Chl Dpth (ft)	9.04	Hydr. Depth (ft)	1.70	6.60
1.68				
Conv. Total (cfs)	58463.7	Conv. (cfs)	13151.4	32340.5
12971.8				
Length Wtd. (ft)	906.00	Wetted Per. (ft)	222.13	49.50
221.06				
Min Ch El (ft)	82.32	Shear (lb/sq ft)	0.01	0.02
0.01				
Alpha	2.25	Stream Power (lb/ft s)	559.42	0.00
0.00				
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	15.67	41.24
11.09				
C & E Loss (ft)	0.00	Cum SA (acres)	11.85	6.99
8.84				

Warning: Divided flow computed for this cross-section.
 Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #ULT 10Y

ES100 OUTPUT REPORT.pdf

Right OB	E. G. Elev (ft)	89.11	Element	Left OB	Channel
	Vel Head (ft)	0.02	Wt. n-Val.		0.045
898.00	W. S. Elev (ft)	89.09	Reach Len. (ft)	910.00	907.00
	Crit W. S. (ft)		Flow Area (sq ft)		196.67
	E. G. Slope (ft/ft)	0.000163	Area (sq ft)		196.67
	Q Total (cfs)	220.00	Flow (cfs)		220.00
	Top Width (ft)	41.70	Top Width (ft)		41.70
	Vel Total (ft/s)	1.12	Avg. Vel. (ft/s)		1.12
	Max Chl Dpth (ft)	6.77	Hydr. Depth (ft)		4.72
	Conv. Total (cfs)	17243.0	Conv. (cfs)		17243.0
	Length Wtd. (ft)	907.00	Wetted Per. (ft)		45.46
	Min Ch El (ft)	82.32	Shear (lb/sq ft)		0.04
0.00	Alpha	1.00	Stream Power (lb/ft s)	559.42	0.00
	Frctn Loss (ft)	0.14	Cum Volume (acre-ft)		25.71
	C & E Loss (ft)	0.00	Cum SA (acres)		5.86

CROSS SECTION OUTPUT Profile #ULT 25Y

Right OB	E. G. Elev (ft)	89.86	Element	Left OB	Channel
	Vel Head (ft)	0.02	Wt. n-Val.	0.060	0.045
0.060	W. S. Elev (ft)	89.84	Reach Len. (ft)	910.00	907.00
898.00	Crit W. S. (ft)		Flow Area (sq ft)	57.33	228.85
48.34	E. G. Slope (ft/ft)	0.000155	Area (sq ft)	57.33	228.85
48.34	Q Total (cfs)	280.00	Flow (cfs)	7.67	266.65
5.68	Top Width (ft)	449.28	Top Width (ft)	200.15	43.72
205.42	Vel Total (ft/s)	0.84	Avg. Vel. (ft/s)	0.13	1.17
0.12	Max Chl Dpth (ft)	7.52	Hydr. Depth (ft)	0.29	5.23
0.24	Conv. Total (cfs)	22486.1	Conv. (cfs)	616.0	21414.3
455.9	Length Wtd. (ft)	906.98	Wetted Per. (ft)	200.63	47.97
205.70	Min Ch El (ft)	82.32	Shear (lb/sq ft)	0.00	0.05
0.00	Alpha	1.85	Stream Power (lb/ft s)	559.42	0.00
0.00	Frctn Loss (ft)	0.14	Cum Volume (acre-ft)	1.85	30.26

ES100 OUTPUT REPORT.pdf

0.73
 C & E Loss (ft) 0.00 Cum SA (acres) 5.73 6.21
 3.97

Warning: Divided flow computed for this cross-section.
 Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #ULT 100Y

E. G. Elev (ft)	91.45	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	Wt. n-Val.	0.060	0.045
0.060				
W. S. Elev (ft)	91.45	Reach Len. (ft)	910.00	907.00
898.00				
Crit W. S. (ft)		Flow Area (sq ft)	392.71	300.63
387.18				
E. G. Slope (ft/ft)	0.000051	Area (sq ft)	392.71	300.63
387.18				
Q Total (cfs)	440.00	Flow (cfs)	102.06	237.08
100.85				
Top Width (ft)	493.84	Top Width (ft)	228.73	44.95
220.16				
Vel Total (ft/s)	0.41	Avg. Vel. (ft/s)	0.26	0.79
0.26				
Max Chl Dpth (ft)	9.13	Hydr. Depth (ft)	1.72	6.69
1.76				
Conv. Total (cfs)	61327.6	Conv. (cfs)	14225.6	33044.8
14057.2				
Length Wtd. (ft)	905.96	Wetted Per. (ft)	231.14	49.50
222.29				
Min Ch El (ft)	82.32	Shear (lb/sq ft)	0.01	0.02
0.01				
Alpha	2.21	Stream Power (lb/ft s)	559.42	0.00
0.00				
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	16.76	41.91
11.89				
C & E Loss (ft)	0.00	Cum SA (acres)	12.14	7.03
8.92				

Warning: Divided flow computed for this cross-section.
 Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: ES100
 REACH: ES100-00 RS: 5846

INPUT

Description:

Station	Elevation	Data	num=	105						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	
0	89.22	4.98	89.21	9.95	89.19	14.93	89.23	19.9	89.38	
24.88	89.47	29.85	89.42	34.83	89.4	39.8	89.46	44.78	89.52	
49.75	89.4	54.73	89.27	59.7	89.28	64.68	89.26	69.65	89.27	

ES100 OUTPUT REPORT. pdf

74.63	89.31	79.6	89.42	84.58	89.44	89.56	89.41	94.53	89.28
99.51	89.23	104.48	89.31	109.46	89.42	114.43	89.4	119.41	89.32
124.38	89.35	129.36	89.44	134.33	89.43	139.31	89.38	144.28	89.46
149.26	89.37	154.23	89.37	159.21	89.4	164.18	89.35	169.16	89.33
174.13	89.32	179.11	89.65	184.09	89.98	189.06	90.34	194.04	91.03
199.01	91.14	203.99	92.23	208.96	92.98	213.94	93.24	218.91	93.27
223.89	92.95	228.86	91.84	233.84	90.94	238.81	90.7	243.79	90.77
246.57	90.6	248.76	90.47	253.74	88.45	258.71	87.25	263.69	85.11
268.67	82.35	273.64	81.54	278.62	81.81	283.59	81.96	288.57	83.41
293.54	87.06	298.52	90.17	303.49	91.08	306.67	91.03	308.47	91
313.44	91	318.42	91.72	323.39	92.62	328.37	93.31	333.34	94.81
338.32	94.71	343.29	94.29	348.27	93.75	353.25	91.65	358.22	90.2
363.2	89.7	368.17	89.62	373.15	89.63	378.12	89.56	383.1	89.45
388.07	89.47	393.05	89.47	398.02	89.48	403	89.47	407.97	89.47
412.95	89.44	417.92	89.72	422.9	89.73	427.87	89.52	432.85	89.5
437.83	89.65	442.8	89.67	447.78	89.64	452.75	89.64	457.73	89.64
462.7	89.71	467.68	89.74	472.65	89.64	477.63	89.6	482.6	89.69
487.58	89.67	492.55	89.76	497.53	89.79	502.5	89.73	507.48	89.79

Manning's n	Values	num=	3
Sta	n Val	Sta	n Val
0	.06	248.76	.045
		298.52	.06

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	248.76	298.52		853	688		.1	.3

CROSS SECTION OUTPUT Profile #EX 10Y

E. G. Elev (ft)	88.88	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	88.87	Reach Len. (ft)	853.00	688.00
523.00		Flow Area (sq ft)		200.57
Crit W. S. (ft)		Area (sq ft)		200.57
E. G. Slope (ft/ft)	0.000151	Flow (cfs)		214.00
Q Total (cfs)	214.00	Top Width (ft)		43.72
Top Width (ft)	43.72	Avg. Vel. (ft/s)		1.07
Vel Total (ft/s)	1.07	Hydr. Depth (ft)		4.59
Max Chl Dpth (ft)	7.33	Conv. (cfs)		17401.1
Conv. Total (cfs)	17401.1	Wetted Per. (ft)		47.09
Length Wtd. (ft)	688.00	Shear (lb/sq ft)		0.04
Min Ch El (ft)	81.54	Stream Power (lb/ft s)	507.48	0.00
Alpha	1.00	Cum Volume (acre-ft)		21.15
0.00		Cum SA (acres)		4.93
Frctn Loss (ft)	0.10			
C & E Loss (ft)	0.00			

CROSS SECTION OUTPUT Profile #EX 25Y

ES100 OUTPUT REPORT.pdf

E. G. Elev (ft)	89.71	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	Wt. n-Val.	0.060	0.045
0.060				
W. S. Elev (ft)	89.69	Reach Len. (ft)	853.00	688.00
523.00				
Crit W. S. (ft)		Flow Area (sq ft)	59.72	238.09
12.77				
E. G. Slope (ft/ft)	0.000150	Area (sq ft)	59.72	238.09
12.77				
Q Total (cfs)	279.00	Flow (cfs)	8.67	269.29
1.04				
Top Width (ft)	337.10	Top Width (ft)	179.75	47.08
110.26				
Vel Total (ft/s)	0.90	Avg. Vel. (ft/s)	0.15	1.13
0.08				
Max Chl Dpth (ft)	8.15	Hydr. Depth (ft)	0.33	5.06
0.12				
Conv. Total (cfs)	22795.9	Conv. (cfs)	708.2	22002.9
84.9				
Length Wtd. (ft)	690.26	Wetted Per. (ft)	180.26	50.85
110.28				
Min Ch El (ft)	81.54	Shear (lb/sq ft)	0.00	0.04
0.00				
Alpha	1.53	Stream Power (lb/ft s)	507.48	0.00
0.00				
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)	0.58	25.33
0.08				
C & E Loss (ft)	0.00	Cum SA (acres)	1.76	5.26
0.66				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #EX 100Y

E. G. Elev (ft)	91.32	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	Wt. n-Val.	0.060	0.045
0.060				
W. S. Elev (ft)	91.31	Reach Len. (ft)	853.00	688.00
523.00				
Crit W. S. (ft)		Flow Area (sq ft)	375.71	317.58
259.81				
E. G. Slope (ft/ft)	0.000058	Area (sq ft)	375.71	317.58
259.81				
Q Total (cfs)	431.00	Flow (cfs)	103.83	260.33
66.84				
Top Width (ft)	436.62	Top Width (ft)	216.74	49.76
170.12				
Vel Total (ft/s)	0.45	Avg. Vel. (ft/s)	0.28	0.82
0.26				
Max Chl Dpth (ft)	9.77	Hydr. Depth (ft)	1.73	6.38
1.53				
Conv. Total (cfs)	56694.2	Conv. (cfs)	13657.9	34243.5
8792.8				
Length Wtd. (ft)	693.71	Wetted Per. (ft)	219.00	53.82

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171.95				
Min Ch El (ft)	81.54	Shear (lb/sq ft)	0.01	0.02
0.01				
Alpha	2.12	Stream Power (lb/ft s)	507.48	0.00
0.00				
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	7.85	34.84
4.62				
C & E Loss (ft)	0.00	Cum SA (acres)	7.29	6.00
4.83				

Warning: Divided flow computed for this cross-section.
 Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #ULT 10Y

E. G. Elev (ft)	88.96	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	88.95	Reach Len. (ft)	853.00	688.00
523.00				
Crit W. S. (ft)		Flow Area (sq ft)		204.09
E. G. Slope (ft/ft)	0.000152	Area (sq ft)		204.09
Q Total (cfs)	220.00	Flow (cfs)		220.00
Top Width (ft)	44.04	Top Width (ft)		44.04
Vel Total (ft/s)	1.08	Avg. Vel. (ft/s)		1.08
Max Chl Dpth (ft)	7.41	Hydr. Depth (ft)		4.63
Conv. Total (cfs)	17822.1	Conv. (cfs)		17822.1
Length Wtd. (ft)	688.00	Wetted Per. (ft)		47.46
Min Ch El (ft)	81.54	Shear (lb/sq ft)		0.04
Alpha	1.00	Stream Power (lb/ft s)	507.48	0.00
0.00				
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)		21.54
C & E Loss (ft)	0.00	Cum SA (acres)		4.96

CROSS SECTION OUTPUT Profile #ULT 25Y

E. G. Elev (ft)	89.72	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	Wt. n-Val.	0.060	0.045
0.060				
W. S. Elev (ft)	89.70	Reach Len. (ft)	853.00	688.00
523.00				
Crit W. S. (ft)		Flow Area (sq ft)	61.86	238.65
14.11				

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E. G. Slope (ft/ft)	0.000149	Area (sq ft)	61.86	238.65
14.11				
Q Total (cfs)	280.00	Flow (cfs)	9.17	269.65
1.18				
Top Width (ft)	340.41	Top Width (ft)	179.93	47.13
113.35				
Vel Total (ft/s)	0.89	Avg. Vel. (ft/s)	0.15	1.13
0.08				
Max Chl Dpth (ft)	8.16	Hydr. Depth (ft)	0.34	5.06
0.12				
Conv. Total (cfs)	22921.0	Conv. (cfs)	750.5	22073.7
96.9				
Length Wtd. (ft)	690.35	Wetted Per. (ft)	180.45	50.91
113.37				
Min Ch El (ft)	81.54	Shear (lb/sq ft)	0.00	0.04
0.00				
Alpha	1.55	Stream Power (lb/ft s)	507.48	0.00
0.00				
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)	0.61	25.39
0.08				
C & E Loss (ft)	0.00	Cum SA (acres)	1.76	5.26
0.68				

Warning: Divided flow computed for this cross-section.
 Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #ULT 100Y

E. G. Elev (ft)	91.40	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	Wt. n-Val.	0.060	0.045
0.060				
W. S. Elev (ft)	91.40	Reach Len. (ft)	853.00	688.00
523.00				
Crit W. S. (ft)		Flow Area (sq ft)	394.94	321.99
274.92				
E. G. Slope (ft/ft)	0.000055	Area (sq ft)	394.94	321.99
274.92				
Q Total (cfs)	440.00	Flow (cfs)	109.44	259.47
71.09				
Top Width (ft)	438.43	Top Width (ft)	217.64	49.76
171.03				
Vel Total (ft/s)	0.44	Avg. Vel. (ft/s)	0.28	0.81
0.26				
Max Chl Dpth (ft)	9.86	Hydr. Depth (ft)	1.81	6.47
1.61				
Conv. Total (cfs)	59418.9	Conv. (cfs)	14778.9	35039.1
9600.9				
Length Wtd. (ft)	693.74	Wetted Per. (ft)	220.00	53.82
172.97				
Min Ch El (ft)	81.54	Shear (lb/sq ft)	0.01	0.02
0.01				
Alpha	2.10	Stream Power (lb/ft s)	507.48	0.00
0.00				
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	8.53	35.43
5.07				
C & E Loss (ft)	0.00	Cum SA (acres)	7.47	6.04
4.89				

ES100 OUTPUT REPORT.pdf

Warning: Divided flow computed for this cross-section.
 Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: ES100
 REACH: ES100-00 RS: 5158

INPUT

Description:

Station		Elevation		Data		num=		90	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	89.91	4.98	89.86	9.97	89.92	14.95	89.89	19.94	89.86
24.93	89.97	29.91	90.07	34.89	90.2	39.88	90.12	44.86	90.02
49.85	90.08	54.84	89.99	59.82	89.78	64.8	89.8	69.79	90.04
74.77	90.04	79.76	89.98	84.74	89.9	89.73	90.09	94.71	90.09
99.7	90.07	104.68	90.15	109.67	90.1	114.65	90.11	119.64	90.17
124.62	90.57	129.61	91.41	134.59	91.92	139.58	93.86	144.56	94.67
149.55	94.59	154.53	93.86	159.52	93.55	164.5	91.81	169.49	91.71
173.03	91.77	174.47	91.8	179.46	91.75	184.44	91.08	189.43	88.14
194.41	84.3	199.4	84	204.38	81.71	209.37	81.55	214.35	81.84
219.34	81.89	224.32	85.19	229.31	89.1	233.05	90.65	234.29	91.17
239.28	91.37	244.26	91.37	249.25	91.35	254.23	91.47	259.22	92.51
264.2	92.59	269.19	93.7	274.17	93.9	279.16	93.62	284.14	93.58
289.13	92.01	294.11	90.77	299.1	90.5	304.08	90.49	309.07	90.4
314.05	90.22	319.04	90.08	324.02	90.06	329.01	90.06	333.99	90.09
338.98	89.94	343.96	89.82	348.95	89.79	353.93	89.78	358.92	89.72
363.9	89.74	368.89	89.77	373.87	89.78	378.86	89.84	383.84	89.93
388.83	89.96	393.81	89.9	398.8	90.02	403.78	89.91	408.77	89.9
413.75	89.94	418.74	89.96	423.72	89.92	428.71	89.93	433.69	89.96

Manning's n Values		num=		3	
Sta	n Val	Sta	n Val	Sta	n Val
0	.06	184.44	.045	234.29	.06

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	184.44	234.29		551	550		.1	.3

CROSS SECTION OUTPUT Profile #EX 10Y

E. G. Elev (ft)	88.79	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	88.77	Reach Len. (ft)	551.00	550.00
550.00				
Crit W. S. (ft)		Flow Area (sq ft)		205.09
E. G. Slope (ft/ft)	0.000131	Area (sq ft)		205.09
Q Total (cfs)	214.00	Flow (cfs)		214.00
Top Width (ft)	40.53	Top Width (ft)		40.53
Vel Total (ft/s)	1.04	Avg. Vel. (ft/s)		1.04
Max Chl Dpth (ft)	7.22	Hydr. Depth (ft)		5.06

ES100 OUTPUT REPORT.pdf

Conv. Total (cfs)	18681.8	Conv. (cfs)	18681.8
Length Wtd. (ft)	550.00	Wetted Per. (ft)	44.76
Min Ch El (ft)	81.55	Shear (lb/sq ft)	0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	433.69
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)	17.95
C & E Loss (ft)	0.00	Cum SA (acres)	4.27

CROSS SECTION OUTPUT Profile #EX 25Y

E. G. Elev (ft)	89.61	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	89.59	Reach Len. (ft)	551.00	550.00
550.00 Crit W. S. (ft)		Flow Area (sq ft)		239.38
E. G. Slope (ft/ft)	0.000147	Area (sq ft)		239.38
Q Total (cfs)	279.00	Flow (cfs)		279.00
Top Width (ft)	43.52	Top Width (ft)		43.52
Vel Total (ft/s)	1.17	Avg. Vel. (ft/s)		1.17
Max Chl Dpth (ft)	8.04	Hydr. Depth (ft)		5.50
Conv. Total (cfs)	23015.0	Conv. (cfs)		23015.0
Length Wtd. (ft)	550.00	Wetted Per. (ft)		48.18
Min Ch El (ft)	81.55	Shear (lb/sq ft)		0.05
Alpha 0.00	1.00	Stream Power (lb/ft s)	433.69	0.00
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)		21.56
C & E Loss (ft)	0.00	Cum SA (acres)		4.54

CROSS SECTION OUTPUT Profile #EX 100Y

E. G. Elev (ft)	91.26	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.	0.060	0.045
0.060 W. S. Elev (ft)	91.25	Reach Len. (ft)	551.00	550.00
550.00 Crit W. S. (ft)		Flow Area (sq ft)	154.43	317.28
175.79 E. G. Slope (ft/ft)	0.000101	Area (sq ft)	154.43	317.28

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175.79				
Q Total (cfs)	431.00	Flow (cfs)	43.05	337.74
50.21				
Top Width (ft)	323.23	Top Width (ft)	129.91	49.85
143.47				
Vel Total (ft/s)	0.67	Avg. Vel. (ft/s)	0.28	1.06
0.29				
Max Chl Dpth (ft)	9.70	Hydr. Depth (ft)	1.19	6.36
1.23				
Conv. Total (cfs)	42880.8	Conv. (cfs)	4283.5	33601.8
4995.4				
Length Wtd. (ft)	550.08	Wetted Per. (ft)	131.36	55.24
144.85				
Min Ch El (ft)	81.55	Shear (lb/sq ft)	0.01	0.04
0.01				
Alpha	2.04	Stream Power (lb/ft s)	433.69	0.00
0.00				
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)	2.66	29.83
2.00				
C & E Loss (ft)	0.00	Cum SA (acres)	3.90	5.21
2.94				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #ULT 10Y

E. G. Elev (ft)	88.87	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	88.85	Reach Len. (ft)	551.00	550.00
550.00				
Crit W. S. (ft)		Flow Area (sq ft)		208.31
E. G. Slope (ft/ft)	0.000133	Area (sq ft)		208.31
Q Total (cfs)	220.00	Flow (cfs)		220.00
Top Width (ft)	40.76	Top Width (ft)		40.76
Vel Total (ft/s)	1.06	Avg. Vel. (ft/s)		1.06
Max Chl Dpth (ft)	7.30	Hydr. Depth (ft)		5.11
Conv. Total (cfs)	19093.4	Conv. (cfs)		19093.4
Length Wtd. (ft)	550.00	Wetted Per. (ft)		45.04
Min Ch El (ft)	81.55	Shear (lb/sq ft)		0.04
Alpha	1.00	Stream Power (lb/ft s)	433.69	0.00
0.00				
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)		18.28
C & E Loss (ft)	0.00	Cum SA (acres)		4.29

ES100 OUTPUT REPORT.pdf

CROSS SECTION OUTPUT Profile #ULT 25Y

E. G. Elev (ft)	89.62	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	89.60	Reach Len. (ft)	551.00	550.00
550.00 Crit W. S. (ft)		Flow Area (sq ft)		239.90
E. G. Slope (ft/ft)	0.000147	Area (sq ft)		239.90
Q Total (cfs)	280.00	Flow (cfs)		280.00
Top Width (ft)	43.56	Top Width (ft)		43.56
Vel Total (ft/s)	1.17	Avg. Vel. (ft/s)		1.17
Max Chl Dpth (ft)	8.05	Hydr. Depth (ft)		5.51
Conv. Total (cfs)	23080.4	Conv. (cfs)		23080.4
Length Wtd. (ft)	550.00	Wetted Per. (ft)		48.24
Min Ch El (ft)	81.55	Shear (lb/sq ft)		0.05
Alpha 0.00	1.00	Stream Power (lb/ft s)	433.69	0.00
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)		21.61
C & E Loss (ft)	0.00	Cum SA (acres)		4.54

CROSS SECTION OUTPUT Profile #ULT 100Y

E. G. Elev (ft)	91.35	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.	0.060	0.045
0.060 W. S. Elev (ft)	91.34	Reach Len. (ft)	551.00	550.00
550.00 Crit W. S. (ft)		Flow Area (sq ft)	166.37	321.84
189.04 E. G. Slope (ft/ft)	0.000096	Area (sq ft)	166.37	321.84
189.04 Q Total (cfs)	440.00	Flow (cfs)	47.36	337.57
55.07 Top Width (ft)	327.11	Top Width (ft)	131.13	49.85
146.12 Vel Total (ft/s)	0.65	Avg. Vel. (ft/s)	0.28	1.05
0.29 Max Chl Dpth (ft)	9.79	Hydr. Depth (ft)	1.27	6.46
1.29 Conv. Total (cfs)	44852.0	Conv. (cfs)	4828.0	34410.4
5613.6 Length Wtd. (ft)	550.09	Wetted Per. (ft)	132.68	55.24
147.60 Min Ch El (ft)	81.55	Shear (lb/sq ft)	0.01	0.04

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0.01	Alpha	2.05	Stream Power (lb/ft s)	433.69	0.00
0.00	Frctn Loss (ft)	0.06	Cum Volume (acre-ft)	3.03	30.35
2.28	C & E Loss (ft)	0.00	Cum SA (acres)	4.06	5.26
2.98					

Warning: Divided flow computed for this cross-section.
 Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: ES100
 REACH: ES100-00 RS: 4608

INPUT

Description:

Station	Elevation	Data	num=	111							
Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev
0	90.48	4.96	90.47	9.91	90.41	14.87	90.39	19.83	90.47		
24.78	90.46	29.74	90.44	34.7	90.34	39.65	90.48	44.61	90.49		
49.57	90.55	54.52	90.49	59.48	90.49	64.44	90.55	69.39	90.39		
74.35	90.39	79.31	90.54	84.26	90.4	89.22	90.46	94.18	90.44		
99.14	90.45	104.09	90.51	109.05	90.51	114.01	90.46	118.96	90.45		
123.92	90.38	128.88	90.39	133.83	90.43	138.79	90.46	143.75	90.44		
148.7	90.47	153.66	90.65	158.62	90.72	163.57	91.18	168.53	92.32		
173.49	93.46	178.44	94.85	183.4	95.47	188.36	95.46	193.31	94.6		
198.27	93.21	203.23	92.59	208.18	92.3	213.14	91.98	218.1	91.77		
219.17	91.73	223.05	91.58	228.01	90.6	232.97	87.94	237.92	84.92		
242.88	83.45	247.84	82.92	252.79	82.04	257.75	82.28	262.71	83.16		
267.67	84.2	272.62	87.13	277.58	89.78	279.24	90.28	282.54	91.28		
287.49	91.8	292.45	91.8	297.41	91.95	302.36	92.85	307.32	94.29		
312.28	94.56	317.23	95.85	322.19	96.14	327.15	95.47	332.1	95.21		
337.06	93.29	342.02	92.26	346.97	91.65	351.93	91.61	356.89	91.2		
361.84	90.71	366.8	90.68	371.76	90.68	376.71	90.7	381.67	90.63		
386.63	90.62	391.58	90.66	396.54	90.69	401.5	90.78	406.46	90.84		
411.41	90.72	416.37	90.68	421.33	90.7	426.28	90.66	431.24	90.62		
436.2	90.62	441.15	90.68	446.11	90.76	451.07	90.71	456.02	90.77		
460.98	90.8	465.94	90.74	470.89	90.68	475.85	90.73	480.81	90.76		
485.76	90.7	490.72	90.63	495.68	90.66	500.63	90.68	505.59	90.72		
510.55	90.75	515.5	90.88	520.46	91.01	525.42	90.98	530.37	90.93		
535.33	90.85										

Manning's n Values	num=	3
Sta n Val Sta n Val Sta n Val		
0 .06 223.05 .045 282.54 .06		

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.	Expan.
223.05	282.54	417	422	427	.1		.3

CROSS SECTION OUTPUT Profile #EX 10Y

E. G. Elev (ft)	88.71	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	88.69	Reach Len. (ft)	417.00	422.00

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427.00				
Crit W. S. (ft)		Flow Area (sq ft)		196.14
E. G. Slope (ft/ft)	0.000161	Area (sq ft)		196.14
Q Total (cfs)	214.00	Flow (cfs)		214.00
Top Width (ft)	43.96	Top Width (ft)		43.96
Vel Total (ft/s)	1.09	Avg. Vel. (ft/s)		1.09
Max Chl Dpth (ft)	6.65	Hydr. Depth (ft)		4.46
Conv. Total (cfs)	16858.8	Conv. (cfs)		16858.8
Length Wtd. (ft)	422.00	Wetted Per. (ft)		46.70
Min Ch El (ft)	82.04	Shear (lb/sq ft)		0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	535.33	0.00
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)		15.41
C & E Loss (ft)	0.00	Cum SA (acres)		3.73

CROSS SECTION OUTPUT Profile #EX 25Y

E. G. Elev (ft)	89.52	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	89.50	Reach Len. (ft)	417.00	422.00
427.00 Crit W. S. (ft)		Flow Area (sq ft)		233.06
E. G. Slope (ft/ft)	0.000169	Area (sq ft)		233.06
Q Total (cfs)	279.00	Flow (cfs)		279.00
Top Width (ft)	47.00	Top Width (ft)		47.00
Vel Total (ft/s)	1.20	Avg. Vel. (ft/s)		1.20
Max Chl Dpth (ft)	7.46	Hydr. Depth (ft)		4.96
Conv. Total (cfs)	21433.2	Conv. (cfs)		21433.2
Length Wtd. (ft)	422.00	Wetted Per. (ft)		50.14
Min Ch El (ft)	82.04	Shear (lb/sq ft)		0.05
Alpha 0.00	1.00	Stream Power (lb/ft s)	535.33	0.00
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)		18.57
C & E Loss (ft)	0.00	Cum SA (acres)		3.97

ES100 OUTPUT REPORT.pdf

CROSS SECTION OUTPUT Profile #EX 100Y

E. G. Elev (ft)	91.20	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	Wt. n-Val.	0.060	0.045
0.060				
W. S. Elev (ft)	91.17	Reach Len. (ft)	417.00	422.00
427.00				
Crit W. S. (ft)		Flow Area (sq ft)	113.72	318.87
77.73				
E. G. Slope (ft/ft)	0.000151	Area (sq ft)	113.72	318.87
77.73				
Q Total (cfs)	431.00	Flow (cfs)	27.08	390.33
13.58				
Top Width (ft)	398.77	Top Width (ft)	163.51	57.09
178.18				
Vel Total (ft/s)	0.84	Avg. Vel. (ft/s)	0.24	1.22
0.17				
Max Chl Dpth (ft)	9.13	Hydr. Depth (ft)	0.70	5.59
0.44				
Conv. Total (cfs)	35080.1	Conv. (cfs)	2204.4	31770.0
1105.7				
Length Wtd. (ft)	421.87	Wetted Per. (ft)	164.24	60.84
178.54				
Min Ch El (ft)	82.04	Shear (lb/sq ft)	0.01	0.05
0.00				
Alpha	1.91	Stream Power (lb/ft s)	535.33	0.00
0.00				
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)	0.96	25.81
0.40				
C & E Loss (ft)	0.00	Cum SA (acres)	2.04	4.54
0.91				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #ULT 10Y

E. G. Elev (ft)	88.79	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	88.77	Reach Len. (ft)	417.00	422.00
427.00				
Crit W. S. (ft)		Flow Area (sq ft)		199.61
E. G. Slope (ft/ft)	0.000162	Area (sq ft)		199.61
Q Total (cfs)	220.00	Flow (cfs)		220.00
Top Width (ft)	44.26	Top Width (ft)		44.26
Vel Total (ft/s)	1.10	Avg. Vel. (ft/s)		1.10
Max Chl Dpth (ft)	6.73	Hydr. Depth (ft)		4.51
Conv. Total (cfs)	17276.9	Conv. (cfs)		17276.9

ES100 OUTPUT REPORT.pdf

Length Wtd. (ft)	422.00	Wetted Per. (ft)		47.04
Min Ch El (ft)	82.04	Shear (lb/sq ft)		0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	535.33	0.00
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)		15.71
C & E Loss (ft)	0.00	Cum SA (acres)		3.76

CROSS SECTION OUTPUT Profile #ULT 25Y

E. G. Elev (ft)	89.53	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	89.51	Reach Len. (ft)	417.00	422.00
427.00 Crit W. S. (ft)		Flow Area (sq ft)		233.61
E. G. Slope (ft/ft)	0.000170	Area (sq ft)		233.61
Q Total (cfs)	280.00	Flow (cfs)		280.00
Top Width (ft)	47.04	Top Width (ft)		47.04
Vel Total (ft/s)	1.20	Avg. Vel. (ft/s)		1.20
Max Chl Dpth (ft)	7.47	Hydr. Depth (ft)		4.97
Conv. Total (cfs)	21503.8	Conv. (cfs)		21503.8
Length Wtd. (ft)	422.00	Wetted Per. (ft)		50.19
Min Ch El (ft)	82.04	Shear (lb/sq ft)		0.05
Alpha 0.00	1.00	Stream Power (lb/ft s)	535.33	0.00
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)		18.62
C & E Loss (ft)	0.00	Cum SA (acres)		3.97

CROSS SECTION OUTPUT Profile #ULT 100Y

E. G. Elev (ft)	91.29	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	Wt. n-Val.	0.060	0.045
0.060 W. S. Elev (ft)	91.27	Reach Len. (ft)	417.00	422.00
427.00 Crit W. S. (ft)		Flow Area (sq ft)	129.33	324.35
94.76 E. G. Slope (ft/ft)	0.000144	Area (sq ft)	129.33	324.35
94.76				

ES100 OUTPUT REPORT.pdf

Q Total (cfs) 18.39	440.00	Flow (cfs)	32.72	388.90
Top Width (ft) 179.28	401.12	Top Width (ft)	163.96	57.88
Vel Total (ft/s) 0.19	0.80	Avg. Vel. (ft/s)	0.25	1.20
Max Chl Dpth (ft) 0.53	9.23	Hydr. Depth (ft)	0.79	5.60
Conv. Total (cfs) 1531.5	36651.2	Conv. (cfs)	2725.1	32394.5
Length Wtd. (ft) 179.74	421.85	Wetted Per. (ft)	164.80	61.66
Min Ch El (ft) 0.00	82.04	Shear (lb/sq ft)	0.01	0.05
Alpha 0.00	1.98	Stream Power (lb/ft s)	535.33	0.00
Frctn Loss (ft) 0.49	0.07	Cum Volume (acre-ft)	1.16	26.27
C & E Loss (ft) 0.93	0.00	Cum SA (acres)	2.19	4.58

Warning: Divided flow computed for this cross-section.
 Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: ES100
 REACH: ES100-00 RS: 4186

INPUT

Description:

Station		Elevation		Data		num= 124			
Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev
0	90.74	5	90.73	10	90.69	15	90.58	19.99	90.62
24.99	90.63	29.99	90.68	34.99	90.71	39.99	90.69	44.99	90.68
49.98	90.68	54.98	90.76	59.98	90.76	64.98	90.75	69.98	90.77
74.98	90.78	79.98	90.83	84.97	90.85	89.97	90.89	94.97	90.86
99.97	90.77	104.97	90.72	109.97	90.72	114.96	90.69	119.96	90.66
124.96	90.74	129.96	90.76	134.96	90.73	139.96	90.89	144.96	91.2
149.95	91.3	154.95	92.09	159.95	93.26	164.95	94.33	169.95	94.7
174.95	95.46	179.94	95.62	184.94	95.07	189.94	94.85	194.94	94.33
199.94	93.66	204.94	93.21	209.94	93.14	214.93	93.16	217.28	92.83
219.93	92.46	224.93	89.63	229.93	85.43	234.93	83.88	239.93	82.99
244.92	82.24	249.92	82.04	254.92	82.07	259.92	83.86	264.92	86.9
269.92	90.17	274.92	91.39	277.59	91.76	279.91	92.07	284.91	92.49
289.91	92.77	294.91	93.48	299.91	93.85	304.91	94.6	309.9	95.49
314.9	95.51	319.9	95.35	324.9	94.55	329.9	93.67	334.9	93.14
339.89	92.95	344.89	92.68	349.89	91.88	354.89	91.39	359.89	91.34
364.89	91.29	369.89	91.29	374.88	91.25	379.88	91.31	384.88	91.38
389.88	91.41	394.83	91.44	399.78	91.46	404.73	91.49	409.68	91.5
414.63	91.46	419.58	91.45	424.53	91.45	429.48	91.47	434.42	91.49
439.37	91.48	444.32	91.5	449.27	91.51	454.22	91.49	459.17	91.43
464.12	91.49	469.07	91.49	474.02	91.48	478.97	91.47	483.92	91.45
488.87	91.47	493.82	91.49	498.77	91.52	503.72	91.48	508.67	91.54
513.62	91.54	518.57	91.56	523.52	91.54	528.46	91.57	533.41	91.55
538.36	91.46	543.31	91.62	548.26	91.48	553.21	91.5	558.16	91.5
563.11	91.47	568.06	91.52	573.01	91.51	577.96	91.49	582.91	91.41
587.86	91.58	592.81	91.63	597.76	91.63	602.71	91.52		

ES100 OUTPUT REPORT.pdf

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 219.93 .045 279.91 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 219.93 279.91 194 194 192 .1 .3

CROSS SECTION OUTPUT Profile #EX 10Y

E. G. Elev (ft)	88.64	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	88.62	Reach Len. (ft)	194.00	194.00
192.00 Crit W. S. (ft)		Flow Area (sq ft)		193.77
E. G. Slope (ft/ft)	0.000158	Area (sq ft)		193.77
Q Total (cfs)	214.00	Flow (cfs)		214.00
Top Width (ft)	41.42	Top Width (ft)		41.42
Vel Total (ft/s)	1.10	Avg. Vel. (ft/s)		1.10
Max Chl Dpth (ft)	6.58	Hydr. Depth (ft)		4.68
Conv. Total (cfs)	17027.9	Conv. (cfs)		17027.9
Length Wtd. (ft)	194.00	Wetted Per. (ft)		44.63
Min Ch El (ft)	82.04	Shear (lb/sq ft)		0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	602.71	0.00
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)		13.52
C & E Loss (ft)	0.00	Cum SA (acres)		3.32

CROSS SECTION OUTPUT Profile #EX 25Y

E. G. Elev (ft)	89.45	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	89.43	Reach Len. (ft)	194.00	194.00
192.00 Crit W. S. (ft)		Flow Area (sq ft)		228.09
E. G. Slope (ft/ft)	0.000169	Area (sq ft)		228.09
Q Total (cfs)	279.00	Flow (cfs)		279.00
Top Width (ft)	43.61	Top Width (ft)		43.61
Vel Total (ft/s)	1.22	Avg. Vel. (ft/s)		1.22
Max Chl Dpth (ft)	7.39	Hydr. Depth (ft)		5.23

ES100 OUTPUT REPORT.pdf

Conv. Total (cfs)	21478.7	Conv. (cfs)	21478.7
Length Wtd. (ft)	194.00	Wetted Per. (ft)	47.36
Min Ch El (ft)	82.04	Shear (lb/sq ft)	0.05
Alpha 0.00	1.00	Stream Power (lb/ft s)	602.71
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	16.34
C & E Loss (ft)	0.00	Cum SA (acres)	3.53

CROSS SECTION OUTPUT Profile #EX 100Y

E. G. Elev (ft)	91.12	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	Wt. n-Val.	0.060	0.045
W. S. Elev (ft)	91.10	Reach Len. (ft)	194.00	194.00
192.00 Crit W. S. (ft)		Flow Area (sq ft)	51.04	306.34
E. G. Slope (ft/ft)	0.000181	Area (sq ft)	51.04	306.34
Q Total (cfs)	431.00	Flow (cfs)	8.52	422.48
Top Width (ft)	194.66	Top Width (ft)	143.28	51.38
Vel Total (ft/s)	1.21	Avg. Vel. (ft/s)	0.17	1.38
Max Chl Dpth (ft)	9.06	Hydr. Depth (ft)	0.36	5.96
Conv. Total (cfs)	32071.6	Conv. (cfs)	634.1	31437.6
Length Wtd. (ft)	194.00	Wetted Per. (ft)	143.65	55.91
Min Ch El (ft)	82.04	Shear (lb/sq ft)	0.00	0.06
Alpha 0.00	1.28	Stream Power (lb/ft s)	602.71	0.00
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	0.17	22.78
0.02 C & E Loss (ft)	0.00	Cum SA (acres)	0.57	4.01
0.04				

Warning: Divided flow computed for this cross-section.
 Warning: The cross-section end points had to be extended vertically for the computed water surface.
 Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 10Y

E. G. Elev (ft)	88.72	Element	Left OB	Channel
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ES100 OUTPUT REPORT.pdf

Right OB				
Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	88.70	Reach Len. (ft)	194.00	194.00
192.00 Crit W. S. (ft)		Flow Area (sq ft)		197.01
E. G. Slope (ft/ft)	0.000159	Area (sq ft)		197.01
Q Total (cfs)	220.00	Flow (cfs)		220.00
Top Width (ft)	41.63	Top Width (ft)		41.63
Vel Total (ft/s)	1.12	Avg. Vel. (ft/s)		1.12
Max Chl Dpth (ft)	6.66	Hydr. Depth (ft)		4.73
Conv. Total (cfs)	17437.3	Conv. (cfs)		17437.3
Length Wtd. (ft)	194.00	Wetted Per. (ft)		44.90
Min Ch El (ft)	82.04	Shear (lb/sq ft)		0.04
Alpha	1.00	Stream Power (lb/ft s)	602.71	0.00
0.00 Frctn Loss (ft)	0.04	Cum Volume (acre-ft)		13.79
C & E Loss (ft)	0.00	Cum SA (acres)		3.34

CROSS SECTION OUTPUT Profile #ULT 25Y

E. G. Elev (ft)	89.46	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	89.44	Reach Len. (ft)	194.00	194.00
192.00 Crit W. S. (ft)		Flow Area (sq ft)		228.60
E. G. Slope (ft/ft)	0.000169	Area (sq ft)		228.60
Q Total (cfs)	280.00	Flow (cfs)		280.00
Top Width (ft)	43.65	Top Width (ft)		43.65
Vel Total (ft/s)	1.22	Avg. Vel. (ft/s)		1.22
Max Chl Dpth (ft)	7.40	Hydr. Depth (ft)		5.24
Conv. Total (cfs)	21546.9	Conv. (cfs)		21546.9
Length Wtd. (ft)	194.00	Wetted Per. (ft)		47.40
Min Ch El (ft)	82.04	Shear (lb/sq ft)		0.05
Alpha	1.00	Stream Power (lb/ft s)	602.71	0.00
0.00 Frctn Loss (ft)	0.04	Cum Volume (acre-ft)		16.38

C & E Loss (ft)

ES100 OUTPUT REPORT.pdf
0.00 Cum SA (acres)

3.53

CROSS SECTION OUTPUT Profile #ULT 100Y

E. G. Elev (ft)	91.22	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.03	Wt. n-Val.	0.060	0.045
W. S. Elev (ft)	91.19	Reach Len. (ft)	194.00	194.00
192.00				
Crit W. S. (ft)		Flow Area (sq ft)	64.96	311.33
E. G. Slope (ft/ft)	0.000178	Area (sq ft)	64.96	311.33
Q Total (cfs)	440.00	Flow (cfs)	12.54	427.46
Top Width (ft)	196.78	Top Width (ft)	144.84	51.94
Vel Total (ft/s)	1.17	Avg. Vel. (ft/s)	0.19	1.37
Max Chl Dpth (ft)	9.15	Hydr. Depth (ft)	0.45	5.99
Conv. Total (cfs)	33005.9	Conv. (cfs)	940.5	32065.4
Length Wtd. (ft)	194.00	Wetted Per. (ft)	145.31	56.52
Min Ch El (ft)	82.04	Shear (lb/sq ft)	0.00	0.06
Alpha	1.34	Stream Power (lb/ft s)	602.71	0.00
0.00				
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	0.23	23.19
0.02				
C & E Loss (ft)	0.00	Cum SA (acres)	0.71	4.04
0.05				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: ES100
REACH: ES100-00 RS: 3991

INPUT

Desription:

Station	Elevation	Data	num=	123	Station	Elevation	Station	Elevation	Station	Elevation
0	91.33	4.99	91.37	9.98	91.33	14.97	91.33	19.96	91.41	
24.94	91.39	29.93	91.39	34.92	91.36	39.91	91.43	44.9	91.58	
49.89	91.48	54.88	91.41	59.87	91.52	64.86	91.44	69.85	91.44	
74.83	91.44	79.82	91.41	84.81	91.38	89.8	91.4	94.79	91.43	
99.78	91.48	104.77	91.54	109.76	91.6	114.75	91.59	119.73	91.53	

ES100 OUTPUT REPORT.pdf

124.72	91.44	129.71	91.43	134.7	91.4	139.69	91.31	144.68	91.24
149.67	91.25	154.66	91.37	159.65	92.27	164.64	94.51	169.62	96.5
174.61	96.51	179.6	96.34	184.59	95.49	189.58	94.28	194.57	93.73
199.56	93.77	204.55	93.93	209.07	93.5	209.54	93.45	214.53	91.59
219.51	90.59	224.5	86.33	229.49	83.07	234.48	82.29	239.47	82.32
244.46	82.88	249.45	84.73	254.44	87.8	259.43	90.58	264.41	91.14
269.33	93.55	269.4	93.58	274.39	93.53	279.38	93.49	284.37	93.53
289.36	93.83	294.35	94.33	299.34	94.48	304.3	94.91	309.27	95.49
314.24	95.38	319.21	95.03	324.18	92.81	329.14	92.24	334.11	91.96
339.08	91.96	344.05	91.86	349.01	91.54	353.98	91.38	358.95	91.38
363.92	91.12	368.89	91.21	373.85	91.16	378.82	91.15	383.79	91.11
388.76	91.21	393.72	91.29	398.69	91.31	403.66	91.46	408.63	91.47
413.6	91.49	418.56	91.49	423.53	91.53	428.5	91.61	433.47	91.63
438.43	91.68	443.4	91.69	448.37	91.72	453.34	91.77	458.31	91.77
463.27	91.76	468.24	91.63	473.21	91.58	478.18	91.62	483.14	91.67
488.11	91.67	493.08	91.66	498.05	91.64	503.02	91.63	507.98	91.64
512.95	91.66	517.92	91.71	522.89	91.76	527.85	91.78	532.82	91.76
537.79	91.66	542.76	91.6	547.73	91.59	552.69	91.65	557.66	91.72
562.63	91.66	567.6	91.57	572.56	91.57	577.53	91.67	582.5	91.63
587.47	91.4	592.44	91.41	597.4	91.43				

Manning's n Values num= 3
 Sta n Val Sta n Val
 0 .06 209.07 .045 269.33 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 209.07 269.33 315 309 305 .1 .3

CROSS SECTION OUTPUT Profile #EX 10Y

E. G. Elev (ft)	88.60	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.03	Wt. n-Val.		0.045
W. S. Elev (ft)	88.56	Reach Len. (ft)	315.00	309.00
305.00		Flow Area (sq ft)		148.33
Crit W. S. (ft)		Area (sq ft)		148.33
E. G. Slope (ft/ft)	0.000302	Flow (cfs)		214.00
Q Total (cfs)	214.00	Top Width (ft)		33.93
Top Width (ft)	33.93	Avg. Vel. (ft/s)		1.44
Vel Total (ft/s)	1.44	Hydr. Depth (ft)		4.37
Max Chl Dpth (ft)	6.27	Conv. (cfs)		12312.2
Conv. Total (cfs)	12312.2	Wetted Per. (ft)		37.22
Length Wtd. (ft)	309.00	Shear (lb/sq ft)		0.08
Min Ch El (ft)	82.29	Stream Power (lb/ft s)	597.40	0.00
Alpha	1.00	Cum Volume (acre-ft)		12.76
0.00		Cum SA (acres)		3.15
Frctn Loss (ft)	0.11			
C & E Loss (ft)	0.00			

ES100 OUTPUT REPORT.pdf

CROSS SECTION OUTPUT Profile #EX 25Y

E. G. Elev (ft)	89.41	Element	Left OB	Channel
Right OB Vel Head (ft)	0.04	Wt. n-Val.		0.045
W. S. Elev (ft)	89.37	Reach Len. (ft)	315.00	309.00
305.00 Crit W. S. (ft)		Flow Area (sq ft)		176.51
E. G. Slope (ft/ft)	0.000318	Area (sq ft)		176.51
Q Total (cfs)	279.00	Flow (cfs)		279.00
Top Width (ft)	36.31	Top Width (ft)		36.31
Vel Total (ft/s)	1.58	Avg. Vel. (ft/s)		1.58
Max Chl Dpth (ft)	7.08	Hydr. Depth (ft)		4.86
Conv. Total (cfs)	15653.6	Conv. (cfs)		15653.6
Length Wtd. (ft)	309.00	Wetted Per. (ft)		40.10
Min Ch El (ft)	82.29	Shear (lb/sq ft)		0.09
Alpha 0.00	1.00	Stream Power (lb/ft s)	597.40	0.00
Frctn Loss (ft)	0.11	Cum Volume (acre-ft)		15.44
C & E Loss (ft)	0.00	Cum SA (acres)		3.35

CROSS SECTION OUTPUT Profile #EX 100Y

E. G. Elev (ft)	91.07	Element	Left OB	Channel
Right OB Vel Head (ft)	0.05	Wt. n-Val.		0.045
W. S. Elev (ft)	91.03	Reach Len. (ft)	315.00	309.00
305.00 Crit W. S. (ft)		Flow Area (sq ft)		241.86
E. G. Slope (ft/ft)	0.000362	Area (sq ft)		241.86
Q Total (cfs)	431.00	Flow (cfs)		431.00
Top Width (ft)	46.05	Top Width (ft)		46.05
Vel Total (ft/s)	1.78	Avg. Vel. (ft/s)		1.78
Max Chl Dpth (ft)	8.74	Hydr. Depth (ft)		5.25
Conv. Total (cfs)	22640.1	Conv. (cfs)		22640.1
Length Wtd. (ft)	309.00	Wetted Per. (ft)		50.67
Min Ch El (ft)	82.29	Shear (lb/sq ft)		0.11

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Alpha 0.00	1.00	Stream Power (lb/ft s)	597.40	0.00
Frctn Loss (ft) 0.02	0.12	Cum Volume (acre-ft)	0.06	21.56
C & E Loss (ft) 0.04	0.00	Cum SA (acres)	0.25	3.80

CROSS SECTION OUTPUT Profile #ULT 10Y

E. G. Elev (ft)	88.68	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	Wt. n-Val.		0.045
W. S. Elev (ft)	88.64	Reach Len. (ft)	315.00	309.00
305.00 Crit W. S. (ft)		Flow Area (sq ft)		150.97
E. G. Slope (ft/ft)	0.000304	Area (sq ft)		150.97
Q Total (cfs)	220.00	Flow (cfs)		220.00
Top Width (ft)	34.16	Top Width (ft)		34.16
Vel Total (ft/s)	1.46	Avg. Vel. (ft/s)		1.46
Max Chl Dpth (ft)	6.35	Hydr. Depth (ft)		4.42
Conv. Total (cfs)	12617.0	Conv. (cfs)		12617.0
Length Wtd. (ft)	309.00	Wetted Per. (ft)		37.50
Min Ch El (ft)	82.29	Shear (lb/sq ft)		0.08
Alpha 0.00	1.00	Stream Power (lb/ft s)	597.40	0.00
Frctn Loss (ft)	0.11	Cum Volume (acre-ft)		13.01
C & E Loss (ft)	0.00	Cum SA (acres)		3.17

CROSS SECTION OUTPUT Profile #ULT 25Y

E. G. Elev (ft)	89.42	Element	Left OB	Channel
Right OB Vel Head (ft)	0.04	Wt. n-Val.		0.045
W. S. Elev (ft)	89.38	Reach Len. (ft)	315.00	309.00
305.00 Crit W. S. (ft)		Flow Area (sq ft)		176.93
E. G. Slope (ft/ft)	0.000318	Area (sq ft)		176.93
Q Total (cfs)	280.00	Flow (cfs)		280.00
Top Width (ft)	36.35	Top Width (ft)		36.35

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Vel Total (ft/s)	1.58	Avg. Vel. (ft/s)	1.58
Max Chl Dpth (ft)	7.09	Hydr. Depth (ft)	4.87
Conv. Total (cfs)	15705.2	Conv. (cfs)	15705.2
Length Wtd. (ft)	309.00	Wetted Per. (ft)	40.14
Min Ch El (ft)	82.29	Shear (lb/sq ft)	0.09
Alpha 0.00	1.00	Stream Power (lb/ft s)	597.40
Frctn Loss (ft)	0.11	Cum Volume (acre-ft)	15.48
C & E Loss (ft)	0.00	Cum SA (acres)	3.35

CROSS SECTION OUTPUT Profile #ULT 100Y

E. G. Elev (ft)	91.17	Element	Left OB	Channel
Right OB Vel Head (ft)	0.05	Wt. n-Val.		0.045
0.001 W. S. Elev (ft)	91.12	Reach Len. (ft)	315.00	309.00
305.00 Crit W. S. (ft)		Flow Area (sq ft)		246.35
0.01 E. G. Slope (ft/ft)	0.000368	Area (sq ft)		246.35
0.01 Q Total (cfs)	440.00	Flow (cfs)		440.00
0.00 Top Width (ft)	49.47	Top Width (ft)		47.38
2.09 Vel Total (ft/s)	1.79	Avg. Vel. (ft/s)		1.79
0.02 Max Chl Dpth (ft)	8.83	Hydr. Depth (ft)		5.20
0.01 Conv. Total (cfs)	22939.3	Conv. (cfs)		22939.3
0.0 Length Wtd. (ft)	309.00	Wetted Per. (ft)		52.02
2.09 Min Ch El (ft)	82.29	Shear (lb/sq ft)		0.11
Alpha 0.00	1.00	Stream Power (lb/ft s)	597.40	0.00
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)	0.09	21.95
0.02 C & E Loss (ft)	0.00	Cum SA (acres)	0.39	3.82
0.05				

Warning: Divided flow computed for this cross-section.

CROSS SECTION

RIVER: ES100
REACH: ES100-00

RS: 3683

ES100 OUTPUT REPORT.pdf

INPUT

Description:

Station Elevation Data		num= 120									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	91.49	4.97	91.55	9.94	91.54	14.91	91.52	19.88	91.52		
24.85	91.57	29.82	91.57	34.79	91.52	39.76	91.47	44.73	91.45		
49.69	91.52	54.66	91.53	59.63	91.56	64.6	91.65	69.57	91.55		
74.54	91.55	79.51	91.57	84.48	91.57	89.45	91.61	94.42	91.63		
99.39	91.65	104.36	91.65	109.33	91.63	114.3	91.68	119.27	91.77		
124.24	91.76	129.21	91.74	134.18	91.79	139.15	91.67	144.11	91.67		
149.08	91.63	154.05	91.73	159.02	91.83	163.99	91.81	168.96	91.81		
173.93	91.83	178.9	91.83	183.87	91.79	188.84	91.79	193.81	91.69		
198.78	91.61	203.75	91.59	208.72	91.59	213.69	92.14	218.66	92.8		
223.63	94.4	228.6	94.92	233.57	95.93	238.54	96.38	243.5	95.42		
248.47	94.55	253.44	94.36	258.41	94.49	261.25	93.99	263.38	93.62		
268.35	90.58	273.32	89.14	278.29	86.8	283.26	83.86	288.23	82.52		
293.2	82.25	298.17	83	303.14	85.02	308.11	87.72	313.08	89.16		
318.05	90.6	321.28	92.23	323.02	93.1	327.99	94.2	332.96	94.18		
337.92	94.15	342.89	94.26	347.86	94.91	352.83	95.97	357.8	96.58		
362.77	96.68	367.74	96.69	372.71	95.77	377.68	94.3	382.65	93.95		
387.62	93.28	392.59	93.24	397.56	93.06	402.53	93.06	407.5	92.98		
412.47	92.85	417.44	92.78	422.41	92.77	427.37	92.71	432.34	92.69		
437.31	92.9	442.28	92.85	447.25	92.85	452.22	92.87	457.19	93.07		
462.16	93.03	467.13	93.03	472.1	93.17	477.07	93.15	482.04	93.17		
487.01	93.14	491.98	93.24	496.95	93.24	501.92	93.2	506.89	93.16		
511.86	93.16	516.83	93.12	521.8	93.07	526.76	93.11	531.73	93.09		
536.7	92.87	541.67	92.51	546.64	92.28	551.61	92.23	556.58	92.18		
561.55	92.16	566.52	92.23	571.49	92.23	576.46	92.27	581.43	92.27		

Manning's n Values		num= 3	
Sta	n Val	Sta	n Val
0	.06	263.38	.045
		323.02	.06

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	263.38	323.02		438	438		.1	.3

CROSS SECTION OUTPUT Profile #EX 10Y

E. G. Elev (ft)	88.49	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.04	Wt. n-Val.		0.045
W. S. Elev (ft)	88.45	Reach Len. (ft)	438.00	438.00
439.00				
Crit W. S. (ft)		Flow Area (sq ft)		136.97
E. G. Slope (ft/ft)	0.000411	Area (sq ft)		136.97
Q Total (cfs)	214.00	Flow (cfs)		214.00
Top Width (ft)	35.85	Top Width (ft)		35.85
Vel Total (ft/s)	1.56	Avg. Vel. (ft/s)		1.56
Max Chl Dpth (ft)	6.20	Hydr. Depth (ft)		3.82
Conv. Total (cfs)	10550.4	Conv. (cfs)		10550.4
Length Wtd. (ft)	438.00	Wetted Per. (ft)		38.45
Min Ch El (ft)	82.25	Shear (lb/sq ft)		0.09

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Alpha	1.00	Stream Power (lb/ft s)	581.43	0.00
0.00				
Frctn Loss (ft)	0.23	Cum Volume (acre-ft)		11.75
C & E Loss (ft)	0.00	Cum SA (acres)		2.90

CROSS SECTION OUTPUT Profile #EX 25Y

E. G. Elev (ft)	89.29	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.04	Wt. n-Val.		0.045
W. S. Elev (ft)	89.25	Reach Len. (ft)	438.00	438.00
439.00				
Crit W. S. (ft)		Flow Area (sq ft)		167.43
E. G. Slope (ft/ft)	0.000420	Area (sq ft)		167.43
Q Total (cfs)	279.00	Flow (cfs)		279.00
Top Width (ft)	40.45	Top Width (ft)		40.45
Vel Total (ft/s)	1.67	Avg. Vel. (ft/s)		1.67
Max Chl Dpth (ft)	7.00	Hydr. Depth (ft)		4.14
Conv. Total (cfs)	13612.5	Conv. (cfs)		13612.5
Length Wtd. (ft)	438.00	Wetted Per. (ft)		43.33
Min Ch El (ft)	82.25	Shear (lb/sq ft)		0.10
Alpha	1.00	Stream Power (lb/ft s)	581.43	0.00
0.00				
Frctn Loss (ft)	0.22	Cum Volume (acre-ft)		14.22
C & E Loss (ft)	0.00	Cum SA (acres)		3.08

CROSS SECTION OUTPUT Profile #EX 100Y

E. G. Elev (ft)	90.96	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.05	Wt. n-Val.		0.045
W. S. Elev (ft)	90.91	Reach Len. (ft)	438.00	438.00
439.00				
Crit W. S. (ft)		Flow Area (sq ft)		243.94
E. G. Slope (ft/ft)	0.000386	Area (sq ft)		243.94
Q Total (cfs)	431.00	Flow (cfs)		431.00
Top Width (ft)	50.86	Top Width (ft)		50.86
Vel Total (ft/s)	1.77	Avg. Vel. (ft/s)		1.77

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Max Chl Dpth (ft)	8.66	Hydr. Depth (ft)		4.80
Conv. Total (cfs)	21934.2	Conv. (cfs)		21934.2
Length Wtd. (ft)	438.00	Wetted Per. (ft)		54.29
Min Ch El (ft)	82.25	Shear (lb/sq ft)		0.11
Alpha 0.00	1.00	Stream Power (lb/ft s)	581.43	0.00
Frctn Loss (ft) 0.02	0.19	Cum Volume (acre-ft)	0.06	19.84
C & E Loss (ft) 0.04	0.00	Cum SA (acres)	0.25	3.45

CROSS SECTION OUTPUT Profile #ULT 10Y

E. G. Elev (ft)	88.57	Element	Left OB	Channel
Right OB Vel Head (ft)	0.04	Wt. n-Val.		0.045
W. S. Elev (ft)	88.53	Reach Len. (ft)	438.00	438.00
439.00 Crit W. S. (ft)		Flow Area (sq ft)		139.75
E. G. Slope (ft/ft)	0.000413	Area (sq ft)		139.75
Q Total (cfs)	220.00	Flow (cfs)		220.00
Top Width (ft)	36.28	Top Width (ft)		36.28
Vel Total (ft/s)	1.57	Avg. Vel. (ft/s)		1.57
Max Chl Dpth (ft)	6.28	Hydr. Depth (ft)		3.85
Conv. Total (cfs)	10824.0	Conv. (cfs)		10824.0
Length Wtd. (ft)	438.00	Wetted Per. (ft)		38.90
Min Ch El (ft)	82.25	Shear (lb/sq ft)		0.09
Alpha 0.00	1.00	Stream Power (lb/ft s)	581.43	0.00
Frctn Loss (ft)	0.23	Cum Volume (acre-ft)		11.98
C & E Loss (ft)	0.00	Cum SA (acres)		2.92

CROSS SECTION OUTPUT Profile #ULT 25Y

E. G. Elev (ft)	89.30	Element	Left OB	Channel
Right OB Vel Head (ft)	0.04	Wt. n-Val.		0.045
W. S. Elev (ft)	89.26	Reach Len. (ft)	438.00	438.00
439.00				

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Crit W. S. (ft)		Flow Area (sq ft)	167.90
E. G. Slope (ft/ft)	0.000420	Area (sq ft)	167.90
Q Total (cfs)	280.00	Flow (cfs)	280.00
Top Width (ft)	40.53	Top Width (ft)	40.53
Vel Total (ft/s)	1.67	Avg. Vel. (ft/s)	1.67
Max Chl Dpth (ft)	7.01	Hydr. Depth (ft)	4.14
Conv. Total (cfs)	13658.8	Conv. (cfs)	13658.8
Length Wtd. (ft)	438.00	Wetted Per. (ft)	43.42
Min Ch El (ft)	82.25	Shear (lb/sq ft)	0.10
Alpha 0.00	1.00	Stream Power (lb/ft s)	581.43
Frctn Loss (ft)	0.22	Cum Volume (acre-ft)	14.26
C & E Loss (ft)	0.00	Cum SA (acres)	3.08

CROSS SECTION OUTPUT Profile #ULT 100Y

E. G. Elev (ft)	91.06	Element	Left OB	Channel
Right OB Vel Head (ft)	0.05	Wt. n-Val.		0.045
W. S. Elev (ft)	91.01	Reach Len. (ft)	438.00	438.00
439.00 Crit W. S. (ft)		Flow Area (sq ft)		248.84
E. G. Slope (ft/ft)	0.000380	Area (sq ft)		248.84
Q Total (cfs)	440.00	Flow (cfs)		440.00
Top Width (ft)	51.20	Top Width (ft)		51.20
Vel Total (ft/s)	1.77	Avg. Vel. (ft/s)		1.77
Max Chl Dpth (ft)	8.76	Hydr. Depth (ft)		4.86
Conv. Total (cfs)	22563.9	Conv. (cfs)		22563.9
Length Wtd. (ft)	438.00	Wetted Per. (ft)		54.68
Min Ch El (ft)	82.25	Shear (lb/sq ft)		0.11
Alpha 0.00	1.00	Stream Power (lb/ft s)	581.43	0.00
Frctn Loss (ft)	0.19	Cum Volume (acre-ft)	0.09	20.19
0.02 C & E Loss (ft)	0.00	Cum SA (acres)	0.39	3.47
0.04				

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CROSS SECTION

RIVER: ES100
 REACH: ES100-00

RS: 3244

INPUT

Description:

Station		Elevation		Data		num= 131					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	92.06	4.98	92.09	9.95	92.15	14.93	92.24	19.91	92.26		
24.88	92.07	29.86	92.08	34.83	92.06	39.81	92.06	44.79	92.06		
49.76	92.06	54.74	92.09	59.72	92.1	64.69	92.1	69.67	92.11		
74.64	92.09	79.62	92.16	84.6	92.21	89.57	92.16	94.55	92.09		
99.53	92.12	104.5	92.17	109.48	92.21	114.46	92.21	119.43	92.19		
124.41	92.19	129.38	92.12	134.36	92.09	139.34	92.18	144.31	92.2		
149.29	92.16	154.27	92.18	159.24	92.21	164.22	92.24	169.2	92.26		
174.17	92.24	179.15	92.22	184.12	92.21	189.1	92.18	194.08	92.16		
199.05	92.14	204.03	92.17	209.01	92.21	213.98	92.21	218.96	92.25		
223.93	92.29	228.91	92.36	233.89	92.52	238.86	92.44	243.84	92.32		
248.82	92.5	253.79	92.52	258.77	92.6	263.75	92.9	268.72	93.46		
273.7	94.5	278.67	94.94	283.65	96.8	288.63	96.82	293.6	96.04		
298.58	95.85	303.56	94.68	308.53	94.53	313.51	94.55	315.21	94		
318.49	92.94	323.46	92.56	328.44	88.1	333.41	84.17	338.39	83.52		
343.37	83.47	348.34	83.65	353.32	84.15	358.3	87.29	363.27	87.36		
368.25	91.11	373.23	93.98	375.25	94.33	378.2	94.85	383.18	94.88		
388.15	94.82	393.13	94.99	398.11	96.6	403.08	96.78	408.06	98.44		
413.04	99.42	418.01	98.63	422.99	96.25	427.96	95.79	432.94	95.45		
437.92	95.2	442.89	95.27	447.87	95.24	452.85	95.06	457.82	94.89		
462.8	94.82	467.78	94.83	472.75	94.88	477.73	94.91	482.7	94.94		
487.68	94.94	492.66	95.02	497.63	95.05	502.61	95.05	507.59	94.96		
512.56	94.64	517.54	94.34	522.52	94.24	527.49	94.07	532.47	93.73		
537.44	93.49	542.42	93.44	547.4	93.52	552.37	93.57	557.35	93.57		
562.33	93.6	567.3	93.51	572.28	93.6	577.25	93.86	582.23	94.06		
587.21	94.27	592.18	94.29	597.16	94.29	602.14	94.32	607.11	94.43		
612.09	94.47	617.07	94.54	622.04	94.5	627.02	94.46	631.99	94.43		
636.97	94.36										

Manning's n Values		num= 3	
Station	Value	Station	Value
0	.06	315.21	.045
		375.25	.06

Bank	Sta: Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	315.21	375.25		563	729	888		.1	.3

CROSS SECTION OUTPUT Profile #EX 10Y

E. G. Elev (ft)	88.26	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.05	Wt. n-Val.		0.045
W. S. Elev (ft)	88.20	Reach Len. (ft)	563.00	729.00
888.00				
Crit W. S. (ft)		Flow Area (sq ft)		117.19
E. G. Slope (ft/ft)	0.000699	Area (sq ft)		117.19
Q Total (cfs)	214.00	Flow (cfs)		214.00
Top Width (ft)	36.07	Top Width (ft)		36.07
Vel Total (ft/s)	1.83	Avg. Vel. (ft/s)		1.83

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Max Chl Dpth (ft)	4.73	Hydr. Depth (ft)		3.25
Conv. Total (cfs)	8094.2	Conv. (cfs)		8094.2
Length Wtd. (ft)	729.00	Wetted Per. (ft)		38.73
Min Ch El (ft)	83.47	Shear (lb/sq ft)		0.13
Alpha 0.00	1.00	Stream Power (lb/ft s)	636.97	0.00
Frctn Loss (ft)	0.31	Cum Volume (acre-ft)		10.47
C & E Loss (ft)	0.01	Cum SA (acres)		2.54

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #EX 25Y

E. G. Elev (ft)	89.07	Element	Left OB	Channel
Right OB Vel Head (ft)	0.06	Wt. n-Val.		0.045
W. S. Elev (ft)	89.02	Reach Len. (ft)	563.00	729.00
888.00 Crit W. S. (ft)		Flow Area (sq ft)		147.32
E. G. Slope (ft/ft)	0.000604	Area (sq ft)		147.32
Q Total (cfs)	279.00	Flow (cfs)		279.00
Top Width (ft)	38.06	Top Width (ft)		38.06
Vel Total (ft/s)	1.89	Avg. Vel. (ft/s)		1.89
Max Chl Dpth (ft)	5.55	Hydr. Depth (ft)		3.87
Conv. Total (cfs)	11355.9	Conv. (cfs)		11355.9
Length Wtd. (ft)	729.00	Wetted Per. (ft)		41.31
Min Ch El (ft)	83.47	Shear (lb/sq ft)		0.13
Alpha 0.00	1.00	Stream Power (lb/ft s)	636.97	0.00
Frctn Loss (ft)	0.29	Cum Volume (acre-ft)		12.64
C & E Loss (ft)	0.01	Cum SA (acres)		2.68

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #EX 100Y

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E. G. Elev (ft)	90.77	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.06	Wt. n-Val.		0.045
W. S. Elev (ft)	90.71	Reach Len. (ft)	563.00	729.00
888.00				
Crit W. S. (ft)		Flow Area (sq ft)		215.12
E. G. Slope (ft/ft)	0.000480	Area (sq ft)		215.12
Q Total (cfs)	431.00	Flow (cfs)		431.00
Top Width (ft)	42.19	Top Width (ft)		42.19
Vel Total (ft/s)	2.00	Avg. Vel. (ft/s)		2.00
Max Chl Dpth (ft)	7.24	Hydr. Depth (ft)		5.10
Conv. Total (cfs)	19680.3	Conv. (cfs)		19680.3
Length Wtd. (ft)	729.00	Wetted Per. (ft)		46.65
Min Ch El (ft)	83.47	Shear (lb/sq ft)		0.14
Alpha	1.00	Stream Power (lb/ft s)	636.97	0.00
0.00				
Frctn Loss (ft)	0.26	Cum Volume (acre-ft)	0.06	17.53
0.02				
C & E Loss (ft)	0.01	Cum SA (acres)	0.25	2.98
0.04				

CROSS SECTION OUTPUT Profile #ULT 10Y

E. G. Elev (ft)	88.33	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.05	Wt. n-Val.		0.045
W. S. Elev (ft)	88.28	Reach Len. (ft)	563.00	729.00
888.00				
Crit W. S. (ft)		Flow Area (sq ft)		120.02
E. G. Slope (ft/ft)	0.000688	Area (sq ft)		120.02
Q Total (cfs)	220.00	Flow (cfs)		220.00
Top Width (ft)	36.26	Top Width (ft)		36.26
Vel Total (ft/s)	1.83	Avg. Vel. (ft/s)		1.83
Max Chl Dpth (ft)	4.81	Hydr. Depth (ft)		3.31
Conv. Total (cfs)	8387.4	Conv. (cfs)		8387.4
Length Wtd. (ft)	729.00	Wetted Per. (ft)		38.98
Min Ch El (ft)	83.47	Shear (lb/sq ft)		0.13
Alpha	1.00	Stream Power (lb/ft s)	636.97	0.00

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0.00 Frctn Loss (ft)	0.31	Cum Volume (acre-ft)	10.68
C & E Loss (ft)	0.01	Cum SA (acres)	2.56

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 25Y

E. G. Elev (ft)	89.08	Element	Left OB	Channel
Right OB Vel Head (ft)	0.06	Wt. n-Val.		0.045
W. S. Elev (ft)	89.03	Reach Len. (ft)	563.00	729.00
888.00 Crit W. S. (ft)		Flow Area (sq ft)		147.77
E. G. Slope (ft/ft)	0.000603	Area (sq ft)		147.77
Q Total (cfs)	280.00	Flow (cfs)		280.00
Top Width (ft)	38.08	Top Width (ft)		38.08
Vel Total (ft/s)	1.89	Avg. Vel. (ft/s)		1.89
Max Chl Dpth (ft)	5.56	Hydr. Depth (ft)		3.88
Conv. Total (cfs)	11406.6	Conv. (cfs)		11406.6
Length Wtd. (ft)	729.00	Wetted Per. (ft)		41.34
Min Ch El (ft)	83.47	Shear (lb/sq ft)		0.13
Alpha 0.00	1.00	Stream Power (lb/ft s)	636.97	0.00
Frctn Loss (ft)	0.29	Cum Volume (acre-ft)		12.67
C & E Loss (ft)	0.01	Cum SA (acres)		2.69

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 100Y

E. G. Elev (ft)	90.87	Element	Left OB	Channel
Right OB Vel Head (ft)	0.06	Wt. n-Val.		0.045
W. S. Elev (ft)	90.81	Reach Len. (ft)	563.00	729.00
888.00 Crit W. S. (ft)		Flow Area (sq ft)		219.29

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E. G. Slope (ft/ft)	0.000473	Area (sq ft)	219.29
Q Total (cfs)	440.00	Flow (cfs)	440.00
Top Width (ft)	42.43	Top Width (ft)	42.43
Vel Total (ft/s)	2.01	Avg. Vel. (ft/s)	2.01
Max Chl Dpth (ft)	7.34	Hydr. Depth (ft)	5.17
Conv. Total (cfs)	20230.9	Conv. (cfs)	20230.9
Length Wtd. (ft)	729.00	Wetted Per. (ft)	46.96
Min Ch El (ft)	83.47	Shear (lb/sq ft)	0.14
Alpha	1.00	Stream Power (lb/ft s)	636.97
0.00			0.00
Frctn Loss (ft)	0.26	Cum Volume (acre-ft)	0.09
0.02			17.84
C & E Loss (ft)	0.01	Cum SA (acres)	0.39
0.04			3.00

CROSS SECTION

RIVER: ES100
 REACH: ES100-00 RS: 2515

INPUT

Description:

Station	Elevation	Data	num=	107	Station	Elevation	Station	Elevation	Station	Elevation
0	91.96	4.97	91.99	9.94	92.03	14.9	92.11	19.87	92.14	
24.84	92.13	29.81	92.13	34.77	92.11	39.74	92.12	44.71	92.16	
49.68	92.17	54.64	92.17	59.61	92.22	64.58	92.27	69.55	92.37	
74.51	92.35	79.48	92.23	84.45	92.17	89.42	92.25	94.38	92.23	
99.35	92.09	104.32	92.24	109.29	92.32	114.25	92.3	119.22	92.21	
124.19	92.12	129.16	92.18	134.12	92.19	139.09	92.22	144.06	92.22	
149.03	92.13	153.99	92.09	158.96	92.12	163.93	92.19	168.9	92.27	
173.86	92.32	178.83	92.32	183.8	92.75	188.77	93.5	193.73	95.06	
198.7	95.34	203.67	97.87	208.64	100.02	213.61	100.67	218.57	100.73	
223.54	100.79	228.51	99.35	233.48	97.05	238.44	95.76	243.41	95.51	
248.38	95.15	253.35	94.89	258.31	94.97	263.28	95.05	268.25	94.6	
270.43	93.6	273.22	92.33	278.18	88.27	283.15	86.06	288.12	84.23	
293.09	82.23	298.05	81.91	303.02	81.64	307.99	82.43	312.96	85.12	
317.92	89.03	322.89	92.63	327.86	94.38	330.46	94.41	332.83	94.44	
337.79	94.44	342.76	94.23	347.73	93.96	352.7	93.72	357.66	92.99	
362.63	92.67	367.6	92.72	372.57	92.7	377.53	92.61	382.5	92.56	
387.47	92.59	392.44	92.59	397.4	92.61	402.37	92.5	407.34	92.61	
412.31	92.64	417.28	92.66	422.24	92.54	427.21	92.47	432.18	93.2	
437.15	93.23	442.11	93.15	447.08	92.75	452.05	92.68	457.02	92.71	
461.98	92.61	466.95	92.68	471.92	92.72	476.89	92.72	481.85	92.64	
486.82	92.74	491.79	92.86	496.76	92.88	501.72	92.79	506.69	92.64	
511.66	92.95	516.63	93.25							

Manning's n	Values	num=	3
Sta	n Val	Sta	n Val
0	.06	268.25	.045
		327.86	.06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

CROSS SECTION OUTPUT Profile #EX 10Y

E. G. Elev (ft)	87.94	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	Wt. n-Val.		0.045
W. S. Elev (ft)	87.91	Reach Len. (ft)	579.00	579.00
580.00 Crit W. S. (ft)		Flow Area (sq ft)		154.85
E. G. Slope (ft/ft)	0.000291	Area (sq ft)		154.85
Q Total (cfs)	214.00	Flow (cfs)		214.00
Top Width (ft)	37.50	Top Width (ft)		37.50
Vel Total (ft/s)	1.38	Avg. Vel. (ft/s)		1.38
Max Chl Dpth (ft)	6.27	Hydr. Depth (ft)		4.13
Conv. Total (cfs)	12537.5	Conv. (cfs)		12537.5
Length Wtd. (ft)	579.00	Wetted Per. (ft)		40.33
Min Ch El (ft)	81.64	Shear (lb/sq ft)		0.07
Alpha 0.00	1.00	Stream Power (lb/ft s)	516.63	0.00
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)		8.20
C & E Loss (ft)	0.00	Cum SA (acres)		1.93

CROSS SECTION OUTPUT Profile #EX 25Y

E. G. Elev (ft)	88.77	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	Wt. n-Val.		0.045
W. S. Elev (ft)	88.74	Reach Len. (ft)	579.00	579.00
580.00 Crit W. S. (ft)		Flow Area (sq ft)		187.10
E. G. Slope (ft/ft)	0.000290	Area (sq ft)		187.10
Q Total (cfs)	279.00	Flow (cfs)		279.00
Top Width (ft)	39.94	Top Width (ft)		39.94
Vel Total (ft/s)	1.49	Avg. Vel. (ft/s)		1.49
Max Chl Dpth (ft)	7.10	Hydr. Depth (ft)		4.68
Conv. Total (cfs)	16388.8	Conv. (cfs)		16388.8
Length Wtd. (ft)	579.00	Wetted Per. (ft)		43.30

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Min Ch El (ft)	81.64	Shear (lb/sq ft)		0.08
Alpha 0.00	1.00	Stream Power (lb/ft s)	516.63	0.00
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)		9.84
C & E Loss (ft)	0.00	Cum SA (acres)		2.03

CROSS SECTION OUTPUT Profile #EX 100Y

E. G. Elev (ft)	90.51	Element	Left OB	Channel
Right OB Vel Head (ft)	0.04	Wt. n-Val.		0.045
W. S. Elev (ft)	90.46	Reach Len. (ft)	579.00	579.00
580.00 Crit W. S. (ft)		Flow Area (sq ft)		259.84
E. G. Slope (ft/ft)	0.000272	Area (sq ft)		259.84
Q Total (cfs)	431.00	Flow (cfs)		431.00
Top Width (ft)	44.40	Top Width (ft)		44.40
Vel Total (ft/s)	1.66	Avg. Vel. (ft/s)		1.66
Max Chl Dpth (ft)	8.82	Hydr. Depth (ft)		5.85
Conv. Total (cfs)	26112.0	Conv. (cfs)		26112.0
Length Wtd. (ft)	579.00	Wetted Per. (ft)		48.94
Min Ch El (ft)	81.64	Shear (lb/sq ft)		0.09
Alpha 0.00	1.00	Stream Power (lb/ft s)	516.63	0.00
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)	0.06	13.56
0.02 C & E Loss (ft)	0.00	Cum SA (acres)	0.25	2.26
0.04				

CROSS SECTION OUTPUT Profile #ULT 10Y

E. G. Elev (ft)	88.02	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	Wt. n-Val.		0.045
W. S. Elev (ft)	87.99	Reach Len. (ft)	579.00	579.00
580.00 Crit W. S. (ft)		Flow Area (sq ft)		157.85
E. G. Slope (ft/ft)	0.000292	Area (sq ft)		157.85
Q Total (cfs)	220.00	Flow (cfs)		220.00
Top Width (ft)	37.78	Top Width (ft)		37.78

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Vel Total (ft/s)	1.39	Avg. Vel. (ft/s)		1.39
Max Chl Dpth (ft)	6.35	Hydr. Depth (ft)		4.18
Conv. Total (cfs)	12876.8	Conv. (cfs)		12876.8
Length Wtd. (ft)	579.00	Wetted Per. (ft)		40.65
Min Ch El (ft)	81.64	Shear (lb/sq ft)		0.07
Alpha 0.00	1.00	Stream Power (lb/ft s)	516.63	0.00
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)		8.35
C & E Loss (ft)	0.00	Cum SA (acres)		1.94

CROSS SECTION OUTPUT Profile #ULT 25Y

E. G. Elev (ft)	88.78	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	Wt. n-Val.		0.045
W. S. Elev (ft)	88.75	Reach Len. (ft)	579.00	579.00
580.00 Crit W. S. (ft)		Flow Area (sq ft)		187.58
E. G. Slope (ft/ft)	0.000290	Area (sq ft)		187.58
Q Total (cfs)	280.00	Flow (cfs)		280.00
Top Width (ft)	39.97	Top Width (ft)		39.97
Vel Total (ft/s)	1.49	Avg. Vel. (ft/s)		1.49
Max Chl Dpth (ft)	7.11	Hydr. Depth (ft)		4.69
Conv. Total (cfs)	16449.2	Conv. (cfs)		16449.2
Length Wtd. (ft)	579.00	Wetted Per. (ft)		43.34
Min Ch El (ft)	81.64	Shear (lb/sq ft)		0.08
Alpha 0.00	1.00	Stream Power (lb/ft s)	516.63	0.00
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)		9.86
C & E Loss (ft)	0.00	Cum SA (acres)		2.03

CROSS SECTION OUTPUT Profile #ULT 100Y

E. G. Elev (ft)	90.61	Element	Left OB	Channel
Right OB Vel Head (ft)	0.04	Wt. n-Val.		0.045

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W. S. El ev (ft) 580.00	90.56	Reach Len. (ft)	579.00	579.00
Crit W. S. (ft)		Flow Area (sq ft)		264.35
E. G. Slope (ft/ft)	0.000271	Area (sq ft)		264.35
Q Total (cfs)	440.00	Flow (cfs)		440.00
Top Width (ft)	44.66	Top Width (ft)		44.66
Vel Total (ft/s)	1.66	Avg. Vel. (ft/s)		1.66
Max Chl Dpth (ft)	8.92	Hydr. Depth (ft)		5.92
Conv. Total (cfs)	26750.0	Conv. (cfs)		26750.0
Length Wtd. (ft)	579.00	Wetted Per. (ft)		49.28
Min Ch El (ft)	81.64	Shear (lb/sq ft)		0.09
Al pha 0.00	1.00	Stream Power (lb/ft s)	516.63	0.00
Frctn Loss (ft) 0.02	0.13	Cum Volume (acre-ft)	0.09	13.79
C & E Loss (ft) 0.04	0.00	Cum SA (acres)	0.39	2.27

CROSS SECTION

RIVER: ES100
REACH: ES100-00 RS: 1936

INPUT

Description:

Station	Elevation	Data	num=	111	Station	Elevation	Station	Elevation	Station	Elevation
0	91.42	4.97	91.43	9.95	91.56	14.92	91.41	19.9	91.43	
24.87	91.44	29.85	91.47	34.82	91.35	39.79	91.54	44.77	91.58	
49.74	91.32	54.72	91.49	59.69	91.52	64.67	91.45	69.64	91.43	
74.61	91.39	79.59	91.46	84.56	91.53	89.54	91.55	94.51	91.61	
99.49	91.59	104.46	91.58	109.43	91.6	114.41	91.61	119.38	91.57	
124.36	91.47	129.33	91.43	134.3	91.35	139.28	91.22	144.25	91.45	
149.23	91.65	154.2	91.6	159.18	91.62	164.15	91.7	169.12	91.9	
174.1	92.06	179.07	92.5	184.05	93.78	189.02	95.47	194	96.52	
198.97	96.75	203.94	97.23	208.92	97.32	213.89	97.2	218.87	96.57	
223.84	95.01	228.82	94.28	233.79	93.83	238.76	93.79	243.74	93.88	
248.71	94.23	250.96	94.18	253.69	94.12	258.66	92.7	263.64	91.96	
268.61	87.02	273.58	83.22	278.56	81.4	283.53	81.42	288.51	81.78	
293.48	82.69	298.46	84.35	303.43	84.4	308.4	87.4	310.96	89.76	
313.38	91.99	318.35	94.81	323.33	94.64	328.3	94.62	333.28	94.17	
338.25	93.17	343.22	92.46	348.2	92.36	353.17	92.14	358.15	92	
363.12	91.93	368.09	91.94	373.07	91.98	378.04	91.87	383.02	91.74	
387.99	91.72	392.97	91.79	397.94	91.86	402.91	91.94	407.89	91.88	
412.86	91.83	417.84	91.87	422.81	92.33	427.79	92.41	432.76	92.29	
437.73	91.93	442.71	91.76	447.68	91.73	452.66	91.67	457.63	91.71	
462.61	91.73	467.58	91.77	472.55	91.83	477.53	91.86	482.5	91.84	
487.48	91.79	492.45	91.79	497.43	91.77	502.4	91.99	507.37	92.43	
512.35	92.15	517.32	91.73	522.3	91.81	527.27	91.98	532.25	91.95	
537.22	91.99									

ES100 OUTPUT REPORT.pdf

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 263.64 .045 313.38 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 263.64 313.38 550 551 553 .1 .3

CROSS SECTION OUTPUT Profile #EX 10Y

E. G. Elev (ft)	87.79	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	87.77	Reach Len. (ft)	550.00	551.00
553.00 Crit W. S. (ft)		Flow Area (sq ft)		177.89
E. G. Slope (ft/ft)	0.000207	Area (sq ft)		177.89
Q Total (cfs)	214.00	Flow (cfs)		214.00
Top Width (ft)	40.95	Top Width (ft)		40.95
Vel Total (ft/s)	1.20	Avg. Vel. (ft/s)		1.20
Max Chl Dpth (ft)	6.37	Hydr. Depth (ft)		4.34
Conv. Total (cfs)	14860.1	Conv. (cfs)		14860.1
Length Wtd. (ft)	551.00	Wetted Per. (ft)		44.21
Min Ch El (ft)	81.40	Shear (lb/sq ft)		0.05
Alpha 0.00	1.00	Stream Power (lb/ft s)	537.22	0.00
Frctn Loss (ft)	0.11	Cum Volume (acre-ft)		5.99
C & E Loss (ft)	0.00	Cum SA (acres)		1.41

CROSS SECTION OUTPUT Profile #EX 25Y

E. G. Elev (ft)	88.63	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	Wt. n-Val.		0.045
W. S. Elev (ft)	88.60	Reach Len. (ft)	550.00	551.00
553.00 Crit W. S. (ft)		Flow Area (sq ft)		212.64
E. G. Slope (ft/ft)	0.000209	Area (sq ft)		212.64
Q Total (cfs)	279.00	Flow (cfs)		279.00
Top Width (ft)	42.68	Top Width (ft)		42.68
Vel Total (ft/s)	1.31	Avg. Vel. (ft/s)		1.31
Max Chl Dpth (ft)	7.20	Hydr. Depth (ft)		4.98

ES100 OUTPUT REPORT.pdf

Conv. Total (cfs)	19312.4	Conv. (cfs)	19312.4
Length Wtd. (ft)	551.00	Wetted Per. (ft)	46.61
Min Ch El (ft)	81.40	Shear (lb/sq ft)	0.06
Alpha 0.00	1.00	Stream Power (lb/ft s)	537.22
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)	7.18
C & E Loss (ft)	0.00	Cum SA (acres)	1.48

CROSS SECTION OUTPUT Profile #EX 100Y

E. G. Elev (ft)	90.37	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	Wt. n-Val.		0.045
W. S. Elev (ft)	90.33	Reach Len. (ft)	550.00	551.00
553.00 Crit W. S. (ft)		Flow Area (sq ft)		289.70
E. G. Slope (ft/ft)	0.000204	Area (sq ft)		289.70
Q Total (cfs)	431.00	Flow (cfs)		431.00
Top Width (ft)	46.30	Top Width (ft)		46.30
Vel Total (ft/s)	1.49	Avg. Vel. (ft/s)		1.49
Max Chl Dpth (ft)	8.93	Hydr. Depth (ft)		6.26
Conv. Total (cfs)	30207.2	Conv. (cfs)		30207.2
Length Wtd. (ft)	551.00	Wetted Per. (ft)		51.63
Min Ch El (ft)	81.40	Shear (lb/sq ft)		0.07
Alpha 0.00	1.00	Stream Power (lb/ft s)	537.22	0.00
Frctn Loss (ft)	0.11	Cum Volume (acre-ft)	0.06	9.90
0.02 C & E Loss (ft)	0.00	Cum SA (acres)	0.25	1.66
0.04				

CROSS SECTION OUTPUT Profile #ULT 10Y

E. G. Elev (ft)	87.87	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	87.85	Reach Len. (ft)	550.00	551.00
553.00 Crit W. S. (ft)		Flow Area (sq ft)		181.16

ES100 OUTPUT REPORT.pdf

E. G. Slope (ft/ft)	0.000208	Area (sq ft)	181.16
Q Total (cfs)	220.00	Flow (cfs)	220.00
Top Width (ft)	41.11	Top Width (ft)	41.11
Vel Total (ft/s)	1.21	Avg. Vel. (ft/s)	1.21
Max Chl Dpth (ft)	6.45	Hydr. Depth (ft)	4.41
Conv. Total (cfs)	15265.3	Conv. (cfs)	15265.3
Length Wtd. (ft)	551.00	Wetted Per. (ft)	44.44
Min Ch El (ft)	81.40	Shear (lb/sq ft)	0.05
Alpha 0.00	1.00	Stream Power (lb/ft s)	537.22
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)	6.10
C & E Loss (ft)	0.00	Cum SA (acres)	1.41

CROSS SECTION OUTPUT Profile #ULT 25Y

E. G. Elev (ft)	88.64	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	Wt. n-Val.		0.045
W. S. Elev (ft)	88.61	Reach Len. (ft)	550.00	551.00
553.00 Crit W. S. (ft)		Flow Area (sq ft)		213.15
E. G. Slope (ft/ft)	0.000209	Area (sq ft)		213.15
Q Total (cfs)	280.00	Flow (cfs)		280.00
Top Width (ft)	42.71	Top Width (ft)		42.71
Vel Total (ft/s)	1.31	Avg. Vel. (ft/s)		1.31
Max Chl Dpth (ft)	7.21	Hydr. Depth (ft)		4.99
Conv. Total (cfs)	19380.4	Conv. (cfs)		19380.4
Length Wtd. (ft)	551.00	Wetted Per. (ft)		46.65
Min Ch El (ft)	81.40	Shear (lb/sq ft)		0.06
Alpha 0.00	1.00	Stream Power (lb/ft s)	537.22	0.00
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)		7.20
C & E Loss (ft)	0.00	Cum SA (acres)		1.48

CROSS SECTION OUTPUT Profile #ULT 100Y

ES100 OUTPUT REPORT.pdf

E. G. El ev (ft)	90.47	El ement	Left OB	Channel
Right OB Vel Head (ft)	0.03	Wt. n-Val.		0.045
W. S. El ev (ft)	90.43	Reach Len. (ft)	550.00	551.00
553.00 Crit W. S. (ft)		Flow Area (sq ft)		294.43
E. G. Slope (ft/ft)	0.000203	Area (sq ft)		294.43
Q Total (cfs)	440.00	Flow (cfs)		440.00
Top Width (ft)	46.52	Top Width (ft)		46.52
Vel Total (ft/s)	1.49	Avg. Vel. (ft/s)		1.49
Max Chl Dpth (ft)	9.03	Hydr. Depth (ft)		6.33
Conv. Total (cfs)	30916.5	Conv. (cfs)		30916.5
Length Wtd. (ft)	551.00	Wetted Per. (ft)		51.92
Min Ch El (ft)	81.40	Shear (lb/sq ft)		0.07
Alpha 0.00	1.00	Stream Power (lb/ft s)	537.22	0.00
Frctn Loss (ft) 0.02	0.11	Cum Volume (acre-ft)	0.09	10.08
C & E Loss (ft) 0.04	0.00	Cum SA (acres)	0.39	1.67

CROSS SECTION

RIVER: ES100
REACH: ES100-00 RS: 1384

INPUT

Description:

Station	Elevation	Data	num=	130	Station	Elevation	Station	Elevation	Station	Elevation
0	90.91	4.97	90.87	9.94	90.87	14.91	91	19.87	90.72	
24.84	90.75	29.81	90.76	34.78	90.78	39.75	90.78	44.72	90.66	
49.68	90.63	54.65	90.61	59.62	90.69	64.59	90.69	69.56	90.73	
74.53	90.76	79.5	90.79	84.46	90.87	89.43	90.87	94.4	90.88	
99.37	90.85	104.34	90.82	109.31	90.83	114.28	90.85	119.24	90.87	
124.21	90.87	129.18	90.94	134.15	90.93	139.12	90.85	144.09	90.83	
149.06	90.78	154.02	90.73	158.99	90.72	163.96	90.8	168.93	90.91	
173.9	90.86	178.87	90.78	183.83	90.7	188.8	90.59	193.77	90.7	
198.74	90.81	203.71	90.86	208.68	90.91	213.65	90.99	218.61	91.05	
223.58	91.2	228.55	91.25	233.52	91.54	238.49	92.1	243.46	92.64	
248.42	92.81	253.39	93.42	258.36	93.56	263.33	93.38	268.3	93.36	
273.27	92.22	278.24	92.25	283.2	92.01	288.17	92.16	293.14	92.26	
298.11	92.49	300.78	92.49	303.08	92.49	308.05	92.14	313.02	87.99	
317.98	83.88	322.95	83.63	327.92	81.56	332.89	81.55	337.86	81.85	
342.83	81.92	347.79	84.04	352.76	86.85	357.73	90.65	360.78	91.14	
362.7	91.44	367.67	92.79	372.64	93.18	377.61	93.17	382.57	93	
387.54	92.93	392.51	92.55	397.48	91.87	402.45	91.44	407.42	91.34	
412.39	91.29	417.35	91.16	422.32	91.11	427.29	91.11	432.26	91.15	
437.23	91.06	442.2	91.07	447.16	91.14	452.13	90.99	457.1	90.94	

ES100 OUTPUT REPORT.pdf

462.07	91.14	467.04	91.44	472.01	91.67	476.98	91.61	481.94	91.47
486.91	91.26	491.88	91.13	496.85	91.16	501.82	91.17	506.79	91.17
511.75	91.25	516.72	91.26	521.69	91.33	526.66	91.44	531.63	91.56
536.6	91.56	541.57	91.6	546.53	91.65	551.5	91.77	556.47	91.62
561.44	91.59	566.41	91.38	571.38	91.45	576.35	91.41	581.31	91.41
586.28	91.46	591.25	91.35	596.22	91.54	601.19	91.54	606.16	91.66
611.12	91.57	616.09	91.54	621.06	91.55	626.03	91.57	631	91.81

Manning's n	Values	num=	3
Sta	n Val	Sta	n Val
0	.06	308.05	.045
			357.73
			.06

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	308.05	357.73		146	148	149		.1	.3

CROSS SECTION OUTPUT Profile #EX 10Y

E. G. Elev (ft)	87.68	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	87.65	Reach Len. (ft)	146.00	148.00
149.00				
Crit W. S. (ft)		Flow Area (sq ft)		176.30
E. G. Slope (ft/ft)	0.000210	Area (sq ft)		176.30
Q Total (cfs)	214.00	Flow (cfs)		214.00
Top Width (ft)	40.39	Top Width (ft)		40.39
Vel Total (ft/s)	1.21	Avg. Vel. (ft/s)		1.21
Max Chl Dpth (ft)	6.10	Hydr. Depth (ft)		4.37
Conv. Total (cfs)	14770.2	Conv. (cfs)		14770.2
Length Wtd. (ft)	148.00	Wetted Per. (ft)		43.62
Min Ch El (ft)	81.55	Shear (lb/sq ft)		0.05
Alpha	1.00	Stream Power (lb/ft s)	631.00	0.00
0.00				
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)		3.75
C & E Loss (ft)	0.00	Cum SA (acres)		0.89

CROSS SECTION OUTPUT Profile #EX 25Y

E. G. Elev (ft)	88.51	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.03	Wt. n-Val.		0.045
W. S. Elev (ft)	88.48	Reach Len. (ft)	146.00	148.00
149.00				
Crit W. S. (ft)		Flow Area (sq ft)		210.67
E. G. Slope (ft/ft)	0.000213	Area (sq ft)		210.67

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Q Total (cfs)	279.00	Flow (cfs)		279.00
Top Width (ft)	42.47	Top Width (ft)		42.47
Vel Total (ft/s)	1.32	Avg. Vel. (ft/s)		1.32
Max Chl Dpth (ft)	6.93	Hydr. Depth (ft)		4.96
Conv. Total (cfs)	19105.1	Conv. (cfs)		19105.1
Length Wtd. (ft)	148.00	Wetted Per. (ft)		46.29
Min Ch El (ft)	81.55	Shear (lb/sq ft)		0.06
Alpha 0.00	1.00	Stream Power (lb/ft s)	631.00	0.00
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)		4.50
C & E Loss (ft)	0.00	Cum SA (acres)		0.94

CROSS SECTION OUTPUT Profile #EX 100Y

E. G. Elev (ft)	90.25	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	Wt. n-Val.		0.045
W. S. Elev (ft)	90.22	Reach Len. (ft)	146.00	148.00
149.00 Crit W. S. (ft)		Flow Area (sq ft)		288.11
E. G. Slope (ft/ft)	0.000209	Area (sq ft)		288.11
Q Total (cfs)	431.00	Flow (cfs)		431.00
Top Width (ft)	46.82	Top Width (ft)		46.82
Vel Total (ft/s)	1.50	Avg. Vel. (ft/s)		1.50
Max Chl Dpth (ft)	8.67	Hydr. Depth (ft)		6.15
Conv. Total (cfs)	29846.2	Conv. (cfs)		29846.2
Length Wtd. (ft)	148.00	Wetted Per. (ft)		51.85
Min Ch El (ft)	81.55	Shear (lb/sq ft)		0.07
Alpha 0.00	1.00	Stream Power (lb/ft s)	631.00	0.00
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	0.06	6.25
0.02 C & E Loss (ft)	0.00	Cum SA (acres)	0.25	1.07
0.04				

CROSS SECTION OUTPUT Profile #ULT 10Y

ES100 OUTPUT REPORT.pdf

		Element	Left OB	Channel
E. G. Elev (ft)	87.76			
Right OB				
Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	87.73	Reach Len. (ft)	146.00	148.00
149.00				
Crit W. S. (ft)		Flow Area (sq ft)		179.52
E. G. Slope (ft/ft)	0.000211	Area (sq ft)		179.52
Q Total (cfs)	220.00	Flow (cfs)		220.00
Top Width (ft)	40.59	Top Width (ft)		40.59
Vel Total (ft/s)	1.23	Avg. Vel. (ft/s)		1.23
Max Chl Dpth (ft)	6.18	Hydr. Depth (ft)		4.42
Conv. Total (cfs)	15163.0	Conv. (cfs)		15163.0
Length Wtd. (ft)	148.00	Wetted Per. (ft)		43.88
Min Ch El (ft)	81.55	Shear (lb/sq ft)		0.05
Alpha	1.00	Stream Power (lb/ft s)	631.00	0.00
0.00				
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)		3.82
C & E Loss (ft)	0.00	Cum SA (acres)		0.90

CROSS SECTION OUTPUT Profile #ULT 25Y

		Element	Left OB	Channel
E. G. Elev (ft)	88.52			
Right OB				
Vel Head (ft)	0.03	Wt. n-Val.		0.045
W. S. Elev (ft)	88.50	Reach Len. (ft)	146.00	148.00
149.00				
Crit W. S. (ft)		Flow Area (sq ft)		211.18
E. G. Slope (ft/ft)	0.000213	Area (sq ft)		211.18
Q Total (cfs)	280.00	Flow (cfs)		280.00
Top Width (ft)	42.50	Top Width (ft)		42.50
Vel Total (ft/s)	1.33	Avg. Vel. (ft/s)		1.33
Max Chl Dpth (ft)	6.95	Hydr. Depth (ft)		4.97
Conv. Total (cfs)	19171.4	Conv. (cfs)		19171.4
Length Wtd. (ft)	148.00	Wetted Per. (ft)		46.32
Min Ch El (ft)	81.55	Shear (lb/sq ft)		0.06
Alpha	1.00	Stream Power (lb/ft s)	631.00	0.00
0.00				
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)		4.52

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C & E Loss (ft) 0.00 Cum SA (acres) 0.95

CROSS SECTION OUTPUT Profile #ULT 100Y

E. G. Elev (ft)	90.36	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.04	Wt. n-Val.		0.045
W. S. Elev (ft)	90.32	Reach Len. (ft)	146.00	148.00
149.00				
Crit W. S. (ft)		Flow Area (sq ft)		292.93
E. G. Slope (ft/ft)	0.000207	Area (sq ft)		292.93
Q Total (cfs)	440.00	Flow (cfs)		440.00
Top Width (ft)	47.07	Top Width (ft)		47.07
Vel Total (ft/s)	1.50	Avg. Vel. (ft/s)		1.50
Max Chl Dpth (ft)	8.77	Hydr. Depth (ft)		6.22
Conv. Total (cfs)	30553.3	Conv. (cfs)		30553.3
Length Wtd. (ft)	148.00	Wetted Per. (ft)		52.18
Min Ch El (ft)	81.55	Shear (lb/sq ft)		0.07
Alpha	1.00	Stream Power (lb/ft s)	631.00	0.00
0.00				
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	0.09	6.36
0.02				
C & E Loss (ft)	0.00	Cum SA (acres)	0.39	1.08
0.04				

CROSS SECTION

RIVER: ES100
 REACH: ES100-00 RS: 1236

INPUT

Description:

Station	Elevation	Data	num=	131	Station	Elevation	Station	Elevation	Station	Elevation
0	90.45	4.98	90.4	9.95	90.22	14.93	90.26	19.91	90.32	
24.88	90.54	29.86	90.61	34.83	90.72	39.81	90.62	44.79	90.46	
49.76	90.44	54.74	90.46	59.72	90.6	64.69	90.63	69.67	90.69	
74.64	90.72	79.62	90.69	84.6	90.52	89.57	90.41	94.55	90.39	
99.53	90.28	104.5	90.2	109.48	90.28	114.46	90.34	119.43	90.37	
124.41	90.35	129.38	90.33	134.36	90.33	139.34	90.39	144.31	90.47	
149.29	90.55	154.27	90.68	159.24	90.78	164.22	90.72	169.2	90.7	
174.17	90.8	179.15	90.85	184.12	90.77	189.1	90.67	194.08	90.63	
199.05	90.65	204.03	90.61	209.01	90.59	213.98	90.71	218.96	90.81	
223.93	90.86	228.91	90.91	233.89	90.89	238.86	90.98	243.84	90.98	
248.82	90.99	253.79	90.98	258.77	90.95	263.75	90.99	268.72	91.02	

ES100 OUTPUT REPORT.pdf

273.7	91.11	278.67	91.17	283.65	91.56	288.63	91.58	293.6	91.84
298.58	92.04	303.56	92.03	308.53	92.09	313.51	92.6	318.49	92.36
319.26	92.04	323.46	90.3	328.44	90.06	333.41	86.59	338.39	84.19
343.37	82.07	348.34	81.59	353.32	81.56	358.3	82.12	363.27	84.61
368.25	89.47	373.23	89.75	378.2	92.94	380.84	92.9	383.18	92.87
388.15	92.63	393.13	92.58	398.11	92.24	403.08	91.91	408.06	91.52
413.04	91.47	418.01	91.42	422.99	91.38	427.96	91.29	432.94	91.22
437.92	91.21	442.89	91.23	447.87	91.07	452.85	91.07	457.82	91.1
462.8	91.04	467.78	91.05	472.75	91.17	477.73	91.21	482.7	91.24
487.68	91.22	492.66	91.16	497.63	91.14	502.61	91.15	507.59	91.12
512.56	91.14	517.54	91.26	522.52	91.31	527.49	91.52	532.47	91.92
537.44	92.31	542.42	92.46	547.4	92.54	552.37	92.65	557.35	92.54
562.33	92.39	567.3	92.33	572.28	92.21	577.25	92.19	582.23	92.22
587.21	92.28	592.18	92.38	597.16	92.56	602.14	92.79	607.11	92.79
612.09	92.78	617.07	92.79	622.04	92.73	627.02	92.63	631.99	92.61
636.97	92.64								

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 328.44 .045 368.25 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 328.44 368.25 450 449 449 .1 .3

CROSS SECTION OUTPUT Profile #EX 10Y

E. G. Elev (ft)	87.64	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.03	Wt. n-Val.		0.045
W. S. Elev (ft)	87.61	Reach Len. (ft)	450.00	449.00
449.00		Flow Area (sq ft)		147.20
Crit W. S. (ft)		Area (sq ft)		147.20
E. G. Slope (ft/ft)	0.000314	Area (sq ft)		147.20
Q Total (cfs)	214.00	Flow (cfs)		214.00
Top Width (ft)	34.39	Top Width (ft)		34.39
Vel Total (ft/s)	1.45	Avg. Vel. (ft/s)		1.45
Max Chl Dpth (ft)	6.05	Hydr. Depth (ft)		4.28
Conv. Total (cfs)	12084.5	Conv. (cfs)		12084.5
Length Wtd. (ft)	449.00	Wetted Per. (ft)		37.55
Min Ch El (ft)	81.56	Shear (lb/sq ft)		0.08
Alpha	1.00	Stream Power (lb/ft s)	636.97	0.00
0.00		Cum Volume (acre-ft)		3.20
Frctn Loss (ft)	0.13	Cum SA (acres)		0.76
C & E Loss (ft)	0.00			

CROSS SECTION OUTPUT Profile #EX 25Y

ES100 OUTPUT REPORT.pdf

		Element	Left OB	Channel
E. G. Elev (ft)	88.47			
Right OB				
Vel Head (ft)	0.04	Wt. n-Val.		0.045
W. S. Elev (ft)	88.43	Reach Len. (ft)	450.00	449.00
449.00				
Crit W. S. (ft)		Flow Area (sq ft)		176.48
E. G. Slope (ft/ft)	0.000319	Area (sq ft)		176.48
Q Total (cfs)	279.00	Flow (cfs)		279.00
Top Width (ft)	36.42	Top Width (ft)		36.42
Vel Total (ft/s)	1.58	Avg. Vel. (ft/s)		1.58
Max Chl Dpth (ft)	6.87	Hydr. Depth (ft)		4.85
Conv. Total (cfs)	15630.2	Conv. (cfs)		15630.2
Length Wtd. (ft)	449.00	Wetted Per. (ft)		40.18
Min Ch El (ft)	81.56	Shear (lb/sq ft)		0.09
Alpha	1.00	Stream Power (lb/ft s)	636.97	0.00
0.00				
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)		3.85
C & E Loss (ft)	0.00	Cum SA (acres)		0.81

CROSS SECTION OUTPUT Profile #EX 100Y

		Element	Left OB	Channel
E. G. Elev (ft)	90.22			
Right OB				
Vel Head (ft)	0.05	Wt. n-Val.	0.060	0.045
0.060				
W. S. Elev (ft)	90.17	Reach Len. (ft)	450.00	449.00
449.00				
Crit W. S. (ft)		Flow Area (sq ft)	0.12	243.06
2.91				
E. G. Slope (ft/ft)	0.000299	Area (sq ft)	0.12	243.06
2.91				
Q Total (cfs)	431.00	Flow (cfs)	0.01	430.20
0.79				
Top Width (ft)	47.66	Top Width (ft)	2.22	39.81
5.63				
Vel Total (ft/s)	1.75	Avg. Vel. (ft/s)	0.06	1.77
0.27				
Max Chl Dpth (ft)	8.61	Hydr. Depth (ft)	0.05	6.11
0.52				
Conv. Total (cfs)	24937.2	Conv. (cfs)	0.4	24891.1
45.7				
Length Wtd. (ft)	449.00	Wetted Per. (ft)	2.22	44.50
5.76				
Min Ch El (ft)	81.56	Shear (lb/sq ft)	0.00	0.10
0.01				
Alpha	1.02	Stream Power (lb/ft s)	636.97	0.00
0.00				
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)	0.06	5.35

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0.01				
C & E Loss (ft)	0.00	Cum SA (acres)	0.25	0.92
0.03				

CROSS SECTION OUTPUT Profile #ULT 10Y

E. G. Elev (ft)	87.72	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	Wt. n-Val.		0.045
W. S. Elev (ft)	87.69	Reach Len. (ft)	450.00	449.00
449.00 Crit W. S. (ft)		Flow Area (sq ft)		149.93
E. G. Slope (ft/ft)	0.000315	Area (sq ft)		149.93
Q Total (cfs)	220.00	Flow (cfs)		220.00
Top Width (ft)	34.58	Top Width (ft)		34.58
Vel Total (ft/s)	1.47	Avg. Vel. (ft/s)		1.47
Max Chl Dpth (ft)	6.13	Hydr. Depth (ft)		4.34
Conv. Total (cfs)	12405.0	Conv. (cfs)		12405.0
Length Wtd. (ft)	449.00	Wetted Per. (ft)		37.80
Min Ch El (ft)	81.56	Shear (lb/sq ft)		0.08
Alpha	1.00	Stream Power (lb/ft s)	636.97	0.00
0.00 Frctn Loss (ft)	0.13	Cum Volume (acre-ft)		3.26
C & E Loss (ft)	0.00	Cum SA (acres)		0.77

CROSS SECTION OUTPUT Profile #ULT 25Y

E. G. Elev (ft)	88.48	Element	Left OB	Channel
Right OB Vel Head (ft)	0.04	Wt. n-Val.		0.045
W. S. Elev (ft)	88.45	Reach Len. (ft)	450.00	449.00
449.00 Crit W. S. (ft)		Flow Area (sq ft)		176.92
E. G. Slope (ft/ft)	0.000319	Area (sq ft)		176.92
Q Total (cfs)	280.00	Flow (cfs)		280.00
Top Width (ft)	36.45	Top Width (ft)		36.45
Vel Total (ft/s)	1.58	Avg. Vel. (ft/s)		1.58
Max Chl Dpth (ft)	6.89	Hydr. Depth (ft)		4.85

ES100 OUTPUT REPORT.pdf

Conv. Total (cfs)	15684.6	Conv. (cfs)	15684.6
Length Wtd. (ft)	449.00	Wetted Per. (ft)	40.22
Min Ch El (ft)	81.56	Shear (lb/sq ft)	0.09
Alpha	1.00	Stream Power (lb/ft s)	636.97
0.00			
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)	3.86
C & E Loss (ft)	0.00	Cum SA (acres)	0.81

CROSS SECTION OUTPUT Profile #ULT 100Y

E. G. Elev (ft)	90.32	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.05	Wt. n-Val.	0.060	0.045
0.060				
W. S. Elev (ft)	90.27	Reach Len. (ft)	450.00	449.00
449.00				
Crit W. S. (ft)		Flow Area (sq ft)	0.95	247.16
3.50				
E. G. Slope (ft/ft)	0.000294	Area (sq ft)	0.95	247.16
3.50				
Q Total (cfs)	440.00	Flow (cfs)	0.06	438.89
1.04				
Top Width (ft)	65.87	Top Width (ft)	20.27	39.81
5.79				
Vel Total (ft/s)	1.75	Avg. Vel. (ft/s)	0.07	1.78
0.30				
Max Chl Dpth (ft)	8.71	Hydr. Depth (ft)	0.05	6.21
0.60				
Conv. Total (cfs)	25659.1	Conv. (cfs)	3.7	25594.6
60.8				
Length Wtd. (ft)	449.00	Wetted Per. (ft)	20.27	44.50
5.95				
Min Ch El (ft)	81.56	Shear (lb/sq ft)	0.00	0.10
0.01				
Alpha	1.03	Stream Power (lb/ft s)	636.97	0.00
0.00				
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)	0.09	5.44
0.02				
C & E Loss (ft)	0.00	Cum SA (acres)	0.36	0.93
0.03				

Warning: Divided flow computed for this cross-section.

CROSS SECTION

RIVER: ES100
 REACH: ES100-00 RS: 787

INPUT

Description:

Station	Elevation	Data	num=	136	Station	Elevation	Station	Elevation	Station	Elevation	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

ES100 OUTPUT REPORT. pdf

0	89.74	4.97	89.79	9.95	89.82	14.92	89.76	19.9	89.84
24.87	90.25	29.84	90.24	34.82	90.42	39.79	90.39	44.76	90.43
49.74	90.43	54.71	90.66	59.69	90.8	64.66	90.94	69.63	90.97
74.61	90.98	79.58	90.97	84.56	90.97	89.53	90.9	94.5	90.88
99.48	90.86	104.45	90.95	109.42	91.03	114.4	91.04	119.37	91.04
124.35	91.07	129.32	91.05	134.29	91.04	139.27	90.67	144.24	90.36
149.21	90.33	154.19	90.35	159.16	90.37	164.14	90.37	169.11	90.36
174.08	90.36	179.06	90.34	184.03	90.36	189.01	90.37	193.98	90.39
198.95	90.4	203.93	90.48	208.9	90.52	213.87	90.54	218.85	90.57
223.82	90.55	228.8	90.53	233.77	90.43	238.74	90.32	243.72	90.31
248.69	90.34	253.67	90.38	258.64	90.31	263.61	90.37	268.59	90.48
273.56	90.51	278.53	90.6	283.51	90.68	288.48	90.83	293.46	91.33
298.43	91.77	303.4	91.86	308.38	91.86	313.35	91.82	318.33	91.73
323.3	91.81	328.27	91.82	328.55	91.78	333.25	91.22	338.22	88.09
343.19	84.69	348.17	84.1	353.14	81.44	358.12	81.1	363.09	81.17
368.06	83.4	373.04	83.9	378.01	88.03	382.99	92.16	387.96	93.38
388.63	93.38	392.93	93.37	397.91	93.25	402.88	93.45	407.85	92.45
412.83	92.45	417.8	91.29	422.78	91.05	427.75	90.86	432.72	90.85
437.7	90.91	442.67	90.85	447.64	90.88	452.62	90.86	457.59	90.87
462.57	91.18	467.54	91.64	472.51	91.49	477.49	91.45	482.46	91.51
487.44	91.6	492.41	91.57	497.38	91.57	502.36	91.79	507.33	91.8
512.3	91.82	517.28	91.85	522.25	91.84	527.23	91.81	532.2	91.93
537.17	92.23	542.15	92.33	547.12	92.4	552.1	92.29	557.07	92.21
562.04	92.22	567.02	92.19	571.99	92.1	576.96	91.99	581.94	91.94
586.91	92.02	591.89	92.09	596.86	92.24	601.83	92.58	606.81	92.8
611.78	92.87	616.76	93.02	621.73	93.28	626.7	93.43	631.68	93.53
636.65	93.62	641.62	93.67	646.6	93.75	651.57	93.81	656.55	93.81
661.52	93.8								

Manning's n Values
 Sta n Val Sta num= 3
 0 .06 333.25 .045 382.99 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 333.25 382.99 478 479 480 .1 .3

CROSS SECTION OUTPUT Profile #EX 10Y

E. G. Elev (ft)	87.51	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.03	Wt. n-Val.		0.045
W. S. Elev (ft)	87.48	Reach Len. (ft)	478.00	479.00
480.00				
Crit W. S. (ft)		Flow Area (sq ft)		159.43
E. G. Slope (ft/ft)	0.000276	Area (sq ft)		159.43
Q Total (cfs)	214.00	Flow (cfs)		214.00
Top Width (ft)	38.23	Top Width (ft)		38.23
Vel Total (ft/s)	1.34	Avg. Vel. (ft/s)		1.34
Max Chl Dpth (ft)	6.38	Hydr. Depth (ft)		4.17
Conv. Total (cfs)	12892.8	Conv. (cfs)		12892.8
Length Wtd. (ft)	479.00	Wetted Per. (ft)		41.60
Min Ch El (ft)	81.10	Shear (lb/sq ft)		0.07

ES100 OUTPUT REPORT.pdf

Alpha 0.00	1.00	Stream Power (lb/ft s)	661.52	0.00
Frctn Loss (ft)	0.16	Cum Volume (acre-ft)		1.62
C & E Loss (ft)	0.00	Cum SA (acres)		0.39

CROSS SECTION OUTPUT Profile #EX 25Y

E. G. Elev (ft)	88.34	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	Wt. n-Val.		0.045
W. S. Elev (ft)	88.30	Reach Len. (ft)	478.00	479.00
480.00 Crit W. S. (ft)		Flow Area (sq ft)		191.97
E. G. Slope (ft/ft)	0.000275	Area (sq ft)		191.97
Q Total (cfs)	279.00	Flow (cfs)		279.00
Top Width (ft)	40.46	Top Width (ft)		40.46
Vel Total (ft/s)	1.45	Avg. Vel. (ft/s)		1.45
Max Chl Dpth (ft)	7.20	Hydr. Depth (ft)		4.74
Conv. Total (cfs)	16827.9	Conv. (cfs)		16827.9
Length Wtd. (ft)	479.00	Wetted Per. (ft)		44.38
Min Ch El (ft)	81.10	Shear (lb/sq ft)		0.07
Alpha 0.00	1.00	Stream Power (lb/ft s)	661.52	0.00
Frctn Loss (ft)	0.16	Cum Volume (acre-ft)		1.95
C & E Loss (ft)	0.00	Cum SA (acres)		0.41

CROSS SECTION OUTPUT Profile #EX 100Y

E. G. Elev (ft)	90.09	Element	Left OB	Channel
Right OB Vel Head (ft)	0.04	Wt. n-Val.	0.060	0.045
W. S. Elev (ft)	90.05	Reach Len. (ft)	478.00	479.00
480.00 Crit W. S. (ft)		Flow Area (sq ft)	5.40	266.76
E. G. Slope (ft/ft)	0.000258	Area (sq ft)	5.40	266.76
Q Total (cfs)	431.00	Flow (cfs)	0.82	430.18
Top Width (ft)	67.76	Top Width (ft)	22.42	45.33
Vel Total (ft/s)	1.58	Avg. Vel. (ft/s)	0.15	1.61

ES100 OUTPUT REPORT.pdf

Max Chl Dpth (ft)	8.95	Hydr. Depth (ft)	0.24	5.88
Conv. Total (cfs)	26809.1	Conv. (cfs)	51.3	26757.8
Length Wtd. (ft)	479.00	Wetted Per. (ft)	22.74	50.39
Min Ch El (ft)	81.10	Shear (lb/sq ft)	0.00	0.09
Alpha 0.00	1.03	Stream Power (lb/ft s)	661.52	0.00
Frctn Loss (ft)	0.15	Cum Volume (acre-ft)	0.03	2.72
C & E Loss (ft)	0.00	Cum SA (acres)	0.12	0.48

Warning: Divided flow computed for this cross-section.
 Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #ULT 10Y

E. G. Elev (ft)	87.59	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	Wt. n-Val.		0.045
W. S. Elev (ft)	87.56	Reach Len. (ft)	478.00	479.00
480.00 Crit W. S. (ft)		Flow Area (sq ft)		162.46
E. G. Slope (ft/ft)	0.000276	Area (sq ft)		162.46
Q Total (cfs)	220.00	Flow (cfs)		220.00
Top Width (ft)	38.44	Top Width (ft)		38.44
Vel Total (ft/s)	1.35	Avg. Vel. (ft/s)		1.35
Max Chl Dpth (ft)	6.46	Hydr. Depth (ft)		4.23
Conv. Total (cfs)	13247.6	Conv. (cfs)		13247.6
Length Wtd. (ft)	479.00	Wetted Per. (ft)		41.86
Min Ch El (ft)	81.10	Shear (lb/sq ft)		0.07
Alpha 0.00	1.00	Stream Power (lb/ft s)	661.52	0.00
Frctn Loss (ft)	0.16	Cum Volume (acre-ft)		1.65
C & E Loss (ft)	0.00	Cum SA (acres)		0.39

CROSS SECTION OUTPUT Profile #ULT 25Y

E. G. Elev (ft)	88.35	Element	Left OB	Channel
Right OB				

ES100 OUTPUT REPORT.pdf

Vel Head (ft)	0.03	Wt. n-Val.		0.045
W. S. Elev (ft)	88.32	Reach Len. (ft)	478.00	479.00
480.00 Crit W. S. (ft)		Flow Area (sq ft)		192.45
E. G. Slope (ft/ft)	0.000275	Area (sq ft)		192.45
Q Total (cfs)	280.00	Flow (cfs)		280.00
Top Width (ft)	40.50	Top Width (ft)		40.50
Vel Total (ft/s)	1.45	Avg. Vel. (ft/s)		1.45
Max Chl Dpth (ft)	7.22	Hydr. Depth (ft)		4.75
Conv. Total (cfs)	16888.1	Conv. (cfs)		16888.1
Length Wtd. (ft)	479.00	Wetted Per. (ft)		44.42
Min Ch El (ft)	81.10	Shear (lb/sq ft)		0.07
Alpha 0.00	1.00	Stream Power (lb/ft s)	661.52	0.00
Frctn Loss (ft)	0.16	Cum Volume (acre-ft)		1.95
C & E Loss (ft)	0.00	Cum SA (acres)		0.41

CROSS SECTION OUTPUT Profile #ULT 100Y

E. G. Elev (ft)	90.19	Element	Left OB	Channel
Right OB Vel Head (ft)	0.04	Wt. n-Val.	0.060	0.045
W. S. Elev (ft)	90.15	Reach Len. (ft)	478.00	479.00
480.00 Crit W. S. (ft)		Flow Area (sq ft)	7.82	271.53
E. G. Slope (ft/ft)	0.000256	Area (sq ft)	7.82	271.53
Q Total (cfs)	440.00	Flow (cfs)	1.46	438.54
Top Width (ft)	69.32	Top Width (ft)	23.69	45.63
Vel Total (ft/s)	1.58	Avg. Vel. (ft/s)	0.19	1.62
Max Chl Dpth (ft)	9.05	Hydr. Depth (ft)	0.33	5.95
Conv. Total (cfs)	27519.6	Conv. (cfs)	91.3	27428.3
Length Wtd. (ft)	479.00	Wetted Per. (ft)	24.12	50.75
Min Ch El (ft)	81.10	Shear (lb/sq ft)	0.01	0.09
Alpha 0.00	1.05	Stream Power (lb/ft s)	661.52	0.00
Frctn Loss (ft)	0.15	Cum Volume (acre-ft)	0.04	2.77
C & E Loss (ft)	0.00	Cum SA (acres)	0.13	0.49

ES100 OUTPUT REPORT.pdf

Warning: Divided flow computed for this cross-section.
 Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: ES100
 REACH: ES100-00 RS: 308

INPUT

Description:

Station	Elevation	Data	num=	132	Station	Elevation	Station	Elevation	Station	Elevation
0	90.62	4.98	90.64	9.97	90.6	14.95	90.65	19.94	90.79	
24.92	90.87	29.91	90.93	34.89	90.83	39.88	90.56	44.86	90.52	
49.85	90.57	54.83	90.51	59.82	90.43	64.8	90.5	69.79	90.51	
74.77	90.57	79.76	90.51	84.74	90.4	89.73	90.44	94.71	90.6	
99.7	90.96	104.68	91.28	109.67	91.59	114.65	91.55	119.63	91.53	
124.62	91.61	129.6	91.66	134.59	91.52	139.57	91.09	144.56	90.89	
149.54	90.72	154.53	90.64	159.51	90.39	164.5	90.31	169.48	90.36	
174.47	90.26	179.45	90.27	184.44	90.4	189.42	90.67	194.41	90.58	
199.39	90.58	204.38	90.54	209.36	90.46	214.35	90.33	219.33	90.33	
224.32	90.34	229.3	90.37	234.28	90.31	239.27	90.3	244.25	90.44	
249.24	90.46	254.22	90.76	259.21	90.79	264.19	91.24	269.18	92.07	
274.16	92.1	279.15	92.07	284.13	92.05	289.12	92.03	294.1	91.92	
299.09	92.04	304.07	92.06	309.06	91.97	314.04	91.9	314.91	91.69	
319.03	90.68	324.01	90.58	329	87.22	333.98	83.55	338.96	82.24	
343.95	82.12	348.93	81.61	353.92	81.87	358.9	85	363.89	89.32	
368.87	90.11	373.86	92.58	375.03	92.73	378.84	93.21	383.83	93.02	
388.81	92.97	393.8	92.7	398.78	92.15	403.77	91.44	408.75	91.27	
413.74	91.07	418.72	90.92	423.71	90.92	428.69	90.93	433.68	90.86	
438.66	90.95	443.65	90.9	448.63	90.87	453.61	90.86	458.6	90.87	
463.58	90.84	468.57	90.71	473.55	90.64	478.54	90.63	483.52	90.74	
488.51	90.79	493.49	90.78	498.48	90.76	503.46	90.69	508.45	90.67	
513.43	90.68	518.42	90.66	523.4	90.63	528.39	90.65	533.37	90.78	
538.36	90.84	543.34	90.79	548.33	90.78	553.31	90.77	558.3	90.73	
563.28	90.75	568.26	90.78	573.25	90.8	578.23	90.83	583.22	90.84	
588.2	90.84	593.19	90.9	598.17	90.96	603.16	90.95	608.14	90.91	
613.13	90.87	618.11	90.84	623.1	90.93	628.08	90.91	633.07	90.85	
638.05	90.81	643.04	90.83							

Manning's n	Values	num=	3
Station	n Val	Station	n Val
0	.06	324.01	.045
		368.87	.06

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	324.01	368.87		316	308	300		.1	.3

CROSS SECTION OUTPUT Profile #EX 10Y

E. G. Elev (ft)	87.35	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.04	Wt. n-Val.		0.045
W. S. Elev (ft)	87.31	Reach Len. (ft)		
Crit W. S. (ft)	83.64	Flow Area (sq ft)		134.38

ES100 OUTPUT REPORT.pdf

E. G. Slope (ft/ft)	0.000400	Area (sq ft)		134.38
Q Total (cfs)	214.00	Flow (cfs)		214.00
Top Width (ft)	32.70	Top Width (ft)		32.70
Vel Total (ft/s)	1.59	Avg. Vel. (ft/s)		1.59
Max Chl Dpth (ft)	5.70	Hydr. Depth (ft)		4.11
Conv. Total (cfs)	10699.0	Conv. (cfs)		10699.0
Length Wtd. (ft)		Wetted Per. (ft)		35.89
Min Ch El (ft)	81.61	Shear (lb/sq ft)		0.09
Alpha 0.00	1.00	Stream Power (lb/ft s)	643.04	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)		
C & E Loss (ft)		Cum SA (acres)		

CROSS SECTION OUTPUT Profile #EX 25Y

E. G. Elev (ft)	88.18	Element	Left OB	Channel
Right OB Vel Head (ft)	0.05	Wt. n-Val.		0.045
W. S. Elev (ft)	88.13	Reach Len. (ft)		
Crit W. S. (ft)	83.92	Flow Area (sq ft)		162.27
E. G. Slope (ft/ft)	0.000400	Area (sq ft)		162.27
Q Total (cfs)	279.00	Flow (cfs)		279.00
Top Width (ft)	34.87	Top Width (ft)		34.87
Vel Total (ft/s)	1.72	Avg. Vel. (ft/s)		1.72
Max Chl Dpth (ft)	6.52	Hydr. Depth (ft)		4.65
Conv. Total (cfs)	13949.2	Conv. (cfs)		13949.2
Length Wtd. (ft)		Wetted Per. (ft)		38.63
Min Ch El (ft)	81.61	Shear (lb/sq ft)		0.10
Alpha 0.00	1.00	Stream Power (lb/ft s)	643.04	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)		
C & E Loss (ft)		Cum SA (acres)		

CROSS SECTION OUTPUT Profile #EX 100Y

ES100 OUTPUT REPORT.pdf

E. G. Elev (ft)	89.93	Element	Left OB	Channel
Right OB Vel Head (ft)	0.06	Wt. n-Val.		0.045
W. S. Elev (ft)	89.88	Reach Len. (ft)		
Crit W. S. (ft)	84.49	Flow Area (sq ft)		228.01
E. G. Slope (ft/ft)	0.000401	Area (sq ft)		228.01
Q Total (cfs)	431.00	Flow (cfs)		431.00
Top Width (ft)	42.36	Top Width (ft)		42.36
Vel Total (ft/s)	1.89	Avg. Vel. (ft/s)		1.89
Max Chl Dpth (ft)	8.27	Hydr. Depth (ft)		5.38
Conv. Total (cfs)	21532.0	Conv. (cfs)		21532.0
Length Wtd. (ft)		Wetted Per. (ft)		47.14
Min Ch El (ft)	81.61	Shear (lb/sq ft)		0.12
Alpha 0.00	1.00	Stream Power (lb/ft s)	643.04	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)		
C & E Loss (ft)		Cum SA (acres)		

CROSS SECTION OUTPUT Profile #ULT 10Y

E. G. Elev (ft)	87.43	Element	Left OB	Channel
Right OB Vel Head (ft)	0.04	Wt. n-Val.		0.045
W. S. Elev (ft)	87.39	Reach Len. (ft)		
Crit W. S. (ft)	83.66	Flow Area (sq ft)		136.96
E. G. Slope (ft/ft)	0.000401	Area (sq ft)		136.96
Q Total (cfs)	220.00	Flow (cfs)		220.00
Top Width (ft)	32.90	Top Width (ft)		32.90
Vel Total (ft/s)	1.61	Avg. Vel. (ft/s)		1.61
Max Chl Dpth (ft)	5.78	Hydr. Depth (ft)		4.16
Conv. Total (cfs)	10990.0	Conv. (cfs)		10990.0
Length Wtd. (ft)		Wetted Per. (ft)		36.15
Min Ch El (ft)	81.61	Shear (lb/sq ft)		0.09
Alpha	1.00	Stream Power (lb/ft s)	643.04	0.00

ES100 OUTPUT REPORT.pdf

0.00
 Frctn Loss (ft) Cum Volume (acre-ft)
 C & E Loss (ft) Cum SA (acres)

CROSS SECTION OUTPUT Profile #ULT 25Y

E. G. Elev (ft)	88.19	Element	Left OB	Channel
Right OB Vel Head (ft)	0.05	Wt. n-Val.		0.045
W. S. Elev (ft)	88.14	Reach Len. (ft)		
Crit W. S. (ft)	83.93	Flow Area (sq ft)		162.69
E. G. Slope (ft/ft)	0.000400	Area (sq ft)		162.69
Q Total (cfs)	280.00	Flow (cfs)		280.00
Top Width (ft)	34.91	Top Width (ft)		34.91
Vel Total (ft/s)	1.72	Avg. Vel. (ft/s)		1.72
Max Chl Dpth (ft)	6.53	Hydr. Depth (ft)		4.66
Conv. Total (cfs)	13999.3	Conv. (cfs)		13999.3
Length Wtd. (ft)		Wetted Per. (ft)		38.67
Min Ch El (ft)	81.61	Shear (lb/sq ft)		0.11
Alpha 0.00	1.00	Stream Power (lb/ft s)	643.04	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)		
C & E Loss (ft)		Cum SA (acres)		

CROSS SECTION OUTPUT Profile #ULT 100Y

E. G. Elev (ft)	90.04	Element	Left OB	Channel
Right OB Vel Head (ft)	0.06	Wt. n-Val.		0.045
W. S. Elev (ft)	89.98	Reach Len. (ft)		
Crit W. S. (ft)	84.52	Flow Area (sq ft)		232.52
E. G. Slope (ft/ft)	0.000401	Area (sq ft)		232.52
Q Total (cfs)	440.00	Flow (cfs)		440.00
Top Width (ft)	43.19	Top Width (ft)		43.19
Vel Total (ft/s)	1.89	Avg. Vel. (ft/s)		1.89

ES100 OUTPUT REPORT.pdf

Max Chl Dpth (ft)	8.37	Hydr. Depth (ft)	5.38
Conv. Total (cfs)	21980.3	Conv. (cfs)	21980.3
Length Wtd. (ft)		Wetted Per. (ft)	48.01
Min Ch El (ft)	81.61	Shear (lb/sq ft)	0.12
Alpha 0.00	1.00	Stream Power (lb/ft s)	643.04
Frctn Loss (ft)		Cum Volume (acre-ft)	0.00
C & E Loss (ft)		Cum SA (acres)	

CROSS SECTION

RIVER: ES101
 REACH: ES101-00 RS: 4064

INPUT

Description:

Station	Elevation	Data	num=	48
Sta	El ev	Sta	El ev	Sta
0	100.99	4.9	100.62	9.8
21.67	101.96	24.5	101.9	29.4
44.1	99.54	49	94.66	53.9
68.6	89.87	73.5	93.25	78.4
88.2	96.29	93.1	96.41	98
112.7	96.09	117.6	96.02	122.5
137.2	96.22	142.1	96.23	147
161.7	96.3	166.6	96.16	171.5
186.21	96.22	191.11	96.34	196.01
210.71	95.99	215.61	96.01	220.51

Manning's n	Values	num=	3
Sta	n Val	Sta	n Val
0	.06	49	.045
		78.4	.06

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	49	78.4		412	412	407	.1	.3	

CROSS SECTION OUTPUT Profile #EX 10Y

E. G. El ev (ft)	93.24	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. El ev (ft)	93.23	Reach Len. (ft)	412.00	412.00
407.00				
Crit W. S. (ft)		Flow Area (sq ft)		73.85
E. G. Slope (ft/ft)	0.000102	Area (sq ft)		73.85
Q Total (cfs)	50.00	Flow (cfs)		50.00
Top Width (ft)	22.94	Top Width (ft)		22.94
Vel Total (ft/s)	0.68	Avg. Vel. (ft/s)		0.68

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Max Chl Dpth (ft)	4.71	Hydr. Depth (ft)		3.22
Conv. Total (cfs)	4942.4	Conv. (cfs)		4942.4
Length Wtd. (ft)	412.00	Wetted Per. (ft)		25.59
Min Ch El (ft)	88.52	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	220.51	0.00
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)		4.91
C & E Loss (ft)	0.00	Cum SA (acres)		2.15

CROSS SECTION OUTPUT Profile #EX 25Y

E. G. Elev (ft)	93.62	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	93.61	Reach Len. (ft)	412.00	412.00
407.00 Crit W. S. (ft)		Flow Area (sq ft)		82.78
E. G. Slope (ft/ft)	0.000130	Area (sq ft)		82.78
Q Total (cfs)	66.00	Flow (cfs)		66.00
Top Width (ft)	24.01	Top Width (ft)		24.01
Vel Total (ft/s)	0.80	Avg. Vel. (ft/s)		0.80
Max Chl Dpth (ft)	5.09	Hydr. Depth (ft)		3.45
Conv. Total (cfs)	5781.1	Conv. (cfs)		5781.1
Length Wtd. (ft)	412.00	Wetted Per. (ft)		26.91
Min Ch El (ft)	88.52	Shear (lb/sq ft)		0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	220.51	0.00
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)		5.62
C & E Loss (ft)	0.00	Cum SA (acres)		2.28

CROSS SECTION OUTPUT Profile #EX 100Y

E. G. Elev (ft)	94.29	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	94.27	Reach Len. (ft)	412.00	412.00
407.00				

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Crit W. S. (ft)		Flow Area (sq ft)		99.39
E. G. Slope (ft/ft)	0.000185	Area (sq ft)		99.39
Q Total (cfs)	101.00	Flow (cfs)		101.00
Top Width (ft)	25.89	Top Width (ft)		25.89
Vel Total (ft/s)	1.02	Avg. Vel. (ft/s)		1.02
Max Chl Dpth (ft)	5.75	Hydr. Depth (ft)		3.84
Conv. Total (cfs)	7421.4	Conv. (cfs)		7421.4
Length Wtd. (ft)	412.00	Wetted Per. (ft)		29.23
Min Ch El (ft)	88.52	Shear (lb/sq ft)		0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	220.51	0.00
Frctn Loss (ft) 0.01	0.07	Cum Volume (acre-ft)	0.01	6.99
C & E Loss (ft) 0.04	0.00	Cum SA (acres)	0.02	2.46

CROSS SECTION OUTPUT Profile #ULT 10Y

E. G. Elev (ft)	93.24	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	93.23	Reach Len. (ft)	412.00	412.00
407.00 Crit W. S. (ft)		Flow Area (sq ft)		73.85
E. G. Slope (ft/ft)	0.000102	Area (sq ft)		73.85
Q Total (cfs)	50.00	Flow (cfs)		50.00
Top Width (ft)	22.94	Top Width (ft)		22.94
Vel Total (ft/s)	0.68	Avg. Vel. (ft/s)		0.68
Max Chl Dpth (ft)	4.71	Hydr. Depth (ft)		3.22
Conv. Total (cfs)	4942.4	Conv. (cfs)		4942.4
Length Wtd. (ft)	412.00	Wetted Per. (ft)		25.59
Min Ch El (ft)	88.52	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	220.51	0.00
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)		4.91
C & E Loss (ft)	0.00	Cum SA (acres)		2.15

CROSS SECTION OUTPUT Profile #ULT 25Y

E. G. Elev (ft)	93.71	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	93.70	Reach Len. (ft)	412.00	412.00
407.00 Crit W. S. (ft)		Flow Area (sq ft)		84.86
E. G. Slope (ft/ft)	0.000137	Area (sq ft)		84.86
Q Total (cfs)	70.00	Flow (cfs)		70.00
Top Width (ft)	24.25	Top Width (ft)		24.25
Vel Total (ft/s)	0.82	Avg. Vel. (ft/s)		0.82
Max Chl Dpth (ft)	5.18	Hydr. Depth (ft)		3.50
Conv. Total (cfs)	5981.2	Conv. (cfs)		5981.2
Length Wtd. (ft)	412.00	Wetted Per. (ft)		27.21
Min Ch El (ft)	88.52	Shear (lb/sq ft)		0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	220.51	0.00
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	0.00	5.79
0.00 C & E Loss (ft)	0.00	Cum SA (acres)	0.00	2.30

CROSS SECTION OUTPUT Profile #ULT 100Y

E. G. Elev (ft)	94.44	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	94.42	Reach Len. (ft)	412.00	412.00
407.00 Crit W. S. (ft)		Flow Area (sq ft)		103.26
E. G. Slope (ft/ft)	0.000198	Area (sq ft)		103.26
Q Total (cfs)	110.00	Flow (cfs)		110.00
Top Width (ft)	26.31	Top Width (ft)		26.31
Vel Total (ft/s)	1.07	Avg. Vel. (ft/s)		1.07
Max Chl Dpth (ft)	5.90	Hydr. Depth (ft)		3.93
Conv. Total (cfs)	7817.2	Conv. (cfs)		7817.2
Length Wtd. (ft)	412.00	Wetted Per. (ft)		29.75
Min Ch El (ft)	88.52	Shear (lb/sq ft)		0.04

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Alpha	1.00	Stream Power (lb/ft s)	220.51	0.00
0.00 Frctn Loss (ft)	0.07	Cum Volume (acre-ft)	0.01	7.31
0.02 C & E Loss (ft)	0.00	Cum SA (acres)	0.03	2.50
0.06				

CROSS SECTION

RIVER: ES101
 REACH: ES101-00 RS: 3652

INPUT

Description:

Station	Elevation	Data	num=	44					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	102.26	4.9	102.14	9.8	101.78	14.7	101.84	19.6	101.05
24.5	101.02	27.49	99.87	29.41	99.14	34.31	97.05	39.21	95.7
44.11	95.6	49.01	92.59	53.91	90.13	58.81	89.29	63.71	89.17
68.61	89.44	73.51	91.11	78.42	93.65	83.32	94.72	87.49	94.92
88.22	94.95	93.12	95.18	98.02	95.19	102.92	95.14	107.82	95.15
112.72	95.2	117.62	95.32	122.52	95.42	127.42	95.36	132.33	95.39
137.23	95.41	142.13	95.42	147.03	95.25	151.93	95.28	156.83	95.53
161.73	95.39	166.63	95.38	171.53	95.44	176.43	95.26	181.34	95.27
186.24	95.19	191.14	95.34	196.04	95.37	200.94	95.25		

Manning's n	Values	num=	3
Sta	n Val	Sta	n Val
0	.06	44.11	.045
		78.42	.06

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	44.11	78.42		422	421		.1	.3

CROSS SECTION OUTPUT Profile #EX 10Y

E. G. Elev (ft)	93.20	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	93.19	Reach Len. (ft)	422.00	422.00
421.00				
Crit W. S. (ft)		Flow Area (sq ft)		83.23
E. G. Slope (ft/ft)	0.000089	Area (sq ft)		83.23
Q Total (cfs)	50.00	Flow (cfs)		50.00
Top Width (ft)	29.50	Top Width (ft)		29.50
Vel Total (ft/s)	0.60	Avg. Vel. (ft/s)		0.60
Max Chl Dpth (ft)	4.02	Hydr. Depth (ft)		2.82
Conv. Total (cfs)	5295.6	Conv. (cfs)		5295.6
Length Wtd. (ft)	422.00	Wetted Per. (ft)		31.11
Min Ch El (ft)	89.17	Shear (lb/sq ft)		0.01

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Alpha 0.00	1.00	Stream Power (lb/ft s)	200.94	0.00
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)		4.16
C & E Loss (ft)	0.00	Cum SA (acres)		1.91

CROSS SECTION OUTPUT Profile #EX 25Y

E. G. Elev (ft)	93.57	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	93.56	Reach Len. (ft)	422.00	422.00
421.00 Crit W. S. (ft)		Flow Area (sq ft)		94.42
E. G. Slope (ft/ft)	0.000109	Area (sq ft)		94.42
Q Total (cfs)	66.00	Flow (cfs)		66.00
Top Width (ft)	30.82	Top Width (ft)		30.82
Vel Total (ft/s)	0.70	Avg. Vel. (ft/s)		0.70
Max Chl Dpth (ft)	4.39	Hydr. Depth (ft)		3.06
Conv. Total (cfs)	6331.3	Conv. (cfs)		6331.3
Length Wtd. (ft)	422.00	Wetted Per. (ft)		32.63
Min Ch El (ft)	89.17	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	200.94	0.00
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)		4.78
C & E Loss (ft)	0.00	Cum SA (acres)		2.02

CROSS SECTION OUTPUT Profile #EX 100Y

E. G. Elev (ft)	94.22	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.		0.045
0.060 W. S. Elev (ft)	94.21	Reach Len. (ft)	422.00	422.00
421.00 Crit W. S. (ft)		Flow Area (sq ft)		114.91
0.72 E. G. Slope (ft/ft)	0.000140	Area (sq ft)		114.91
0.72 Q Total (cfs)	101.00	Flow (cfs)		100.91
0.09 Top Width (ft)	34.62	Top Width (ft)		32.05
2.57 Vel Total (ft/s)	0.87	Avg. Vel. (ft/s)		0.88

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0.12 Max Chl Dpth (ft)	5.04	Hydr. Depth (ft)		3.59
0.28 Conv. Total (cfs)	8541.5	Conv. (cfs)		8533.9
7.6 Length Wtd. (ft)	422.00	Wetted Per. (ft)		34.07
2.63 Min Ch El (ft)	89.17	Shear (lb/sq ft)		0.03
0.00 Alpha	1.01	Stream Power (lb/ft s)	200.94	0.00
0.00 Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	0.01	5.98
0.01 C & E Loss (ft)	0.00	Cum SA (acres)	0.02	2.18
0.03				

CROSS SECTION OUTPUT Profile #ULT 10Y

E. G. Elev (ft)	93.20	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	93.19	Reach Len. (ft)	422.00	422.00
421.00 Crit W. S. (ft)		Flow Area (sq ft)		83.23
E. G. Slope (ft/ft)	0.000089	Area (sq ft)		83.23
Q Total (cfs)	50.00	Flow (cfs)		50.00
Top Width (ft)	29.50	Top Width (ft)		29.50
Vel Total (ft/s)	0.60	Avg. Vel. (ft/s)		0.60
Max Chl Dpth (ft)	4.02	Hydr. Depth (ft)		2.82
Conv. Total (cfs)	5295.6	Conv. (cfs)		5295.6
Length Wtd. (ft)	422.00	Wetted Per. (ft)		31.11
Min Ch El (ft)	89.17	Shear (lb/sq ft)		0.01
Alpha	1.00	Stream Power (lb/ft s)	200.94	0.00
0.00 Frctn Loss (ft)	0.04	Cum Volume (acre-ft)		4.16
C & E Loss (ft)	0.00	Cum SA (acres)		1.91

CROSS SECTION OUTPUT Profile #ULT 25Y

E. G. Elev (ft)	93.65	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	93.65	Reach Len. (ft)	422.00	422.00
421.00				

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Crit W. S. (ft)		Flow Area (sq ft)		97.03
E. G. Slope (ft/ft)	0.000113	Area (sq ft)		97.03
Q Total (cfs)	70.00	Flow (cfs)		70.00
Top Width (ft)	31.12	Top Width (ft)		31.12
Vel Total (ft/s)	0.72	Avg. Vel. (ft/s)		0.72
Max Chl Dpth (ft)	4.48	Hydr. Depth (ft)		3.12
Conv. Total (cfs)	6579.3	Conv. (cfs)		6579.3
Length Wtd. (ft)	422.00	Wetted Per. (ft)		32.98
Min Ch El (ft)	89.17	Shear (lb/sq ft)		0.02
Alpha	1.00	Stream Power (lb/ft s)	200.94	0.00
0.00				
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	0.00	4.93
0.00				
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	2.04

CROSS SECTION OUTPUT Profile #ULT 100Y

E. G. Elev (ft)	94.37	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	Wt. n-Val.		0.045
0.060				
W. S. Elev (ft)	94.36	Reach Len. (ft)	422.00	422.00
421.00				
Crit W. S. (ft)		Flow Area (sq ft)		119.56
1.14				
E. G. Slope (ft/ft)	0.000147	Area (sq ft)		119.56
1.14				
Q Total (cfs)	110.00	Flow (cfs)		109.83
0.17				
Top Width (ft)	35.52	Top Width (ft)		32.29
3.24				
Vel Total (ft/s)	0.91	Avg. Vel. (ft/s)		0.92
0.15				
Max Chl Dpth (ft)	5.19	Hydr. Depth (ft)		3.70
0.35				
Conv. Total (cfs)	9083.0	Conv. (cfs)		9069.1
13.9				
Length Wtd. (ft)	422.00	Wetted Per. (ft)		34.34
3.31				
Min Ch El (ft)	89.17	Shear (lb/sq ft)		0.03
0.00				
Alpha	1.01	Stream Power (lb/ft s)	200.94	0.00
0.00				
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)	0.01	6.26
0.01				
C & E Loss (ft)	0.00	Cum SA (acres)	0.03	2.22
0.04				

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CROSS SECTION

RIVER: ES101
 REACH: ES101-00

RS: 3230

INPUT

Description:

Station	Elevation	Data	num=	45	Station	Elevation	Station	Elevation	Station	Elevation
0	102.56	4.96	102.33	9.92	102.03	14.88	101.27	19.85	99.38	
24.2	98.66	24.81	98.56	29.77	96.98	34.73	95.09	39.69	93.54	
44.66	92.64	49.62	91.44	54.58	89.75	59.54	88.6	64.5	88.2	
69.46	89.91	74.43	93.6	79.39	95.27	84.21	95.36	84.35	95.37	
89.31	95.48	94.27	95.6	99.23	95.43	104.2	95.44	109.16	95.51	
114.12	95.5	119.08	95.43	124.04	95.38	129	95.41	133.97	95.4	
138.93	95.35	143.89	95.41	148.85	95.47	153.81	95.5	158.77	95.69	
163.74	95.69	168.7	95.91	173.66	95.93	178.62	95.95	183.58	95.83	
188.54	95.7	193.51	95.64	198.47	95.53	203.43	95.45	208.39	95.38	

Manning's n	Values	num=	3
0	.06	39.69	.045
		74.43	.06

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	39.69	74.43		627	627		.1	.3

CROSS SECTION OUTPUT Profile #EX 10Y

E. G. Elev (ft)	93.16	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	Wt. n-Val.		0.045
W. S. Elev (ft)	93.16	Reach Len. (ft)	627.00	627.00
626.00				
Crit W. S. (ft)		Flow Area (sq ft)		89.74
E. G. Slope (ft/ft)	0.000078	Area (sq ft)		89.74
Q Total (cfs)	50.00	Flow (cfs)		50.00
Top Width (ft)	32.02	Top Width (ft)		32.02
Vel Total (ft/s)	0.56	Avg. Vel. (ft/s)		0.56
Max Chl Dpth (ft)	4.96	Hydr. Depth (ft)		2.80
Conv. Total (cfs)	5659.4	Conv. (cfs)		5659.4
Length Wtd. (ft)	627.00	Wetted Per. (ft)		34.00
Min Ch El (ft)	88.20	Shear (lb/sq ft)		0.01
Alpha	1.00	Stream Power (lb/ft s)	208.39	0.00
0.00				
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)		3.33
C & E Loss (ft)	0.00	Cum SA (acres)		1.61

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Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #EX 25Y

E. G. Elev (ft)	93.53	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	93.52	Reach Len. (ft)	627.00	627.00
626.00				
Crit W. S. (ft)		Flow Area (sq ft)		101.81
E. G. Slope (ft/ft)	0.000099	Area (sq ft)		101.81
Q Total (cfs)	66.00	Flow (cfs)		66.00
Top Width (ft)	34.51	Top Width (ft)		34.51
Vel Total (ft/s)	0.65	Avg. Vel. (ft/s)		0.65
Max Chl Dpth (ft)	5.32	Hydr. Depth (ft)		2.95
Conv. Total (cfs)	6644.2	Conv. (cfs)		6644.2
Length Wtd. (ft)	627.00	Wetted Per. (ft)		36.64
Min Ch El (ft)	88.20	Shear (lb/sq ft)		0.02
Alpha	1.00	Stream Power (lb/ft s)	208.39	0.00
0.00				
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)		3.83
C & E Loss (ft)	0.00	Cum SA (acres)		1.70

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #EX 100Y

E. G. Elev (ft)	94.17	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	Wt. n-Val.	0.060	0.045
0.060				
W. S. Elev (ft)	94.16	Reach Len. (ft)	627.00	627.00
626.00				
Crit W. S. (ft)		Flow Area (sq ft)	0.61	124.02
0.46				
E. G. Slope (ft/ft)	0.000121	Area (sq ft)	0.61	124.02
0.46				
Q Total (cfs)	101.00	Flow (cfs)	0.07	100.87
0.05				
Top Width (ft)	38.38	Top Width (ft)	1.98	34.74
1.66				
Vel Total (ft/s)	0.81	Avg. Vel. (ft/s)	0.12	0.81
0.11				

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Max Chl Dpth (ft) 0.28	5.96	Hydr. Depth (ft)	0.31	3.57
Conv. Total (cfs) 4.7	9200.3	Conv. (cfs)	6.7	9188.9
Length Wtd. (ft) 1.75	627.00	Wetted Per. (ft)	2.07	36.90
Min Ch El (ft) 0.00	88.20	Shear (lb/sq ft)	0.00	0.03
Alpha 0.00	1.01	Stream Power (lb/ft s)	208.39	0.00
Frctn Loss (ft) 0.00	0.11	Cum Volume (acre-ft)	0.00	4.82
C & E Loss (ft) 0.01	0.00	Cum SA (acres)	0.01	1.86

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 10Y

E. G. Elev (ft) Right OB	93.16	Element	Left OB	Channel
Vel Head (ft)	0.00	Wt. n-Val.		0.045
W. S. Elev (ft) 626.00	93.16	Reach Len. (ft)	627.00	627.00
Crit W. S. (ft)		Flow Area (sq ft)		89.74
E. G. Slope (ft/ft)	0.000078	Area (sq ft)		89.74
Q Total (cfs)	50.00	Flow (cfs)		50.00
Top Width (ft)	32.02	Top Width (ft)		32.02
Vel Total (ft/s)	0.56	Avg. Vel. (ft/s)		0.56
Max Chl Dpth (ft)	4.96	Hydr. Depth (ft)		2.80
Conv. Total (cfs)	5659.4	Conv. (cfs)		5659.4
Length Wtd. (ft)	627.00	Wetted Per. (ft)		34.00
Min Ch El (ft)	88.20	Shear (lb/sq ft)		0.01
Alpha 0.00	1.00	Stream Power (lb/ft s)	208.39	0.00
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)		3.33
C & E Loss (ft)	0.00	Cum SA (acres)		1.61

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 25Y

ES100 OUTPUT REPORT.pdf

E. G. Elev (ft)	93.61	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.	0.060	0.045
W. S. Elev (ft)	93.60	Reach Len. (ft)	627.00	627.00
626.00 Crit W. S. (ft)		Flow Area (sq ft)	0.01	104.67
E. G. Slope (ft/ft)	0.000102	Area (sq ft)	0.01	104.67
0.00 Q Total (cfs)	70.00	Flow (cfs)	0.00	70.00
Top Width (ft)	34.94	Top Width (ft)	0.20	34.74
Vel Total (ft/s)	0.67	Avg. Vel. (ft/s)	0.02	0.67
Max Chl Dpth (ft)	5.40	Hydr. Depth (ft)	0.03	3.01
Conv. Total (cfs)	6926.3	Conv. (cfs)	0.0	6926.3
Length Wtd. (ft)	627.00	Wetted Per. (ft)	0.21	36.90
Min Ch El (ft)	88.20	Shear (lb/sq ft)	0.00	0.02
Alpha	1.00	Stream Power (lb/ft s)	208.39	0.00
0.00 Frctn Loss (ft)	0.09	Cum Volume (acre-ft)	0.00	3.95
0.00 C & E Loss (ft)	0.00	Cum SA (acres)	0.00	1.72

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 100Y

E. G. Elev (ft)	94.31	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.	0.060	0.045
0.060 W. S. Elev (ft)	94.30	Reach Len. (ft)	627.00	627.00
626.00 Crit W. S. (ft)		Flow Area (sq ft)	0.93	128.97
0.73 E. G. Slope (ft/ft)	0.000125	Area (sq ft)	0.93	128.97
0.73 Q Total (cfs)	110.00	Flow (cfs)	0.13	109.77
0.10 Top Width (ft)	39.25	Top Width (ft)	2.43	34.74
2.08 Vel Total (ft/s)	0.84	Avg. Vel. (ft/s)	0.14	0.85
0.13 Max Chl Dpth (ft)	6.10	Hydr. Depth (ft)	0.38	3.71
0.35 Conv. Total (cfs)	9828.5	Conv. (cfs)	11.7	9808.2
8.7 Length Wtd. (ft)	627.00	Wetted Per. (ft)	2.55	36.90
2.20				

ES100 OUTPUT REPORT.pdf

Min Ch El (ft)	88.20	Shear (lb/sq ft)	0.00	0.03
0.00				
Alpha	1.02	Stream Power (lb/ft s)	208.39	0.00
0.00				
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)	0.01	5.06
0.01				
C & E Loss (ft)	0.00	Cum SA (acres)	0.02	1.90
0.01				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: ES101
 REACH: ES101-00 RS: 2603

INPUT

Description:

Station		Elevation		Data		num= 48					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	102.78	4.95	101.16	9.9	100.69	14.85	102.8	19.79	103.22		
24.74	103.18	29.69	103.42	34.64	101.65	39.59	98.67	40.95	98.58		
44.54	98.35	49.49	95.53	54.43	92.24	59.38	89.94	64.33	89.55		
69.28	89.93	74.23	90.57	79.18	93.37	84.12	94.71	89.07	95.06		
94.02	95.26	98.97	95.43	100.97	95.47	103.92	95.54	108.87	95.65		
113.82	95.69	118.76	95.68	123.71	95.85	128.66	95.74	133.61	95.48		
138.56	95.34	143.51	95.41	148.46	95.59	153.4	95.3	158.35	95.36		
163.3	95.32	168.25	95.25	173.2	95.37	178.15	95.37	183.09	95.35		
188.04	95.24	192.99	95.21	197.94	95.31	202.89	95.34	207.84	95.37		
212.79	95.38	217.73	95.35	222.68	95.2						

Manning's n Values		num= 3			
Sta	n Val	Sta	n Val	Sta	n Val
0	.06	49.49	.045	84.12	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.	Expan.
49.49	84.12	560	560	567	.1	.1	.3

CROSS SECTION OUTPUT Profile #EX 10Y

E. G. Elev (ft)	93.09	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	93.08	Reach Len. (ft)	560.00	560.00
567.00				
Crit W. S. (ft)		Flow Area (sq ft)		62.96
E. G. Slope (ft/ft)	0.000187	Area (sq ft)		62.96
Q Total (cfs)	50.00	Flow (cfs)		50.00
Top Width (ft)	25.49	Top Width (ft)		25.49
Vel Total (ft/s)	0.79	Avg. Vel. (ft/s)		0.79
Max Chl Dpth (ft)	3.53	Hydr. Depth (ft)		2.47

ES100 OUTPUT REPORT.pdf

Conv. Total (cfs)	3656.6	Conv. (cfs)		3656.6
Length Wtd. (ft)	560.00	Wetted Per. (ft)		26.99
Min Ch El (ft)	89.55	Shear (lb/sq ft)		0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	222.68	0.00
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)		2.23
C & E Loss (ft)	0.00	Cum SA (acres)		1.19

CROSS SECTION OUTPUT Profile #EX 25Y

E. G. Elev (ft)	93.44	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	93.42	Reach Len. (ft)	560.00	560.00
567.00 Crit W. S. (ft)		Flow Area (sq ft)		71.91
E. G. Slope (ft/ft)	0.000224	Area (sq ft)		71.91
Q Total (cfs)	66.00	Flow (cfs)		66.00
Top Width (ft)	26.72	Top Width (ft)		26.72
Vel Total (ft/s)	0.92	Avg. Vel. (ft/s)		0.92
Max Chl Dpth (ft)	3.87	Hydr. Depth (ft)		2.69
Conv. Total (cfs)	4411.9	Conv. (cfs)		4411.9
Length Wtd. (ft)	560.00	Wetted Per. (ft)		28.40
Min Ch El (ft)	89.55	Shear (lb/sq ft)		0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	222.68	0.00
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)		2.58
C & E Loss (ft)	0.00	Cum SA (acres)		1.26

CROSS SECTION OUTPUT Profile #EX 100Y

E. G. Elev (ft)	94.05	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	94.03	Reach Len. (ft)	560.00	560.00
567.00 Crit W. S. (ft)		Flow Area (sq ft)		89.26

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E. G. Slope (ft/ft)	0.000297	Area (sq ft)		89.26
Q Total (cfs)	101.00	Flow (cfs)		101.00
Top Width (ft)	29.90	Top Width (ft)		29.90
Vel Total (ft/s)	1.13	Avg. Vel. (ft/s)		1.13
Max Chl Dpth (ft)	4.48	Hydr. Depth (ft)		2.99
Conv. Total (cfs)	5859.2	Conv. (cfs)		5859.2
Length Wtd. (ft)	560.00	Wetted Per. (ft)		31.84
Min Ch El (ft)	89.55	Shear (lb/sq ft)		0.05
Alpha 0.00	1.00	Stream Power (lb/ft s)	222.68	0.00
Frctn Loss (ft)	0.16	Cum Volume (acre-ft)		3.28
C & E Loss (ft)	0.00	Cum SA (acres)		1.39

CROSS SECTION OUTPUT Profile #ULT 10Y

E. G. Elev (ft)	93.09	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	93.08	Reach Len. (ft)	560.00	560.00
567.00 Crit W. S. (ft)		Flow Area (sq ft)		62.96
E. G. Slope (ft/ft)	0.000187	Area (sq ft)		62.96
Q Total (cfs)	50.00	Flow (cfs)		50.00
Top Width (ft)	25.49	Top Width (ft)		25.49
Vel Total (ft/s)	0.79	Avg. Vel. (ft/s)		0.79
Max Chl Dpth (ft)	3.53	Hydr. Depth (ft)		2.47
Conv. Total (cfs)	3656.6	Conv. (cfs)		3656.6
Length Wtd. (ft)	560.00	Wetted Per. (ft)		26.99
Min Ch El (ft)	89.55	Shear (lb/sq ft)		0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	222.68	0.00
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)		2.23
C & E Loss (ft)	0.00	Cum SA (acres)		1.19

CROSS SECTION OUTPUT Profile #ULT 25Y

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E. G. Elev (ft)	93.51	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	93.50	Reach Len. (ft)	560.00	560.00
567.00 Crit W. S. (ft)		Flow Area (sq ft)		74.04
E. G. Slope (ft/ft)	0.000233	Area (sq ft)		74.04
Q Total (cfs)	70.00	Flow (cfs)		70.00
Top Width (ft)	27.13	Top Width (ft)		27.13
Vel Total (ft/s)	0.95	Avg. Vel. (ft/s)		0.95
Max Chl Dpth (ft)	3.95	Hydr. Depth (ft)		2.73
Conv. Total (cfs)	4583.3	Conv. (cfs)		4583.3
Length Wtd. (ft)	560.00	Wetted Per. (ft)		28.84
Min Ch El (ft)	89.55	Shear (lb/sq ft)		0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	222.68	0.00
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)		2.67
C & E Loss (ft)	0.00	Cum SA (acres)		1.28

CROSS SECTION OUTPUT Profile #ULT 100Y

E. G. Elev (ft)	94.19	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	94.17	Reach Len. (ft)	560.00	560.00
567.00 Crit W. S. (ft)		Flow Area (sq ft)		93.39
E. G. Slope (ft/ft)	0.000313	Area (sq ft)		93.39
Q Total (cfs)	110.00	Flow (cfs)		110.00
Top Width (ft)	30.60	Top Width (ft)		30.60
Vel Total (ft/s)	1.18	Avg. Vel. (ft/s)		1.18
Max Chl Dpth (ft)	4.62	Hydr. Depth (ft)		3.05
Conv. Total (cfs)	6218.9	Conv. (cfs)		6218.9
Length Wtd. (ft)	560.00	Wetted Per. (ft)		32.61
Min Ch El (ft)	89.55	Shear (lb/sq ft)		0.06
Alpha 0.00	1.00	Stream Power (lb/ft s)	222.68	0.00

ES100 OUTPUT REPORT.pdf

Frctn Loss (ft)	0.17	Cum Volume (acre-ft)	3.46
C & E Loss (ft)	0.00	Cum SA (acres)	1.42

CROSS SECTION

RIVER: ES101
 REACH: ES101-00 RS: 2043

INPUT

Description:

Station	Elevation	Data	num=	43					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	103.22	4.9	103.2	9.8	103.11	14.7	103.11	19.6	103.34
24.49	103.2	27.49	103.21	29.39	103.22	34.29	102.52	39.19	98.37
44.09	95.03	48.99	94.63	53.89	92.66	58.79	90.31	63.69	89.41
68.59	89.19	73.48	89.73	78.38	93.41	83.28	96.2	88.18	96.78
93.08	96.35	97.49	95.58	97.98	95.5	102.88	94.97	107.78	94.94
112.68	94.97	117.57	94.99	122.47	94.98	127.37	95	132.27	95.1
137.17	95.1	142.07	95.13	146.97	95.23	151.87	95.28	156.77	95.3
161.67	95.4	166.56	95.55	171.46	95.8	176.36	95.83	181.26	96.03
186.16	96.22	191.06	96.34	195.96	96.3				

Manning's n Values	num=	3
Sta n Val	Sta n Val	Sta n Val
0 .06	48.99 .045	83.28 .06

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	48.99	83.28		424	424	421		.1	.3

CROSS SECTION OUTPUT Profile #EX 10Y

E. G. Elev (ft)	92.99	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	92.98	Reach Len. (ft)	424.00	424.00
421.00				
Crit W. S. (ft)		Flow Area (sq ft)		65.04
E. G. Slope (ft/ft)	0.000164	Area (sq ft)		65.04
Q Total (cfs)	50.00	Flow (cfs)		50.00
Top Width (ft)	24.72	Top Width (ft)		24.72
Vel Total (ft/s)	0.77	Avg. Vel. (ft/s)		0.77
Max Chl Dpth (ft)	3.79	Hydr. Depth (ft)		2.63
Conv. Total (cfs)	3906.0	Conv. (cfs)		3906.0
Length Wtd. (ft)	424.00	Wetted Per. (ft)		26.51
Min Ch El (ft)	89.19	Shear (lb/sq ft)		0.03
Alpha	1.00	Stream Power (lb/ft s)	195.96	0.00
0.00				

Frctn Loss (ft)	0.13	Cum Volume (acre-ft)	1.40
C & E Loss (ft)	0.00	Cum SA (acres)	0.87

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #EX 25Y

E. G. Elev (ft)	93.31	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	93.30	Reach Len. (ft)	424.00	424.00
421.00				
Crit W. S. (ft)		Flow Area (sq ft)		73.18
E. G. Slope (ft/ft)	0.000206	Area (sq ft)		73.18
Q Total (cfs)	66.00	Flow (cfs)		66.00
Top Width (ft)	25.94	Top Width (ft)		25.94
Vel Total (ft/s)	0.90	Avg. Vel. (ft/s)		0.90
Max Chl Dpth (ft)	4.11	Hydr. Depth (ft)		2.82
Conv. Total (cfs)	4594.2	Conv. (cfs)		4594.2
Length Wtd. (ft)	424.00	Wetted Per. (ft)		27.91
Min Ch El (ft)	89.19	Shear (lb/sq ft)		0.03
Alpha	1.00	Stream Power (lb/ft s)	195.96	0.00
0.00				
Frctn Loss (ft)	0.15	Cum Volume (acre-ft)		1.65
C & E Loss (ft)	0.00	Cum SA (acres)		0.92

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #EX 100Y

E. G. Elev (ft)	93.89	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	93.87	Reach Len. (ft)	424.00	424.00
421.00				
Crit W. S. (ft)		Flow Area (sq ft)		88.58
E. G. Slope (ft/ft)	0.000288	Area (sq ft)		88.58

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Q Total (cfs)	101.00	Flow (cfs)	101.00
Top Width (ft)	28.31	Top Width (ft)	28.31
Vel Total (ft/s)	1.14	Avg. Vel. (ft/s)	1.14
Max Chl Dpth (ft)	4.68	Hydr. Depth (ft)	3.13
Conv. Total (cfs)	5948.6	Conv. (cfs)	5948.6
Length Wtd. (ft)	424.00	Wetted Per. (ft)	30.54
Min Ch El (ft)	89.19	Shear (lb/sq ft)	0.05
Alpha 0.00	1.00	Stream Power (lb/ft s)	195.96
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)	2.14
C & E Loss (ft)	0.00	Cum SA (acres)	1.02

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 10Y

E. G. Elev (ft)	92.99	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	92.98	Reach Len. (ft)	424.00	424.00
421.00 Crit W. S. (ft)		Flow Area (sq ft)		65.04
E. G. Slope (ft/ft)	0.000164	Area (sq ft)		65.04
Q Total (cfs)	50.00	Flow (cfs)		50.00
Top Width (ft)	24.72	Top Width (ft)		24.72
Vel Total (ft/s)	0.77	Avg. Vel. (ft/s)		0.77
Max Chl Dpth (ft)	3.79	Hydr. Depth (ft)		2.63
Conv. Total (cfs)	3906.0	Conv. (cfs)		3906.0
Length Wtd. (ft)	424.00	Wetted Per. (ft)		26.51
Min Ch El (ft)	89.19	Shear (lb/sq ft)		0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	195.96	0.00
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)		1.40
C & E Loss (ft)	0.00	Cum SA (acres)		0.87

ES100 OUTPUT REPORT.pdf

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 25Y

E. G. Elev (ft)	93.39	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	93.38	Reach Len. (ft)	424.00	424.00
421.00				
Crit W. S. (ft)		Flow Area (sq ft)		75.09
E. G. Slope (ft/ft)	0.000216	Area (sq ft)		75.09
Q Total (cfs)	70.00	Flow (cfs)		70.00
Top Width (ft)	26.22	Top Width (ft)		26.22
Vel Total (ft/s)	0.93	Avg. Vel. (ft/s)		0.93
Max Chl Dpth (ft)	4.19	Hydr. Depth (ft)		2.86
Conv. Total (cfs)	4759.8	Conv. (cfs)		4759.8
Length Wtd. (ft)	424.00	Wetted Per. (ft)		28.23
Min Ch El (ft)	89.19	Shear (lb/sq ft)		0.04
Alpha	1.00	Stream Power (lb/ft s)	195.96	0.00
0.00				
Frctn Loss (ft)	0.16	Cum Volume (acre-ft)		1.71
C & E Loss (ft)	0.00	Cum SA (acres)		0.93

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 100Y

E. G. Elev (ft)	94.02	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	94.00	Reach Len. (ft)	424.00	424.00
421.00				
Crit W. S. (ft)		Flow Area (sq ft)		92.21
E. G. Slope (ft/ft)	0.000307	Area (sq ft)		92.21
Q Total (cfs)	110.00	Flow (cfs)		110.00
Top Width (ft)	28.85	Top Width (ft)		28.85
Vel Total (ft/s)	1.19	Avg. Vel. (ft/s)		1.19
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Max Chl Dpth (ft)	4.81	Hydr. Depth (ft)	3.20
Conv. Total (cfs)	6278.2	Conv. (cfs)	6278.2
Length Wtd. (ft)	424.00	Wetted Per. (ft)	31.14
Min Ch El (ft)	89.19	Shear (lb/sq ft)	0.06
Alpha 0.00	1.00	Stream Power (lb/ft s)	195.96
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	2.26
C & E Loss (ft)	0.00	Cum SA (acres)	1.04

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: ES101
REACH: ES101-00 RS: 1619

INPUT

Description:

Station	Elevation	Data	num=	43					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	101.7	4.92	101.87	9.85	102.46	11.22	102.55	14.77	102.79
19.69	101.95	24.62	101.36	29.54	99.35	34.46	96.99	39.39	95.71
44.31	93.28	49.23	91.36	54.16	90.57	59.08	89.74	64.01	91.21
68.93	93.14	73.85	94.36	78.78	96.16	83.7	95.57	88.62	95.64
90.31	95.64	93.55	95.64	98.47	95.67	103.39	95.64	108.32	95.51
113.24	95.5	118.16	95.5	123.09	95.54	128.01	95.61	132.93	95.7
137.86	95.68	142.78	95.67	147.7	95.54	152.63	95.56	157.55	95.6
162.48	95.53	167.4	95.5	172.32	95.48	177.25	95.47	182.17	95.42
187.09	95.49	192.02	95.5	196.94	95.47				

Manning's n Values	num=	3	
Sta	n Val	Sta	n Val
0	.06	39.39	.045
		73.85	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.	Expan.
39.39	73.85	169	169	441	.1	.3	

CROSS SECTION OUTPUT Profile #EX 10Y

E. G. Elev (ft)	92.86	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	92.84	Reach Len. (ft)	169.00	169.00
441.00				
Crit W. S. (ft)		Flow Area (sq ft)		40.27
E. G. Slope (ft/ft)	0.000695	Area (sq ft)		40.27
Q Total (cfs)	50.00	Flow (cfs)		50.00

ES100 OUTPUT REPORT.pdf

Top Width (ft)	22.72	Top Width (ft)		22.72
Vel Total (ft/s)	1.24	Avg. Vel. (ft/s)		1.24
Max Chl Dpth (ft)	3.10	Hydr. Depth (ft)		1.77
Conv. Total (cfs)	1896.3	Conv. (cfs)		1896.3
Length Wtd. (ft)	169.00	Wetted Per. (ft)		23.65
Min Ch El (ft)	89.74	Shear (lb/sq ft)		0.07
Alpha 0.00	1.00	Stream Power (lb/ft s)	196.94	0.00
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)		0.89
C & E Loss (ft)	0.00	Cum SA (acres)		0.64

CROSS SECTION OUTPUT Profile #EX 25Y

E. G. Elev (ft)	93.16	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	Wt. n-Val.		0.045
W. S. Elev (ft)	93.13	Reach Len. (ft)	169.00	169.00
441.00 Crit W. S. (ft)		Flow Area (sq ft)		47.10
E. G. Slope (ft/ft)	0.000784	Area (sq ft)		47.10
Q Total (cfs)	66.00	Flow (cfs)		66.00
Top Width (ft)	24.21	Top Width (ft)		24.21
Vel Total (ft/s)	1.40	Avg. Vel. (ft/s)		1.40
Max Chl Dpth (ft)	3.39	Hydr. Depth (ft)		1.95
Conv. Total (cfs)	2356.7	Conv. (cfs)		2356.7
Length Wtd. (ft)	169.00	Wetted Per. (ft)		25.25
Min Ch El (ft)	89.74	Shear (lb/sq ft)		0.09
Alpha 0.00	1.00	Stream Power (lb/ft s)	196.94	0.00
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)		1.06
C & E Loss (ft)	0.00	Cum SA (acres)		0.68

CROSS SECTION OUTPUT Profile #EX 100Y

E. G. Elev (ft)	93.69	Element	Left OB	Channel
Right OB				

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Vel Head (ft)	0.04	Wt. n-Val.		0.045
W. S. Elev (ft)	93.64	Reach Len. (ft)	169.00	169.00
441.00 Crit W. S. (ft)		Flow Area (sq ft)		60.32
E. G. Slope (ft/ft)	0.000951	Area (sq ft)		60.32
Q Total (cfs)	101.00	Flow (cfs)		101.00
Top Width (ft)	27.37	Top Width (ft)		27.37
Vel Total (ft/s)	1.67	Avg. Vel. (ft/s)		1.67
Max Chl Dpth (ft)	3.90	Hydr. Depth (ft)		2.20
Conv. Total (cfs)	3275.8	Conv. (cfs)		3275.8
Length Wtd. (ft)	169.00	Wetted Per. (ft)		28.59
Min Ch El (ft)	89.74	Shear (lb/sq ft)		0.13
Alpha 0.00	1.00	Stream Power (lb/ft s)	196.94	0.00
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)		1.42
C & E Loss (ft)	0.00	Cum SA (acres)		0.75

CROSS SECTION OUTPUT Profile #ULT 10Y

E. G. Elev (ft)	92.86	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	92.84	Reach Len. (ft)	169.00	169.00
441.00 Crit W. S. (ft)		Flow Area (sq ft)		40.27
E. G. Slope (ft/ft)	0.000695	Area (sq ft)		40.27
Q Total (cfs)	50.00	Flow (cfs)		50.00
Top Width (ft)	22.72	Top Width (ft)		22.72
Vel Total (ft/s)	1.24	Avg. Vel. (ft/s)		1.24
Max Chl Dpth (ft)	3.10	Hydr. Depth (ft)		1.77
Conv. Total (cfs)	1896.3	Conv. (cfs)		1896.3
Length Wtd. (ft)	169.00	Wetted Per. (ft)		23.65
Min Ch El (ft)	89.74	Shear (lb/sq ft)		0.07
Alpha 0.00	1.00	Stream Power (lb/ft s)	196.94	0.00
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)		0.89
C & E Loss (ft)	0.00	Cum SA (acres)		0.64

ES100 OUTPUT REPORT.pdf

CROSS SECTION OUTPUT Profile #ULT 25Y

E. G. Elev (ft)	93.23	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	Wt. n-Val.		0.045
W. S. Elev (ft)	93.20	Reach Len. (ft)	169.00	169.00
441.00 Crit W. S. (ft)		Flow Area (sq ft)		48.72
E. G. Slope (ft/ft)	0.000807	Area (sq ft)		48.72
Q Total (cfs)	70.00	Flow (cfs)		70.00
Top Width (ft)	24.63	Top Width (ft)		24.63
Vel Total (ft/s)	1.44	Avg. Vel. (ft/s)		1.44
Max Chl Dpth (ft)	3.46	Hydr. Depth (ft)		1.98
Conv. Total (cfs)	2464.3	Conv. (cfs)		2464.3
Length Wtd. (ft)	169.00	Wetted Per. (ft)		25.69
Min Ch El (ft)	89.74	Shear (lb/sq ft)		0.10
Alpha 0.00	1.00	Stream Power (lb/ft s)	196.94	0.00
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)		1.10
C & E Loss (ft)	0.00	Cum SA (acres)		0.69

CROSS SECTION OUTPUT Profile #ULT 100Y

E. G. Elev (ft)	93.80	Element	Left OB	Channel
Right OB Vel Head (ft)	0.05	Wt. n-Val.		0.045
W. S. Elev (ft)	93.76	Reach Len. (ft)	169.00	169.00
441.00 Crit W. S. (ft)		Flow Area (sq ft)		63.49
E. G. Slope (ft/ft)	0.000983	Area (sq ft)		63.49
Q Total (cfs)	110.00	Flow (cfs)		110.00
Top Width (ft)	28.07	Top Width (ft)		28.07
Vel Total (ft/s)	1.73	Avg. Vel. (ft/s)		1.73
Max Chl Dpth (ft)	4.02	Hydr. Depth (ft)		2.26
Conv. Total (cfs)	3508.4	Conv. (cfs)		3508.4

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Length Wtd. (ft)	169.00	Wetted Per. (ft)	29.33
Min Ch El (ft)	89.74	Shear (lb/sq ft)	0.13
Alpha 0.00	1.00	Stream Power (lb/ft s)	196.94
Frctn Loss (ft)	0.15	Cum Volume (acre-ft)	1.50
C & E Loss (ft)	0.00	Cum SA (acres)	0.77

CROSS SECTION

RIVER: ES101
 REACH: ES101-00 RS: 1450

INPUT

Description:

Station	Elevation	Data	num=	35					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	101.69	4.93	102.81	9.85	103.02	14.78	102.99	19.7	102.69
21.19	102.55	24.63	102.2	29.56	101.4	34.48	100.51	39.41	99.38
44.33	96.33	49.26	93.5	54.19	91.79	59.11	91.72	64.04	91.06
68.96	90.52	73.89	90.39	78.82	91.08	83.74	95.07	88.67	96.69
93.59	96.23	98.52	96.21	102.36	96.05	103.45	96	108.37	96.16
113.3	96.18	118.22	96.14	123.15	96.13	128.08	96.17	133	96.12
137.93	95.98	142.85	95.96	147.78	95.93	152.71	95.9	157.63	95.84

Manning's n Values	num=	3			
Sta	n Val	Sta	n Val	Sta	n Val
0	.06	44.33	.045	83.74	.06

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	44.33	83.74		268	268	268		.1	.3

CROSS SECTION OUTPUT Profile #EX 10Y

E. G. Elev (ft)	92.75	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	92.73	Reach Len. (ft)	268.00	268.00
268.00				
Crit W. S. (ft)		Flow Area (sq ft)		44.84
E. G. Slope (ft/ft)	0.000674	Area (sq ft)		44.84
Q Total (cfs)	50.00	Flow (cfs)		50.00
Top Width (ft)	29.36	Top Width (ft)		29.36
Vel Total (ft/s)	1.12	Avg. Vel. (ft/s)		1.12
Max Chl Dpth (ft)	2.34	Hydr. Depth (ft)		1.53
Conv. Total (cfs)	1925.9	Conv. (cfs)		1925.9
Length Wtd. (ft)	268.00	Wetted Per. (ft)		30.22

ES100 OUTPUT REPORT.pdf

Min Ch El (ft)	90.39	Shear (lb/sq ft)		0.06
Alpha 0.00	1.00	Stream Power (lb/ft s)	157.63	0.00
Frctn Loss (ft)	0.25	Cum Volume (acre-ft)		0.73
C & E Loss (ft)	0.00	Cum SA (acres)		0.54

CROSS SECTION OUTPUT Profile #EX 25Y

E. G. Elev (ft)	93.03	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	93.01	Reach Len. (ft)	268.00	268.00
268.00 Crit W. S. (ft)		Flow Area (sq ft)		53.32
E. G. Slope (ft/ft)	0.000698	Area (sq ft)		53.32
Q Total (cfs)	66.00	Flow (cfs)		66.00
Top Width (ft)	30.52	Top Width (ft)		30.52
Vel Total (ft/s)	1.24	Avg. Vel. (ft/s)		1.24
Max Chl Dpth (ft)	2.62	Hydr. Depth (ft)		1.75
Conv. Total (cfs)	2498.3	Conv. (cfs)		2498.3
Length Wtd. (ft)	268.00	Wetted Per. (ft)		31.54
Min Ch El (ft)	90.39	Shear (lb/sq ft)		0.07
Alpha 0.00	1.00	Stream Power (lb/ft s)	157.63	0.00
Frctn Loss (ft)	0.26	Cum Volume (acre-ft)		0.87
C & E Loss (ft)	0.00	Cum SA (acres)		0.57

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #EX 100Y

E. G. Elev (ft)	93.54	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	Wt. n-Val.		0.045
W. S. Elev (ft)	93.51	Reach Len. (ft)	268.00	268.00
268.00 Crit W. S. (ft)		Flow Area (sq ft)		68.96
E. G. Slope (ft/ft)	0.000761	Area (sq ft)		68.96

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Q Total (cfs)	101.00	Flow (cfs)	101.00
Top Width (ft)	32.56	Top Width (ft)	32.56
Vel Total (ft/s)	1.46	Avg. Vel. (ft/s)	1.46
Max Chl Dpth (ft)	3.12	Hydr. Depth (ft)	2.12
Conv. Total (cfs)	3660.9	Conv. (cfs)	3660.9
Length Wtd. (ft)	268.00	Wetted Per. (ft)	33.83
Min Ch El (ft)	90.39	Shear (lb/sq ft)	0.10
Alpha 0.00	1.00	Stream Power (lb/ft s)	157.63
Frctn Loss (ft)	0.29	Cum Volume (acre-ft)	1.17
C & E Loss (ft)	0.00	Cum SA (acres)	0.63

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 10Y

E. G. Elev (ft)	92.75	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	92.73	Reach Len. (ft)	268.00	268.00
268.00 Crit W. S. (ft)		Flow Area (sq ft)		44.84
E. G. Slope (ft/ft)	0.000674	Area (sq ft)		44.84
Q Total (cfs)	50.00	Flow (cfs)		50.00
Top Width (ft)	29.36	Top Width (ft)		29.36
Vel Total (ft/s)	1.12	Avg. Vel. (ft/s)		1.12
Max Chl Dpth (ft)	2.34	Hydr. Depth (ft)		1.53
Conv. Total (cfs)	1925.9	Conv. (cfs)		1925.9
Length Wtd. (ft)	268.00	Wetted Per. (ft)		30.22
Min Ch El (ft)	90.39	Shear (lb/sq ft)		0.06
Alpha 0.00	1.00	Stream Power (lb/ft s)	157.63	0.00
Frctn Loss (ft)	0.25	Cum Volume (acre-ft)		0.73
C & E Loss (ft)	0.00	Cum SA (acres)		0.54

ES100 OUTPUT REPORT.pdf

CROSS SECTION OUTPUT Profile #ULT 25Y

E. G. Elev (ft)	93.10	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	93.07	Reach Len. (ft)	268.00	268.00
268.00 Crit W. S. (ft)		Flow Area (sq ft)		55.28
E. G. Slope (ft/ft)	0.000705	Area (sq ft)		55.28
Q Total (cfs)	70.00	Flow (cfs)		70.00
Top Width (ft)	30.79	Top Width (ft)		30.79
Vel Total (ft/s)	1.27	Avg. Vel. (ft/s)		1.27
Max Chl Dpth (ft)	2.68	Hydr. Depth (ft)		1.80
Conv. Total (cfs)	2637.2	Conv. (cfs)		2637.2
Length Wtd. (ft)	268.00	Wetted Per. (ft)		31.83
Min Ch El (ft)	90.39	Shear (lb/sq ft)		0.08
Alpha 0.00	1.00	Stream Power (lb/ft s)	157.63	0.00
Frctn Loss (ft)	0.27	Cum Volume (acre-ft)		0.90
C & E Loss (ft)	0.00	Cum SA (acres)		0.58

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 100Y

E. G. Elev (ft)	93.65	Element	Left OB	Channel
Right OB Vel Head (ft)	0.04	Wt. n-Val.		0.045
W. S. Elev (ft)	93.62	Reach Len. (ft)	268.00	268.00
268.00 Crit W. S. (ft)		Flow Area (sq ft)		72.62
E. G. Slope (ft/ft)	0.000772	Area (sq ft)		72.62
Q Total (cfs)	110.00	Flow (cfs)		110.00
Top Width (ft)	32.89	Top Width (ft)		32.89
Vel Total (ft/s)	1.51	Avg. Vel. (ft/s)		1.51
Max Chl Dpth (ft)	3.23	Hydr. Depth (ft)		2.21
Conv. Total (cfs)	3958.7	Conv. (cfs)		3958.7

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Length Wtd. (ft)	268.00	Wetted Per. (ft)	34.23
Min Ch El (ft)	90.39	Shear (lb/sq ft)	0.10
Alpha 0.00	1.00	Stream Power (lb/ft s)	157.63
Frctn Loss (ft)	0.30	Cum Volume (acre-ft)	1.24
C & E Loss (ft)	0.00	Cum SA (acres)	0.65

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: ES101
REACH: ES101-00 RS: 1182

INPUT

Description:

Station	Elevation	Data	num=	38
Sta	El ev	Sta	El ev	Sta
0	102.56	5	102.47	9.99
23.48	102.18	24.98	102.12	29.98
44.96	96.34	49.96	92.91	54.95
69.94	90.13	74.94	93.07	79.93
94.92	96.58	99.92	96.59	104.62
114.91	96.9	119.9	96.93	124.9
139.89	96.7	144.88	96.7	149.88
164.86	96.57	169.86	96.56	174.86

Manning's n	Values	num=	3
Sta	n Val	Sta	n Val
0	.06	44.96	.045
		84.93	.06

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	44.96	84.93		352	352	810		.1	.3

CROSS SECTION OUTPUT Profile #EX 10Y

E. G. El ev (ft)	92.50	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.04	Wt. n-Val.		0.045
W. S. El ev (ft)	92.46	Reach Len. (ft)	352.00	352.00
810.00				
Crit W. S. (ft)		Flow Area (sq ft)		32.63
E. G. Slope (ft/ft)	0.001316	Area (sq ft)		32.63
Q Total (cfs)	50.00	Flow (cfs)		50.00
Top Width (ft)	21.68	Top Width (ft)		21.68
Vel Total (ft/s)	1.53	Avg. Vel. (ft/s)		1.53

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Max Chl Dpth (ft)	2.45	Hydr. Depth (ft)		1.50
Conv. Total (cfs)	1378.3	Conv. (cfs)		1378.3
Length Wtd. (ft)	352.00	Wetted Per. (ft)		22.55
Min Ch El (ft)	90.01	Shear (lb/sq ft)		0.12
Alpha 0.00	1.00	Stream Power (lb/ft s)	174.86	0.00
Frctn Loss (ft)	0.75	Cum Volume (acre-ft)		0.49
C & E Loss (ft)	0.00	Cum SA (acres)		0.38

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #EX 25Y

E. G. Elev (ft)	92.77	Element	Left OB	Channel
Right OB Vel Head (ft)	0.05	Wt. n-Val.		0.045
W. S. Elev (ft)	92.72	Reach Len. (ft)	352.00	352.00
810.00 Crit W. S. (ft)		Flow Area (sq ft)		38.54
E. G. Slope (ft/ft)	0.001464	Area (sq ft)		38.54
Q Total (cfs)	66.00	Flow (cfs)		66.00
Top Width (ft)	23.45	Top Width (ft)		23.45
Vel Total (ft/s)	1.71	Avg. Vel. (ft/s)		1.71
Max Chl Dpth (ft)	2.71	Hydr. Depth (ft)		1.64
Conv. Total (cfs)	1725.1	Conv. (cfs)		1725.1
Length Wtd. (ft)	352.00	Wetted Per. (ft)		24.42
Min Ch El (ft)	90.01	Shear (lb/sq ft)		0.14
Alpha 0.00	1.00	Stream Power (lb/ft s)	174.86	0.00
Frctn Loss (ft)	0.81	Cum Volume (acre-ft)		0.59
C & E Loss (ft)	0.00	Cum SA (acres)		0.40

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #EX 100Y

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E. G. Elev (ft)	93.24	Element	Left OB	Channel
Right OB Vel Head (ft)	0.06	Wt. n-Val.		0.045
W. S. Elev (ft)	93.18	Reach Len. (ft)	352.00	352.00
810.00 Crit W. S. (ft)		Flow Area (sq ft)		49.85
E. G. Slope (ft/ft)	0.001672	Area (sq ft)		49.85
Q Total (cfs)	101.00	Flow (cfs)		101.00
Top Width (ft)	25.95	Top Width (ft)		25.95
Vel Total (ft/s)	2.03	Avg. Vel. (ft/s)		2.03
Max Chl Dpth (ft)	3.17	Hydr. Depth (ft)		1.92
Conv. Total (cfs)	2469.9	Conv. (cfs)		2469.9
Length Wtd. (ft)	352.00	Wetted Per. (ft)		27.12
Min Ch El (ft)	90.01	Shear (lb/sq ft)		0.19
Alpha 0.00	1.00	Stream Power (lb/ft s)	174.86	0.00
Frctn Loss (ft)	1.05	Cum Volume (acre-ft)		0.80
C & E Loss (ft)	0.01	Cum SA (acres)		0.45

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 10Y

E. G. Elev (ft)	92.50	Element	Left OB	Channel
Right OB Vel Head (ft)	0.04	Wt. n-Val.		0.045
W. S. Elev (ft)	92.46	Reach Len. (ft)	352.00	352.00
810.00 Crit W. S. (ft)		Flow Area (sq ft)		32.63
E. G. Slope (ft/ft)	0.001316	Area (sq ft)		32.63
Q Total (cfs)	50.00	Flow (cfs)		50.00
Top Width (ft)	21.68	Top Width (ft)		21.68
Vel Total (ft/s)	1.53	Avg. Vel. (ft/s)		1.53
Max Chl Dpth (ft)	2.45	Hydr. Depth (ft)		1.50
Conv. Total (cfs)	1378.3	Conv. (cfs)		1378.3

ES100 OUTPUT REPORT.pdf

Length Wtd. (ft)	352.00	Wetted Per. (ft)		22.55
Min Ch El (ft)	90.01	Shear (lb/sq ft)		0.12
Alpha 0.00	1.00	Stream Power (lb/ft s)	174.86	0.00
Frctn Loss (ft)	0.75	Cum Volume (acre-ft)		0.49
C & E Loss (ft)	0.00	Cum SA (acres)		0.38

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 25Y

E. G. Elev (ft)	92.83	Element	Left OB	Channel
Right OB Vel Head (ft)	0.05	Wt. n-Val.		0.045
W. S. Elev (ft)	92.78	Reach Len. (ft)	352.00	352.00
810.00 Crit W. S. (ft)		Flow Area (sq ft)		39.94
E. G. Slope (ft/ft)	0.001496	Area (sq ft)		39.94
Q Total (cfs)	70.00	Flow (cfs)		70.00
Top Width (ft)	23.85	Top Width (ft)		23.85
Vel Total (ft/s)	1.75	Avg. Vel. (ft/s)		1.75
Max Chl Dpth (ft)	2.77	Hydr. Depth (ft)		1.67
Conv. Total (cfs)	1810.1	Conv. (cfs)		1810.1
Length Wtd. (ft)	352.00	Wetted Per. (ft)		24.84
Min Ch El (ft)	90.01	Shear (lb/sq ft)		0.15
Alpha 0.00	1.00	Stream Power (lb/ft s)	174.86	0.00
Frctn Loss (ft)	0.82	Cum Volume (acre-ft)		0.61
C & E Loss (ft)	0.00	Cum SA (acres)		0.41

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 100Y

E. G. Elev (ft)	93.35	Element	Left OB	Channel
Right OB				

ES100 OUTPUT REPORT.pdf

Vel Head (ft)	0.07	Wt. n-Val.		0.045
W. S. Elev (ft)	93.28	Reach Len. (ft)	352.00	352.00
810.00 Crit W. S. (ft)		Flow Area (sq ft)		52.57
E. G. Slope (ft/ft)	0.001721	Area (sq ft)		52.57
Q Total (cfs)	110.00	Flow (cfs)		110.00
Top Width (ft)	26.64	Top Width (ft)		26.64
Vel Total (ft/s)	2.09	Avg. Vel. (ft/s)		2.09
Max Chl Dpth (ft)	3.27	Hydr. Depth (ft)		1.97
Conv. Total (cfs)	2651.4	Conv. (cfs)		2651.4
Length Wtd. (ft)	352.00	Wetted Per. (ft)		27.85
Min Ch El (ft)	90.01	Shear (lb/sq ft)		0.20
Alpha 0.00	1.00	Stream Power (lb/ft s)	174.86	0.00
Frctn Loss (ft)	1.11	Cum Volume (acre-ft)		0.86
C & E Loss (ft)	0.01	Cum SA (acres)		0.46

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: ES101
REACH: ES101-00 RS: 830

INPUT

Description:

Station	Elevation	Data	num=	46	Station	Elevation	Station	Elevation	Station	Elevation
0	101.18	4.87	101.48	9.75	102.17	14.62	102.16	19.5	102.08	
24.37	102.08	29.24	101.75	34.12	101.77	38.99	101.47	43.87	101.91	
48.74	102.22	53.61	102.15	58.49	101.95	63.36	101.91	67.57	101.5	
68.25	101.43	73.15	101.23	78.04	100.89	82.93	99.1	87.82	94.98	
92.71	92.47	97.61	90.86	102.5	89.79	107.39	90.04	112.28	91.09	
117.17	91.55	122.07	95.93	126.96	98.31	131.85	98.99	136.74	99.11	
137.91	99.02	141.63	98.73	146.53	97.37	151.42	96.83	156.31	96.36	
161.2	96.38	166.04	96.31	170.87	96.46	175.71	97.01	180.55	98.56	
185.38	100.43	190.22	100.45	195.06	100.6	199.89	100.07	204.73	99.76	
209.56	99.57									

Manning's n	Values	num=	3
0	.06	82.93	.045
		126.96	.06

Bank Sta: Left 82.93 Right 126.96 Lengths: Left Channel 292 Right Channel 292 Coeff Contr. .1 Expan. .3

CROSS SECTION OUTPUT Profile #EX 10Y

E. G. Elev (ft)	91.74	Element	Left OB	Channel
Right OB Vel Head (ft)	0.07	Wt. n-Val.		0.045
W. S. Elev (ft)	91.67	Reach Len. (ft)	292.00	292.00
292.00 Crit W. S. (ft)		Flow Area (sq ft)		23.31
E. G. Slope (ft/ft)	0.004050	Area (sq ft)		23.31
Q Total (cfs)	50.00	Flow (cfs)		50.00
Top Width (ft)	22.16	Top Width (ft)		22.16
Vel Total (ft/s)	2.15	Avg. Vel. (ft/s)		2.15
Max Chl Dpth (ft)	1.88	Hydr. Depth (ft)		1.05
Conv. Total (cfs)	785.7	Conv. (cfs)		785.7
Length Wtd. (ft)	292.00	Wetted Per. (ft)		22.60
Min Ch El (ft)	89.79	Shear (lb/sq ft)		0.26
Alpha 0.00	1.00	Stream Power (lb/ft s)	209.56	0.00
Frctn Loss (ft)	2.63	Cum Volume (acre-ft)		0.26
C & E Loss (ft)	0.03	Cum SA (acres)		0.21

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #EX 25Y

E. G. Elev (ft)	91.96	Element	Left OB	Channel
Right OB Vel Head (ft)	0.09	Wt. n-Val.		0.045
W. S. Elev (ft)	91.87	Reach Len. (ft)	292.00	292.00
292.00 Crit W. S. (ft)		Flow Area (sq ft)		27.90
E. G. Slope (ft/ft)	0.004093	Area (sq ft)		27.90
Q Total (cfs)	66.00	Flow (cfs)		66.00
Top Width (ft)	23.01	Top Width (ft)		23.01

Vel Total (ft/s)	2.37	Avg. Vel. (ft/s)	2.37
Max Chl Dpth (ft)	2.08	Hydr. Depth (ft)	1.21
Conv. Total (cfs)	1031.7	Conv. (cfs)	1031.7
Length Wtd. (ft)	292.00	Wetted Per. (ft)	23.55
Min Ch El (ft)	89.79	Shear (lb/sq ft)	0.30
Alpha 0.00	1.00	Stream Power (lb/ft s)	209.56
Frctn Loss (ft)	2.62	Cum Volume (acre-ft)	0.32
C & E Loss (ft)	0.04	Cum SA (acres)	0.22

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #EX 100Y

E. G. Elev (ft)	92.18	Element	Left OB	Channel
Right OB Vel Head (ft)	0.16	Wt. n-Val.		0.045
W. S. Elev (ft)	92.02	Reach Len. (ft)	292.00	292.00
292.00 Crit W. S. (ft)		Flow Area (sq ft)		31.27
E. G. Slope (ft/ft)	0.006811	Area (sq ft)		31.27
Q Total (cfs)	101.00	Flow (cfs)		101.00
Top Width (ft)	23.61	Top Width (ft)		23.61
Vel Total (ft/s)	3.23	Avg. Vel. (ft/s)		3.23
Max Chl Dpth (ft)	2.23	Hydr. Depth (ft)		1.32
Conv. Total (cfs)	1223.8	Conv. (cfs)		1223.8
Length Wtd. (ft)	292.00	Wetted Per. (ft)		24.23
Min Ch El (ft)	89.79	Shear (lb/sq ft)		0.55
Alpha 0.00	1.00	Stream Power (lb/ft s)	209.56	0.00
Frctn Loss (ft)	2.22	Cum Volume (acre-ft)		0.47
C & E Loss (ft)	0.01	Cum SA (acres)		0.25

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and
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previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 10Y

E. G. Elev (ft)	91.74	Element	Left OB	Channel
Right OB Vel Head (ft)	0.07	Wt. n-Val.		0.045
W. S. Elev (ft)	91.67	Reach Len. (ft)	292.00	292.00
292.00 Crit W. S. (ft)		Flow Area (sq ft)		23.31
E. G. Slope (ft/ft)	0.004050	Area (sq ft)		23.31
Q Total (cfs)	50.00	Flow (cfs)		50.00
Top Width (ft)	22.16	Top Width (ft)		22.16
Vel Total (ft/s)	2.15	Avg. Vel. (ft/s)		2.15
Max Chl Dpth (ft)	1.88	Hydr. Depth (ft)		1.05
Conv. Total (cfs)	785.7	Conv. (cfs)		785.7
Length Wtd. (ft)	292.00	Wetted Per. (ft)		22.60
Min Ch El (ft)	89.79	Shear (lb/sq ft)		0.26
Alpha 0.00	1.00	Stream Power (lb/ft s)	209.56	0.00
Frctn Loss (ft)	2.63	Cum Volume (acre-ft)		0.26
C & E Loss (ft)	0.03	Cum SA (acres)		0.21

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 25Y

E. G. Elev (ft)	92.01	Element	Left OB	Channel
Right OB Vel Head (ft)	0.09	Wt. n-Val.		0.045
W. S. Elev (ft)	91.92	Reach Len. (ft)	292.00	292.00
292.00 Crit W. S. (ft)		Flow Area (sq ft)		29.00
E. G. Slope (ft/ft)	0.004102	Area (sq ft)		29.00
Q Total (cfs)	70.00	Flow (cfs)		70.00
Top Width (ft)	23.21	Top Width (ft)		23.21

ES100 OUTPUT REPORT.pdf

Vel Total (ft/s)	2.41	Avg. Vel. (ft/s)	2.41
Max Chl Dpth (ft)	2.13	Hydr. Depth (ft)	1.25
Conv. Total (cfs)	1093.0	Conv. (cfs)	1093.0
Length Wtd. (ft)	292.00	Wetted Per. (ft)	23.78
Min Ch El (ft)	89.79	Shear (lb/sq ft)	0.31
Alpha 0.00	1.00	Stream Power (lb/ft s)	209.56
Frctn Loss (ft)	2.62	Cum Volume (acre-ft)	0.33
C & E Loss (ft)	0.04	Cum SA (acres)	0.22

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 100Y

E. G. Elev (ft)	92.23	Element	Left OB	Channel
Right OB Vel Head (ft)	0.18	Wt. n-Val.		0.045
W. S. Elev (ft)	92.05	Reach Len. (ft)	292.00	292.00
292.00 Crit W. S. (ft)		Flow Area (sq ft)		31.95
E. G. Slope (ft/ft)	0.007576	Area (sq ft)		31.95
Q Total (cfs)	110.00	Flow (cfs)		110.00
Top Width (ft)	23.73	Top Width (ft)		23.73
Vel Total (ft/s)	3.44	Avg. Vel. (ft/s)		3.44
Max Chl Dpth (ft)	2.26	Hydr. Depth (ft)		1.35
Conv. Total (cfs)	1263.8	Conv. (cfs)		1263.8
Length Wtd. (ft)	292.00	Wetted Per. (ft)		24.37
Min Ch El (ft)	89.79	Shear (lb/sq ft)		0.62
Alpha 0.00	1.00	Stream Power (lb/ft s)	209.56	0.00
Frctn Loss (ft)	2.07	Cum Volume (acre-ft)		0.51
C & E Loss (ft)	0.00	Cum SA (acres)		0.26

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and
Page 148

previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: ES101
 REACH: ES101-00 RS: 538

INPUT

Description:

Station	Elevation	Data	num=	55	Station	Elevation	Station	Elevation	Station	Elevation
0	98.34	4.97	99.12	9.94	99.31	14.91	99.72	19.88	100.67	
24.85	102.17	29.82	102.81	34.79	102.93	39.76	102.91	44.73	102.91	
49.7	102.98	54.67	102.17	59.64	100.62	64.61	100.72	69.58	101.48	
74.55	101.83	79.52	101.86	84.03	100.15	84.49	99.97	89.46	97.38	
94.43	96.36	99.4	95.46	104.37	93.12	109.34	90.23	114.31	88.4	
119.28	87.85	124.25	87.39	129.22	89.8	134.19	92.56	139.16	93.21	
144.13	94.45	148.4	94.83	149.1	94.89	154.07	95.03	159.04	95.04	
164.01	94.91	168.98	94.3	173.95	93.47	178.92	93.03	183.89	93.2	
188.86	93.73	193.83	94.17	198.8	94.22	203.77	94.2	208.74	94.15	
213.71	94.06	218.68	93.86	223.65	93.92	228.62	94.16	233.59	94.11	
238.56	94.1	243.53	94.1	248.5	94.1	253.47	93.69	258.44	93.29	

Manning's n	Values	num=	3	Station	n Val
0	.06	104.37	.045	134.19	.06

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	104.37	134.19		539	240		.1	.3

CROSS SECTION OUTPUT Profile #EX 10Y

E. G. Elev (ft)	89.08	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.38	Wt. n-Val.		0.045
W. S. Elev (ft)	88.69	Reach Len. (ft)	539.00	240.00
240.00				
Crit W. S. (ft)	88.69	Flow Area (sq ft)		10.05
E. G. Slope (ft/ft)	0.034792	Area (sq ft)		10.05
Q Total (cfs)	50.00	Flow (cfs)		50.00
Top Width (ft)	13.43	Top Width (ft)		13.43
Vel Total (ft/s)	4.98	Avg. Vel. (ft/s)		4.98
Max Chl Dpth (ft)	1.30	Hydr. Depth (ft)		0.75
Conv. Total (cfs)	268.1	Conv. (cfs)		268.1
Length Wtd. (ft)	240.00	Wetted Per. (ft)		13.84
Min Ch El (ft)	87.39	Shear (lb/sq ft)		1.58
Alpha	1.00	Stream Power (lb/ft s)	258.44	0.00
0.00				
Frctn Loss (ft)	0.31	Cum Volume (acre-ft)		0.15

C & E Loss (ft)

ES100 OUTPUT REPORT.pdf
0.11 Cum SA (acres)

0.09

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #EX 25Y

E. G. Elev (ft)	89.30	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.44	Wt. n-Val.		0.045
W. S. Elev (ft)	88.86	Reach Len. (ft)	539.00	240.00
240.00				
Crit W. S. (ft)	88.86	Flow Area (sq ft)		12.33
E. G. Slope (ft/ft)	0.033170	Area (sq ft)		12.33
Q Total (cfs)	66.00	Flow (cfs)		66.00
Top Width (ft)	14.22	Top Width (ft)		14.22
Vel Total (ft/s)	5.35	Avg. Vel. (ft/s)		5.35
Max Chl Dpth (ft)	1.47	Hydr. Depth (ft)		0.87
Conv. Total (cfs)	362.4	Conv. (cfs)		362.4
Length Wtd. (ft)	240.00	Wetted Per. (ft)		14.69
Min Ch El (ft)	87.39	Shear (lb/sq ft)		1.74
Alpha	1.00	Stream Power (lb/ft s)	258.44	0.00
0.00				
Frctn Loss (ft)	0.31	Cum Volume (acre-ft)		0.18
C & E Loss (ft)	0.13	Cum SA (acres)		0.09

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

to critical depth.

CROSS SECTION OUTPUT Profile #EX 100Y

E. G. Elev (ft)	89.96	Element	Left OB	Channel
Right OB Vel Head (ft)	0.22	Wt. n-Val.		0.045
W. S. Elev (ft)	89.74	Reach Len. (ft)	539.00	240.00
240.00 Crit W. S. (ft)		Flow Area (sq ft)		26.66
E. G. Slope (ft/ft)	0.008520	Area (sq ft)		26.66
Q Total (cfs)	101.00	Flow (cfs)		101.00
Top Width (ft)	18.42	Top Width (ft)		18.42
Vel Total (ft/s)	3.79	Avg. Vel. (ft/s)		3.79
Max Chl Dpth (ft)	2.35	Hydr. Depth (ft)		1.45
Conv. Total (cfs)	1094.2	Conv. (cfs)		1094.2
Length Wtd. (ft)	240.00	Wetted Per. (ft)		19.25
Min Ch El (ft)	87.39	Shear (lb/sq ft)		0.74
Alpha 0.00	1.00	Stream Power (lb/ft s)	258.44	0.00
Frctn Loss (ft)	0.26	Cum Volume (acre-ft)		0.28
C & E Loss (ft)	0.06	Cum SA (acres)		0.11

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 10Y

E. G. Elev (ft)	89.08	Element	Left OB	Channel
Right OB Vel Head (ft)	0.38	Wt. n-Val.		0.045
W. S. Elev (ft)	88.69	Reach Len. (ft)	539.00	240.00
240.00 Crit W. S. (ft)	88.69	Flow Area (sq ft)		10.05
E. G. Slope (ft/ft)	0.034792	Area (sq ft)		10.05
Q Total (cfs)	50.00	Flow (cfs)		50.00
Top Width (ft)	13.43	Top Width (ft)		13.43
Vel Total (ft/s)	4.98	Avg. Vel. (ft/s)		4.98
Max Chl Dpth (ft)	1.30	Hydr. Depth (ft)		0.75

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Conv. Total (cfs)	268.1	Conv. (cfs)	268.1
Length Wtd. (ft)	240.00	Wetted Per. (ft)	13.84
Min Ch El (ft)	87.39	Shear (lb/sq ft)	1.58
Alpha 0.00	1.00	Stream Power (lb/ft s)	258.44
Frctn Loss (ft)	0.31	Cum Volume (acre-ft)	0.15
C & E Loss (ft)	0.11	Cum SA (acres)	0.09

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #ULT 25Y

E. G. Elev (ft)	89.36	Element	Left OB	Channel
Right OB Vel Head (ft)	0.46	Wt. n-Val.		0.045
W. S. Elev (ft)	88.90	Reach Len. (ft)	539.00	240.00
240.00 Crit W. S. (ft)	88.90	Flow Area (sq ft)		12.88
E. G. Slope (ft/ft)	0.032853	Area (sq ft)		12.88
Q Total (cfs)	70.00	Flow (cfs)		70.00
Top Width (ft)	14.40	Top Width (ft)		14.40
Vel Total (ft/s)	5.43	Avg. Vel. (ft/s)		5.43
Max Chl Dpth (ft)	1.51	Hydr. Depth (ft)		0.89
Conv. Total (cfs)	386.2	Conv. (cfs)		386.2
Length Wtd. (ft)	240.00	Wetted Per. (ft)		14.89
Min Ch El (ft)	87.39	Shear (lb/sq ft)		1.77
Alpha 0.00	1.00	Stream Power (lb/ft s)	258.44	0.00
Frctn Loss (ft)	0.31	Cum Volume (acre-ft)		0.19
C & E Loss (ft)	0.13	Cum SA (acres)		0.09

ES100 OUTPUT REPORT.pdf

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
 Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
 Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #ULT 100Y

E. G. Elev (ft)	90.16	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.20	Wt. n-Val.		0.045
W. S. Elev (ft)	89.96	Reach Len. (ft)	539.00	240.00
240.00				
Crit W. S. (ft)		Flow Area (sq ft)		30.92
E. G. Slope (ft/ft)	0.006657	Area (sq ft)		30.92
Q Total (cfs)	110.00	Flow (cfs)		110.00
Top Width (ft)	19.45	Top Width (ft)		19.45
Vel Total (ft/s)	3.56	Avg. Vel. (ft/s)		3.56
Max Chl Dpth (ft)	2.57	Hydr. Depth (ft)		1.59
Conv. Total (cfs)	1348.2	Conv. (cfs)		1348.2
Length Wtd. (ft)	240.00	Wetted Per. (ft)		20.37
Min Ch El (ft)	87.39	Shear (lb/sq ft)		0.63
Alpha	1.00	Stream Power (lb/ft s)	258.44	0.00
0.00				
Frctn Loss (ft)	0.25	Cum Volume (acre-ft)		0.30
C & E Loss (ft)	0.05	Cum SA (acres)		0.12

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: ES101
 REACH: ES101-00 RS: 298

INPUT

Description:

Station	Elevation	Data	num=	56					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	102.09	4.96	102.1	9.93	101.44	14.89	100.13	19.86	100.56

ES100 OUTPUT REPORT. pdf

24.82	100.94	29.79	101.8	34.75	101.24	38.29	100.64	39.72	100.4
44.68	99.41	49.65	95.86	54.61	94.27	59.57	93.2	64.54	92.47
69.5	89.16	74.47	85.6	79.43	84.3	84.4	84.96	89.36	88.55
94.33	91.99	99.12	93.36	99.29	93.41	104.26	93.5	109.22	93.52
114.19	93.7	119.15	93.73	124.11	93.5	129.08	93.47	134.04	92.63
139.01	92.71	143.97	93.66	148.94	93.68	153.9	93.98	158.87	94.24
163.83	94.39	168.8	94.39	173.76	94.2	178.72	94.33	183.69	94.5
188.65	94.63	193.43	94.56	198.2	94.65	202.97	94.79	207.74	94.89
212.51	94.99	217.29	94.86	222.06	95.12	226.83	95.3	231.6	95.18
236.37	95.19	241.15	95.24	245.92	95.18	250.69	95.22	255.46	95.26
260.24	95.28								

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 64.54 .045 94.33 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 64.54 94.33 298 298 188 .1 .3

CROSS SECTION OUTPUT Profile #EX 10Y

E. G. Elev (ft)	88.13	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	88.11	Reach Len. (ft)		
Crit W. S. (ft)	85.70	Flow Area (sq ft)		44.30
E. G. Slope (ft/ft)	0.000400	Area (sq ft)		44.30
Q Total (cfs)	50.00	Flow (cfs)		50.00
Top Width (ft)	17.80	Top Width (ft)		17.80
Vel Total (ft/s)	1.13	Avg. Vel. (ft/s)		1.13
Max Chl Dpth (ft)	3.81	Hydr. Depth (ft)		2.49
Conv. Total (cfs)	2499.1	Conv. (cfs)		2499.1
Length Wtd. (ft)		Wetted Per. (ft)		19.84
Min Ch El (ft)	84.30	Shear (lb/sq ft)		0.06
Alpha	1.00	Stream Power (lb/ft s)	260.24	0.00
0.00 Frctn Loss (ft)		Cum Volume (acre-ft)		
C & E Loss (ft)		Cum SA (acres)		

CROSS SECTION OUTPUT Profile #EX 25Y

E. G. Elev (ft)	88.67	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	88.65	Reach Len. (ft)		

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Crit W. S. (ft)	85.89	Flow Area (sq ft)		54.22
E. G. Slope (ft/ft)	0.000400	Area (sq ft)		54.22
Q Total (cfs)	66.00	Flow (cfs)		66.00
Top Width (ft)	19.29	Top Width (ft)		19.29
Vel Total (ft/s)	1.22	Avg. Vel. (ft/s)		1.22
Max Chl Dpth (ft)	4.35	Hydr. Depth (ft)		2.81
Conv. Total (cfs)	3299.4	Conv. (cfs)		3299.4
Length Wtd. (ft)		Wetted Per. (ft)		21.68
Min Ch El (ft)	84.30	Shear (lb/sq ft)		0.06
Alpha 0.00	1.00	Stream Power (lb/ft s)	260.24	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)		
C & E Loss (ft)		Cum SA (acres)		

CROSS SECTION OUTPUT Profile #EX 100Y

E. G. Elev (ft)	89.64	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	Wt. n-Val.		0.045
W. S. Elev (ft)	89.61	Reach Len. (ft)		
Crit W. S. (ft)	86.24	Flow Area (sq ft)		74.17
E. G. Slope (ft/ft)	0.000400	Area (sq ft)		74.17
Q Total (cfs)	101.00	Flow (cfs)		101.00
Top Width (ft)	22.08	Top Width (ft)		22.08
Vel Total (ft/s)	1.36	Avg. Vel. (ft/s)		1.36
Max Chl Dpth (ft)	5.31	Hydr. Depth (ft)		3.36
Conv. Total (cfs)	5047.4	Conv. (cfs)		5047.4
Length Wtd. (ft)		Wetted Per. (ft)		25.07
Min Ch El (ft)	84.30	Shear (lb/sq ft)		0.07
Alpha 0.00	1.00	Stream Power (lb/ft s)	260.24	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)		
C & E Loss (ft)		Cum SA (acres)		

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CROSS SECTION OUTPUT Profile #ULT 10Y

E. G. Elev (ft)	88.13	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	88.11	Reach Len. (ft)		
Crit W. S. (ft)	85.70	Flow Area (sq ft)		44.30
E. G. Slope (ft/ft)	0.000400	Area (sq ft)		44.30
Q Total (cfs)	50.00	Flow (cfs)		50.00
Top Width (ft)	17.80	Top Width (ft)		17.80
Vel Total (ft/s)	1.13	Avg. Vel. (ft/s)		1.13
Max Chl Dpth (ft)	3.81	Hydr. Depth (ft)		2.49
Conv. Total (cfs)	2499.1	Conv. (cfs)		2499.1
Length Wtd. (ft)		Wetted Per. (ft)		19.84
Min Ch El (ft)	84.30	Shear (lb/sq ft)		0.06
Alpha 0.00	1.00	Stream Power (lb/ft s)	260.24	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)		
C & E Loss (ft)		Cum SA (acres)		

CROSS SECTION OUTPUT Profile #ULT 25Y

E. G. Elev (ft)	88.80	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	88.77	Reach Len. (ft)		
Crit W. S. (ft)	85.93	Flow Area (sq ft)		56.61
E. G. Slope (ft/ft)	0.000400	Area (sq ft)		56.61
Q Total (cfs)	70.00	Flow (cfs)		70.00
Top Width (ft)	19.64	Top Width (ft)		19.64
Vel Total (ft/s)	1.24	Avg. Vel. (ft/s)		1.24
Max Chl Dpth (ft)	4.47	Hydr. Depth (ft)		2.88
Conv. Total (cfs)	3499.5	Conv. (cfs)		3499.5
Length Wtd. (ft)		Wetted Per. (ft)		22.10
Min Ch El (ft)	84.30	Shear (lb/sq ft)		0.06

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Alpha	1.00	Stream Power (lb/ft s)	260.24	0.00
0.00				
Frctn Loss (ft)		Cum Volume (acre-ft)		
C & E Loss (ft)		Cum SA (acres)		

CROSS SECTION OUTPUT Profile #ULT 100Y

E. G. Elev (ft)	89.86	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.03	Wt. n-Val.		0.045
W. S. Elev (ft)	89.83	Reach Len. (ft)		
Crit W. S. (ft)	86.31	Flow Area (sq ft)		79.03
E. G. Slope (ft/ft)	0.000400	Area (sq ft)		79.03
Q Total (cfs)	110.00	Flow (cfs)		110.00
Top Width (ft)	22.72	Top Width (ft)		22.72
Vel Total (ft/s)	1.39	Avg. Vel. (ft/s)		1.39
Max Chl Dpth (ft)	5.53	Hydr. Depth (ft)		3.48
Conv. Total (cfs)	5499.0	Conv. (cfs)		5499.0
Length Wtd. (ft)		Wetted Per. (ft)		25.84
Min Ch El (ft)	84.30	Shear (lb/sq ft)		0.08
Alpha	1.00	Stream Power (lb/ft s)	260.24	0.00
0.00				
Frctn Loss (ft)		Cum Volume (acre-ft)		
C & E Loss (ft)		Cum SA (acres)		

CROSS SECTION

RIVER: ES102-01
 REACH: ES102-01 RS: 5391

INPUT

Description:

Station	Elevation	Data	num=	72	Station	Elevation	Station	Elevation	Station	Elevation
0	91.04	4.97	91.04	9.94	90.94	14.91	90.98	19.87	90.99	
24.84	91	29.81	90.89	34.78	91	39.75	91	44.72	90.9	
49.68	90.94	54.65	91.04	59.62	91.06	64.59	90.91	69.56	90.99	
74.53	90.97	79.49	90.96	84.46	90.94	89.43	91.01	94.4	91.04	
99.37	91.26	104.34	91.34	109.3	91.45	114.27	91.86	119.24	92.4	
124.21	92.59	129.18	93.72	134.15	95.16	139.12	95.85	144.08	95.98	
146.89	96.13	149.05	96.24	154.02	96.18	158.99	93.18	163.96	90.94	

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168.93	88.08	173.89	85.31	178.86	84.82	183.83	84.51	188.8	84.49
193.77	86.82	198.74	91.47	203.7	93.97	206.92	94.09	208.67	94.16
213.64	93.91	218.61	93.12	223.58	92.14	228.55	91.66	233.51	91.45
238.48	90.99	243.45	90.72	248.42	90.53	253.39	90.55	258.36	90.58
263.33	90.65	268.29	90.7	273.26	90.85	278.23	90.82	283.2	90.76
288.17	90.83	293.14	90.88	298.1	90.87	303.07	90.89	308.04	91.02
313.01	90.98	317.98	91	322.95	91.03	327.91	91.04	332.88	91.01
337.85	90.99	342.82	91.11						

Manning's n Values	num=	3
Sta n Val	Sta n Val	Sta n Val
0 .06	158.99	.045 203.7 .06

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.	Expan.
	158.99	203.7		547 543	539	.1	.3

CROSS SECTION OUTPUT Profile #EX 10Y

E. G. Elev (ft)	91.42	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	Wt. n-Val.	0.060	0.045
0.060				
W. S. Elev (ft)	91.42	Reach Len. (ft)	547.00	543.00
539.00				
Crit W. S. (ft)		Flow Area (sq ft)	43.59	172.65
60.84				
E. G. Slope (ft/ft)	0.000001	Area (sq ft)	43.59	172.65
60.84				
Q Total (cfs)	20.00	Flow (cfs)	0.70	18.08
1.21				
Top Width (ft)	252.66	Top Width (ft)	107.89	35.79
108.97				
Vel Total (ft/s)	0.07	Avg. Vel. (ft/s)	0.02	0.10
0.02				
Max Chl Dpth (ft)	6.93	Hydr. Depth (ft)	0.40	4.82
0.56				
Conv. Total (cfs)	16786.0	Conv. (cfs)	588.5	15178.0
1019.5				
Length Wtd. (ft)	542.95	Wetted Per. (ft)	108.29	39.74
109.32				
Min Ch El (ft)	84.49	Shear (lb/sq ft)	0.00	0.00
0.00				
Alpha	1.91	Stream Power (lb/ft s)	342.82	0.00
0.00				
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.27	14.43
0.38				
C & E Loss (ft)	0.00	Cum SA (acres)	0.68	3.67
0.72				

Warning: Divided flow computed for this cross-section.
 Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #EX 25Y

E. G. Elev (ft)	91.98	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	Wt. n-Val.	0.060	0.045
0.060				

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W. S. Elev (ft)	91.98	Reach Len. (ft)	547.00	543.00
539.00		Flow Area (sq ft)	106.91	193.48
Crit W. S. (ft)		Area (sq ft)	106.91	193.48
125.15		Flow (cfs)	2.79	19.63
E. G. Slope (ft/ft)	0.000001	Top Width (ft)	115.40	38.11
125.15		Avg. Vel. (ft/s)	0.03	0.10
Q Total (cfs)	26.00	Hydr. Depth (ft)	0.93	5.08
3.58		Conv. (cfs)	2502.1	17595.3
Top Width (ft)	271.12	Wetted Per. (ft)	116.38	42.33
117.61		Shear (lb/sq ft)	0.00	0.00
Vel Total (ft/s)	0.06	Stream Power (lb/ft s)	342.82	0.00
0.03		Cum Volume (acre-ft)	0.70	16.81
Max Chl Dpth (ft)	7.49	Cum SA (acres)	0.93	3.84
1.06				
Conv. Total (cfs)	23310.8			
3213.4				
Length Wtd. (ft)	542.92			
118.55				
Min Ch El (ft)	84.49			
0.00				
Alpha	2.13			
0.00				
Frctn Loss (ft)	0.00			
1.01				
C & E Loss (ft)	0.00			
2.06				

Warning: Divided flow computed for this cross-section.
 Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #EX 100Y

E. G. Elev (ft)	93.08	Element	Left OB	Channel
Right OB		Wt. n-Val.	0.060	0.045
Vel Head (ft)	0.00	Reach Len. (ft)	547.00	543.00
0.060		Flow Area (sq ft)	240.01	237.70
W. S. Elev (ft)	93.08	Area (sq ft)	240.01	237.70
539.00		Flow (cfs)	8.74	22.29
Crit W. S. (ft)		Top Width (ft)	126.35	42.71
257.73		Avg. Vel. (ft/s)	0.04	0.09
E. G. Slope (ft/ft)	0.000001	Hydr. Depth (ft)	1.90	5.57
257.73		Conv. (cfs)	9014.1	22987.1
Q Total (cfs)	41.00	Wetted Per. (ft)	128.51	47.43
9.97		Shear (lb/sq ft)	0.00	0.00
Top Width (ft)	293.05	Stream Power (lb/ft s)	342.82	0.00
123.99		Cum Volume (acre-ft)	2.09	21.74
Vel Total (ft/s)	0.06			
0.04				
Max Chl Dpth (ft)	8.59			
2.08				
Conv. Total (cfs)	42279.7			
10278.4				
Length Wtd. (ft)	542.67			
126.12				
Min Ch El (ft)	84.49			
0.00				
Alpha	1.75			
0.00				
Frctn Loss (ft)	0.00			

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4.15				
C & E Loss (ft)	0.00	Cum SA (acres)	1.46	4.18
3.87				

Warning: Divided flow computed for this cross-section.
 Warning: The cross-section end points had to be extended vertically for the computed water surface.
 Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 10Y

E. G. Elev (ft)	91.45	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	Wt. n-Val.	0.060	0.045
0.060				
W. S. Elev (ft)	91.45	Reach Len. (ft)	547.00	543.00
539.00				
Crit W. S. (ft)		Flow Area (sq ft)	46.60	173.64
63.86				
E. G. Slope (ft/ft)	0.000001	Area (sq ft)	46.60	173.64
63.86				
Q Total (cfs)	20.00	Flow (cfs)	0.77	17.94
1.29				
Top Width (ft)	254.29	Top Width (ft)	109.14	35.88
109.27				
Vel Total (ft/s)	0.07	Avg. Vel. (ft/s)	0.02	0.10
0.02				
Max Chl Dpth (ft)	6.96	Hydr. Depth (ft)	0.43	4.84
0.58				
Conv. Total (cfs)	17051.7	Conv. (cfs)	652.6	15296.0
1103.1				
Length Wtd. (ft)	542.95	Wetted Per. (ft)	109.57	39.85
109.65				
Min Ch El (ft)	84.49	Shear (lb/sq ft)	0.00	0.00
0.00				
Alpha	1.94	Stream Power (lb/ft s)	342.82	0.00
0.00				
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.29	14.55
0.40				
C & E Loss (ft)	0.00	Cum SA (acres)	0.69	3.68
0.73				

Warning: Divided flow computed for this cross-section.
 Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #ULT 25Y

E. G. Elev (ft)	92.02	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	Wt. n-Val.	0.060	0.045
0.060				
W. S. Elev (ft)	92.02	Reach Len. (ft)	547.00	543.00
539.00				
Crit W. S. (ft)		Flow Area (sq ft)	111.61	195.03

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129.94	E. G. Slope (ft/ft)	0.000002	Area (sq ft)	111.61	195.03
129.94	Q Total (cfs)	30.00	Flow (cfs)	3.37	22.34
4.29	Top Width (ft)	272.09	Top Width (ft)	115.77	38.28
118.03	Vel Total (ft/s)	0.07	Avg. Vel. (ft/s)	0.03	0.11
0.03	Max Chl Dpth (ft)	7.53	Hydr. Depth (ft)	0.96	5.09
1.10	Conv. Total (cfs)	23871.9	Conv. (cfs)	2681.6	17778.3
3412.1	Length Wtd. (ft)	542.92	Wetted Per. (ft)	116.80	42.52
119.01	Min Ch El (ft)	84.49	Shear (lb/sq ft)	0.00	0.00
0.00	Alpha	2.12	Stream Power (lb/ft s)	342.82	0.00
0.00	Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.74	16.96
1.10	C & E Loss (ft)	0.00	Cum SA (acres)	1.03	3.85
2.30					

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #ULT 100Y

E. G. Elev (ft)	93.11	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	Wt. n-Val.	0.060	0.045
0.060				
W. S. Elev (ft)	93.11	Reach Len. (ft)	547.00	543.00
539.00				
Crit W. S. (ft)		Flow Area (sq ft)	244.31	239.15
261.95				
E. G. Slope (ft/ft)	0.000001	Area (sq ft)	244.31	239.15
261.95				
Q Total (cfs)	50.00	Flow (cfs)	10.79	26.95
12.27				
Top Width (ft)	293.52	Top Width (ft)	126.50	42.85
124.17				
Vel Total (ft/s)	0.07	Avg. Vel. (ft/s)	0.04	0.11
0.05				
Max Chl Dpth (ft)	8.62	Hydr. Depth (ft)	1.93	5.58
2.11				
Conv. Total (cfs)	42995.7	Conv. (cfs)	9276.0	23170.7
10548.9				
Length Wtd. (ft)	542.65	Wetted Per. (ft)	128.70	47.58
126.33				
Min Ch El (ft)	84.49	Shear (lb/sq ft)	0.00	0.00
0.00				
Alpha	1.73	Stream Power (lb/ft s)	342.82	0.00
0.00				
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	2.14	21.85
4.26				
C & E Loss (ft)	0.00	Cum SA (acres)	1.58	4.19
3.91				

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Warning: Divided flow computed for this cross-section.
 Warning: The cross-section end points had to be extended vertically for the computed water surface.
 Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: ES102-01
 REACH: ES102-01 RS: 4848

INPUT

Description:

Station		Elevation Data		num= 64		Sta		Elev		Sta		Elev	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	93.15	4.96	93.12	9.92	93.09	14.88	93.08	19.84	92.81				
24.8	92.59	29.76	92.17	34.72	91.97	39.68	92.01	44.64	92.05				
49.6	91.81	54.56	91.77	59.52	91.88	64.48	92.6	69.44	94.38				
74.4	96.08	79.36	96.74	84.32	96.84	89.27	97.09	92.19	97.2				
94.23	97.28	99.19	97.31	104.15	96.53	109.11	93.32	114.07	88.29				
119.03	84.94	123.99	84.94	128.95	84.84	133.91	84.85	138.87	87.16				
143.83	91.09	148.79	91.52	152.19	92.4	153.75	92.8	158.71	92.53				
163.67	92.27	168.63	92.26	173.59	91.96	178.55	91.81	183.51	91.85				
188.47	91.86	193.43	91.8	198.39	91.77	203.35	91.71	208.31	91.77				
213.27	91.76	218.23	91.83	223.19	91.84	228.15	91.8	233.11	91.8				
238.07	91.77	243.03	91.96	247.99	92.03	252.95	92.03	257.9	91.9				
262.86	92.09	267.82	91.87	272.78	91.72	277.74	91.87	282.7	92.01				
287.66	92	292.62	92.05	297.58	92.04	302.54	91.96						

Manning's n Values		num= 3	
Sta	n Val	Sta	n Val
0	.06	109.11	.045
		143.83	.06

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	109.11	143.83		599	604		.1	.3

CROSS SECTION OUTPUT Profile #EX 10Y

E. G. Elev (ft)	91.42	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	Wt. n-Val.		0.045
0.060				
W. S. Elev (ft)	91.42	Reach Len. (ft)	599.00	604.00
610.00				
Crit W. S. (ft)		Flow Area (sq ft)		163.98
0.62				
E. G. Slope (ft/ft)	0.000002	Area (sq ft)		163.98
0.62				
Q Total (cfs)	20.00	Flow (cfs)		19.99
0.01				
Top Width (ft)	36.63	Top Width (ft)		32.84
3.78				
Vel Total (ft/s)	0.12	Avg. Vel. (ft/s)		0.12
0.01				
Max Chl Dpth (ft)	6.58	Hydr. Depth (ft)		4.99
0.16				
Conv. Total (cfs)	14597.9	Conv. (cfs)		14593.3

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4.6				
Length Wtd. (ft)	604.00	Wetted Per. (ft)		37.06
3.80				
Min Ch El (ft)	84.84	Shear (lb/sq ft)		0.00
0.00				
Alpha	1.01	Stream Power (lb/ft s)	302.54	0.00
0.00				
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		12.33
0.00				
C & E Loss (ft)	0.00	Cum SA (acres)		3.24
0.03				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #EX 25Y

E. G. Elev (ft)	91.98	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	Wt. n-Val.	0.060	0.045
0.060				
W. S. Elev (ft)	91.98	Reach Len. (ft)	599.00	604.00
610.00				
Crit W. S. (ft)		Flow Area (sq ft)	2.08	182.65
18.21				
E. G. Slope (ft/ft)	0.000002	Area (sq ft)	2.08	182.65
18.21				
Q Total (cfs)	26.00	Flow (cfs)	0.02	25.73
0.25				
Top Width (ft)	150.39	Top Width (ft)	15.92	33.40
101.08				
Vel Total (ft/s)	0.13	Avg. Vel. (ft/s)	0.01	0.14
0.01				
Max Chl Dpth (ft)	7.14	Hydr. Depth (ft)	0.13	5.47
0.18				
Conv. Total (cfs)	17405.7	Conv. (cfs)	14.2	17223.1
168.4				
Length Wtd. (ft)	604.03	Wetted Per. (ft)	15.93	37.85
101.20				
Min Ch El (ft)	84.84	Shear (lb/sq ft)	0.00	0.00
0.00				
Alpha	1.20	Stream Power (lb/ft s)	302.54	0.00
0.00				
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.01	14.47
0.13				
C & E Loss (ft)	0.00	Cum SA (acres)	0.11	3.39
0.71				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #EX 100Y

ES100 OUTPUT REPORT.pdf

E. G. Elev (ft)	93.08	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	Wt. n-Val.	0.060	0.045
0.060				
W. S. Elev (ft)	93.08	Reach Len. (ft)	599.00	604.00
610.00				
Crit W. S. (ft)		Flow Area (sq ft)	44.27	219.80
181.68				
E. G. Slope (ft/ft)	0.000002	Area (sq ft)	44.27	219.80
181.68				
Q Total (cfs)	41.00	Flow (cfs)	1.42	32.59
6.99				
Top Width (ft)	244.05	Top Width (ft)	50.86	34.48
158.71				
Vel Total (ft/s)	0.09	Avg. Vel. (ft/s)	0.03	0.15
0.04				
Max Chl Dpth (ft)	8.24	Hydr. Depth (ft)	0.87	6.37
1.14				
Conv. Total (cfs)	28726.9	Conv. (cfs)	997.2	22833.9
4895.9				
Length Wtd. (ft)	604.42	Wetted Per. (ft)	51.03	39.39
160.06				
Min Ch El (ft)	84.84	Shear (lb/sq ft)	0.00	0.00
0.00				
Alpha	2.10	Stream Power (lb/ft s)	302.54	0.00
0.00				
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.30	18.89
1.43				
C & E Loss (ft)	0.00	Cum SA (acres)	0.35	3.70
2.12				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 10Y

E. G. Elev (ft)	91.45	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	Wt. n-Val.		0.045
0.060				
W. S. Elev (ft)	91.45	Reach Len. (ft)	599.00	604.00
610.00				
Crit W. S. (ft)		Flow Area (sq ft)		164.89
0.73				
E. G. Slope (ft/ft)	0.000002	Area (sq ft)		164.89
0.73				
Q Total (cfs)	20.00	Flow (cfs)		19.99
0.01				
Top Width (ft)	36.97	Top Width (ft)		32.87
4.10				
Vel Total (ft/s)	0.12	Avg. Vel. (ft/s)		0.12
0.01				
Max Chl Dpth (ft)	6.61	Hydr. Depth (ft)		5.02
0.18				
Conv. Total (cfs)	14724.1	Conv. (cfs)		14718.4

ES100 OUTPUT REPORT.pdf

5.7	Length Wtd. (ft)	604.00	Wetted Per. (ft)	37.10
4.12	Min Ch El (ft)	84.84	Shear (lb/sq ft)	0.00
0.00	Alpha	1.01	Stream Power (lb/ft s)	302.54
0.00	Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	12.44
0.01	C & E Loss (ft)	0.00	Cum SA (acres)	3.25
0.03				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 25Y

E. G. Elev (ft)	92.02	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	Wt. n-Val.	0.060	0.045
0.060				
W. S. Elev (ft)	92.02	Reach Len. (ft)	599.00	604.00
610.00				
Crit W. S. (ft)		Flow Area (sq ft)	2.86	184.00
22.61				
E. G. Slope (ft/ft)	0.000003	Area (sq ft)	2.86	184.00
22.61				
Q Total (cfs)	30.00	Flow (cfs)	0.04	29.60
0.37				
Top Width (ft)	175.37	Top Width (ft)	23.03	33.44
118.90				
Vel Total (ft/s)	0.14	Avg. Vel. (ft/s)	0.01	0.16
0.02				
Max Chl Dpth (ft)	7.18	Hydr. Depth (ft)	0.12	5.50
0.19				
Conv. Total (cfs)	17655.2	Conv. (cfs)	21.0	17418.0
216.2				
Length Wtd. (ft)	604.03	Wetted Per. (ft)	23.05	37.91
119.07				
Min Ch El (ft)	84.84	Shear (lb/sq ft)	0.00	0.00
0.00				
Alpha	1.24	Stream Power (lb/ft s)	302.54	0.00
0.00				
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.02	14.60
0.16				
C & E Loss (ft)	0.00	Cum SA (acres)	0.16	3.40
0.83				

Warning: Divided flow computed for this cross-section.
 Warning: The cross-section end points had to be extended vertically for the computed water surface.
 Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 100Y

ES100 OUTPUT REPORT.pdf

E. G. Elev (ft)	93.11	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	Wt. n-Val.	0.060	0.045
0.060				
W. S. Elev (ft)	93.11	Reach Len. (ft)	599.00	604.00
610.00				
Crit W. S. (ft)		Flow Area (sq ft)	46.14	220.96
187.01				
E. G. Slope (ft/ft)	0.000003	Area (sq ft)	46.14	220.96
187.01				
Q Total (cfs)	50.00	Flow (cfs)	1.66	39.52
8.82				
Top Width (ft)	252.47	Top Width (ft)	59.25	34.51
158.71				
Vel Total (ft/s)	0.11	Avg. Vel. (ft/s)	0.04	0.18
0.05				
Max Chl Dpth (ft)	8.27	Hydr. Depth (ft)	0.78	6.40
1.18				
Conv. Total (cfs)	29118.9	Conv. (cfs)	965.2	23016.6
5137.2				
Length Wtd. (ft)	604.45	Wetted Per. (ft)	59.43	39.44
160.09				
Min Ch El (ft)	84.84	Shear (lb/sq ft)	0.00	0.00
0.00				
Alpha	2.12	Stream Power (lb/ft s)	302.54	0.00
0.00				
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.32	18.98
1.48				
C & E Loss (ft)	0.00	Cum SA (acres)	0.41	3.71
2.16				

Warning: Divided flow computed for this cross-section.
 Warning: The cross-section end points had to be extended vertically for the computed water surface.
 Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: ES102-01
 REACH: ES102-01 RS: 4243

INPUT

Description:

Station	Elevation	Data	num=	54							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	99.71	4.93	99.69	9.86	99.67	14.8	99.69	19.73	99.79		
24.66	99.7	29.59	99.76	34.53	100.23	39.46	100.21	44.39	99.96		
49.32	99.77	54.25	99.61	59.19	99.58	64.12	98.85	69.05	98.49		
73.98	98.21	78.91	98.16	83.85	98.09	88.78	97.85	92.8	98.37		
93.71	98.48	98.64	98.62	103.57	96.59	108.51	92.69	113.44	88.88		
118.37	88	123.3	85.96	128.24	85.11	133.17	85.01	138.1	89.33		
143.03	91.6	147.96	93.67	152.87	94.85	152.9	94.86	157.83	95.02		
162.76	95.1	167.69	94.86	172.62	94.23	177.56	93.74	182.49	93.65		
187.42	93.65	192.35	93.62	197.29	93.55	202.22	93.51	207.15	93.52		
212.08	93.85	217.01	94.6	221.95	95.23	226.88	95.53	231.81	95.62		
236.74	95.73	241.67	95.53	246.61	95.51	251.54	95.51				

ES100 OUTPUT REPORT.pdf

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 103.57 .045 147.96 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 103.57 147.96 378 378 371 .1 .3

CROSS SECTION OUTPUT Profile #EX 10Y

E. G. Elev (ft)	91.42	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	Wt. n-Val.		0.045
W. S. Elev (ft)	91.42	Reach Len. (ft)	378.00	378.00
371.00 Crit W. S. (ft)		Flow Area (sq ft)		126.75
E. G. Slope (ft/ft)	0.000004	Area (sq ft)		126.75
Q Total (cfs)	20.00	Flow (cfs)		20.00
Top Width (ft)	32.47	Top Width (ft)		32.47
Vel Total (ft/s)	0.16	Avg. Vel. (ft/s)		0.16
Max Chl Dpth (ft)	6.41	Hydr. Depth (ft)		3.90
Conv. Total (cfs)	9690.3	Conv. (cfs)		9690.3
Length Wtd. (ft)	378.00	Wetted Per. (ft)		35.98
Min Ch El (ft)	85.01	Shear (lb/sq ft)		0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	251.54	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		10.32
C & E Loss (ft)	0.00	Cum SA (acres)		2.79

CROSS SECTION OUTPUT Profile #EX 25Y

E. G. Elev (ft)	91.98	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	Wt. n-Val.		0.045
W. S. Elev (ft)	91.98	Reach Len. (ft)	378.00	378.00
371.00 Crit W. S. (ft)		Flow Area (sq ft)		145.61
E. G. Slope (ft/ft)	0.000005	Area (sq ft)		145.61
Q Total (cfs)	26.00	Flow (cfs)		26.00
Top Width (ft)	34.50	Top Width (ft)		34.50
Vel Total (ft/s)	0.18	Avg. Vel. (ft/s)		0.18
Max Chl Dpth (ft)	6.97	Hydr. Depth (ft)		4.22

ES100 OUTPUT REPORT.pdf

Conv. Total (cfs)	11708.8	Conv. (cfs)	11708.8
Length Wtd. (ft)	378.00	Wetted Per. (ft)	38.32
Min Ch El (ft)	85.01	Shear (lb/sq ft)	0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	251.54
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	12.19
C & E Loss (ft)	0.00	Cum SA (acres)	2.92

CROSS SECTION OUTPUT Profile #EX 100Y

E. G. Elev (ft)	93.07	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	Wt. n-Val.		0.045
W. S. Elev (ft)	93.07	Reach Len. (ft)	378.00	378.00
371.00 Crit W. S. (ft)		Flow Area (sq ft)		185.56
E. G. Slope (ft/ft)	0.000006	Area (sq ft)		185.56
Q Total (cfs)	41.00	Flow (cfs)		41.00
Top Width (ft)	38.52	Top Width (ft)		38.52
Vel Total (ft/s)	0.22	Avg. Vel. (ft/s)		0.22
Max Chl Dpth (ft)	8.06	Hydr. Depth (ft)		4.82
Conv. Total (cfs)	16259.8	Conv. (cfs)		16259.8
Length Wtd. (ft)	378.00	Wetted Per. (ft)		42.93
Min Ch El (ft)	85.01	Shear (lb/sq ft)		0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	251.54	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.00	16.08
0.16 C & E Loss (ft)	0.00	Cum SA (acres)	0.00	3.20
1.01				

CROSS SECTION OUTPUT Profile #ULT 10Y

E. G. Elev (ft)	91.44	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	Wt. n-Val.		0.045
W. S. Elev (ft)	91.44	Reach Len. (ft)	378.00	378.00
371.00 Crit W. S. (ft)		Flow Area (sq ft)		127.65

ES100 OUTPUT REPORT.pdf

E. G. Slope (ft/ft)	0.000004	Area (sq ft)		127.65
Q Total (cfs)	20.00	Flow (cfs)		20.00
Top Width (ft)	32.57	Top Width (ft)		32.57
Vel Total (ft/s)	0.16	Avg. Vel. (ft/s)		0.16
Max Chl Dpth (ft)	6.43	Hydr. Depth (ft)		3.92
Conv. Total (cfs)	9785.4	Conv. (cfs)		9785.4
Length Wtd. (ft)	378.00	Wetted Per. (ft)		36.09
Min Ch El (ft)	85.01	Shear (lb/sq ft)		0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	251.54	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		10.41
C & E Loss (ft)	0.00	Cum SA (acres)		2.80

CROSS SECTION OUTPUT Profile #ULT 25Y

E. G. Elev (ft)	92.02	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	Wt. n-Val.		0.045
W. S. Elev (ft)	92.02	Reach Len. (ft)	378.00	378.00
371.00 Crit W. S. (ft)		Flow Area (sq ft)		146.99
E. G. Slope (ft/ft)	0.000006	Area (sq ft)		146.99
Q Total (cfs)	30.00	Flow (cfs)		30.00
Top Width (ft)	34.65	Top Width (ft)		34.65
Vel Total (ft/s)	0.20	Avg. Vel. (ft/s)		0.20
Max Chl Dpth (ft)	7.01	Hydr. Depth (ft)		4.24
Conv. Total (cfs)	11858.8	Conv. (cfs)		11858.8
Length Wtd. (ft)	378.00	Wetted Per. (ft)		38.49
Min Ch El (ft)	85.01	Shear (lb/sq ft)		0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	251.54	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		12.30
C & E Loss (ft)	0.00	Cum SA (acres)		2.93

CROSS SECTION OUTPUT Profile #ULT 100Y

ES100 OUTPUT REPORT.pdf

E. G. Elev (ft)	93.11	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	Wt. n-Val.		0.045
W. S. Elev (ft)	93.11	Reach Len. (ft)	378.00	378.00
371.00				
Crit W. S. (ft)		Flow Area (sq ft)		186.81
E. G. Slope (ft/ft)	0.000009	Area (sq ft)		186.81
Q Total (cfs)	50.00	Flow (cfs)		50.00
Top Width (ft)	38.63	Top Width (ft)		38.63
Vel Total (ft/s)	0.27	Avg. Vel. (ft/s)		0.27
Max Chl Dpth (ft)	8.10	Hydr. Depth (ft)		4.84
Conv. Total (cfs)	16408.4	Conv. (cfs)		16408.4
Length Wtd. (ft)	378.00	Wetted Per. (ft)		43.06
Min Ch El (ft)	85.01	Shear (lb/sq ft)		0.00
Alpha	1.00	Stream Power (lb/ft s)	251.54	0.00
0.00				
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.00	16.16
0.18				
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	3.20
1.05				

CROSS SECTION

RIVER: ES102-01
 REACH: ES102-01 RS: 3865

INPUT

Description:

Station	Elevation	Data	num=	50
Sta	Elev	Sta	Elev	Sta
0	99.97	4.96	100.01	9.91
24.78	99.08	29.73	98.12	34.69
49.56	97.46	54.51	97.59	55.74
69.38	93.04	74.34	88.59	79.29
94.16	86.5	99.12	90.34	104.07
115.75	94.94	118.94	95.15	123.9
138.76	93.6	143.72	93.45	148.67
163.54	93.25	168.5	93.47	173.45
188.32	95.29	193.28	95.37	198.23
213.1	95.54	218.06	95.54	223.01
			95.57	227.97
			95.64	232.92
			99.85	19.82
			97.57	44.6
			96.84	64.43
			86.39	89.2
			94.73	113.98
			94.32	133.81
			93.3	158.59
			94.25	183.37
			95.59	208.14
			95.64	232.92

Manning's n Values	num=	3
Sta	n Val	Sta
0	.06	69.38
		.045
		104.07
		.06

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	69.38	104.07		685	685	688		.1	.3

ES100 OUTPUT REPORT.pdf

E. G. Elev (ft)	91.41	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	Wt. n-Val.		0.045
W. S. Elev (ft)	91.41	Reach Len. (ft)	685.00	685.00
688.00 Crit W. S. (ft)		Flow Area (sq ft)		111.43
E. G. Slope (ft/ft)	0.000006	Area (sq ft)		111.43
Q Total (cfs)	20.00	Flow (cfs)		20.00
Top Width (ft)	29.14	Top Width (ft)		29.14
Vel Total (ft/s)	0.18	Avg. Vel. (ft/s)		0.18
Max Chl Dpth (ft)	5.21	Hydr. Depth (ft)		3.82
Conv. Total (cfs)	8412.4	Conv. (cfs)		8412.4
Length Wtd. (ft)	685.00	Wetted Per. (ft)		32.23
Min Ch El (ft)	86.20	Shear (lb/sq ft)		0.00
Al pha 0.00	1.00	Stream Power (lb/ft s)	232.92	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		9.28
C & E Loss (ft)	0.00	Cum SA (acres)		2.52

CROSS SECTION OUTPUT Profile #EX 25Y

E. G. Elev (ft)	91.98	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	Wt. n-Val.		0.045
W. S. Elev (ft)	91.98	Reach Len. (ft)	685.00	685.00
688.00 Crit W. S. (ft)		Flow Area (sq ft)		128.20
E. G. Slope (ft/ft)	0.000006	Area (sq ft)		128.20
Q Total (cfs)	26.00	Flow (cfs)		26.00
Top Width (ft)	30.41	Top Width (ft)		30.41
Vel Total (ft/s)	0.20	Avg. Vel. (ft/s)		0.20
Max Chl Dpth (ft)	5.78	Hydr. Depth (ft)		4.22
Conv. Total (cfs)	10270.2	Conv. (cfs)		10270.2
Length Wtd. (ft)	685.00	Wetted Per. (ft)		33.92
Min Ch El (ft)	86.20	Shear (lb/sq ft)		0.00
Al pha	1.00	Stream Power (lb/ft s)	232.92	0.00

ES100 OUTPUT REPORT.pdf

0.00			
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	11.00
C & E Loss (ft)	0.00	Cum SA (acres)	2.64

CROSS SECTION OUTPUT Profile #EX 100Y

E. G. Elev (ft)	93.07	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	Wt. n-Val.	0.000	0.045
W. S. Elev (ft)	93.07	Reach Len. (ft)	685.00	685.00
688.00				
Crit W. S. (ft)		Flow Area (sq ft)	0.00	162.78
E. G. Slope (ft/ft)	0.000008	Area (sq ft)	0.00	162.78
Q Total (cfs)	41.00	Flow (cfs)	0.00	41.00
Top Width (ft)	32.92	Top Width (ft)	0.09	32.83
Vel Total (ft/s)	0.25	Avg. Vel. (ft/s)	0.00	0.25
Max Chl Dpth (ft)	6.87	Hydr. Depth (ft)	0.02	4.96
Conv. Total (cfs)	14389.2	Conv. (cfs)	0.0	14389.2
Length Wtd. (ft)	685.00	Wetted Per. (ft)	0.10	37.17
Min Ch El (ft)	86.20	Shear (lb/sq ft)		0.00
Alpha	1.00	Stream Power (lb/ft s)	232.92	0.00
0.00				
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.00	14.56
0.16				
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	2.89
1.01				

CROSS SECTION OUTPUT Profile #ULT 10Y

E. G. Elev (ft)	91.44	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	Wt. n-Val.		0.045
W. S. Elev (ft)	91.44	Reach Len. (ft)	685.00	685.00
688.00				
Crit W. S. (ft)		Flow Area (sq ft)		112.24
E. G. Slope (ft/ft)	0.000006	Area (sq ft)		112.24
Q Total (cfs)	20.00	Flow (cfs)		20.00
Top Width (ft)	29.20	Top Width (ft)		29.20
Vel Total (ft/s)	0.18	Avg. Vel. (ft/s)		0.18

ES100 OUTPUT REPORT.pdf

Max Chl Dpth (ft)	5.24	Hydr. Depth (ft)		3.84
Conv. Total (cfs)	8500.0	Conv. (cfs)		8500.0
Length Wtd. (ft)	685.00	Wetted Per. (ft)		32.31
Min Ch El (ft)	86.20	Shear (lb/sq ft)		0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	232.92	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		9.37
C & E Loss (ft)	0.00	Cum SA (acres)		2.53

CROSS SECTION OUTPUT Profile #ULT 25Y

E. G. Elev (ft)	92.02	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	Wt. n-Val.		0.045
W. S. Elev (ft)	92.02	Reach Len. (ft)	685.00	685.00
688.00 Crit W. S. (ft)		Flow Area (sq ft)		129.39
E. G. Slope (ft/ft)	0.000008	Area (sq ft)		129.39
Q Total (cfs)	30.00	Flow (cfs)		30.00
Top Width (ft)	30.49	Top Width (ft)		30.49
Vel Total (ft/s)	0.23	Avg. Vel. (ft/s)		0.23
Max Chl Dpth (ft)	5.82	Hydr. Depth (ft)		4.24
Conv. Total (cfs)	10405.3	Conv. (cfs)		10405.3
Length Wtd. (ft)	685.00	Wetted Per. (ft)		34.04
Min Ch El (ft)	86.20	Shear (lb/sq ft)		0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	232.92	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		11.11
C & E Loss (ft)	0.00	Cum SA (acres)		2.64

CROSS SECTION OUTPUT Profile #ULT 100Y

E. G. Elev (ft)	93.10	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	Wt. n-Val.	0.060	0.045
W. S. Elev (ft)	93.10	Reach Len. (ft)	685.00	685.00
688.00 Crit W. S. (ft)		Flow Area (sq ft)	0.01	163.80

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E. G. Slope (ft/ft)	0.000012	Area (sq ft)	0.01	163.80
Q Total (cfs)	50.00	Flow (cfs)	0.00	50.00
Top Width (ft)	33.05	Top Width (ft)	0.19	32.86
Vel Total (ft/s)	0.31	Avg. Vel. (ft/s)	0.01	0.31
Max Chl Dpth (ft)	6.90	Hydr. Depth (ft)	0.03	4.98
Conv. Total (cfs)	14527.8	Conv. (cfs)	0.0	14527.8
Length Wtd. (ft)	685.00	Wetted Per. (ft)	0.20	37.21
Min Ch El (ft)	86.20	Shear (lb/sq ft)	0.00	0.00
Alpha	1.00	Stream Power (lb/ft s)	232.92	0.00
0.00				
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	0.00	14.63
0.18				
C & E Loss (ft)	0.00	Cum SA (acres)	0.00	2.89
1.05				

CROSS SECTION

RIVER: ES102-01
 REACH: ES102-01 RS: 3180

INPUT

Description:

Station	Elevation	Data	num=	50	Station	Elevation	Station	Elevation	Station	Elevation
0	99.75	4.93	99.73	9.86	99.73	14.79	99.56	19.73	99.4	99.4
24.66	99.26	29.59	99.26	34.52	98.83	39.45	98.45	44.38	98.17	98.17
49.32	97.83	52.53	96.56	54.25	95.88	59.18	92.68	64.11	89.23	89.23
69.04	87.7	73.97	86.77	78.9	85.86	83.84	86.07	88.77	86.35	86.35
93.7	88.56	98.63	93.17	103.56	96.74	108.49	98.41	112.53	98.01	98.01
113.43	97.92	118.36	97.34	123.29	95.81	128.22	94.15	133.15	94.09	94.09
138.08	94.11	143.01	94.15	147.95	93.78	152.88	93.89	157.81	93.9	93.9
162.74	94.02	167.67	94.04	172.6	94.07	177.54	94.05	182.47	93.95	93.95
187.4	93.86	192.33	94	197.26	93.92	202.19	93.9	207.12	93.93	93.93
212.06	93.98	216.99	94.41	221.92	94.52	226.85	94.16	231.78	93.98	93.98

Manning's n	Values	num=	3
0	.06	52.53	.045
		103.56	.06

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	52.53	103.56		716	716		.1	.3

CROSS SECTION OUTPUT Profile #EX 10Y

E. G. Elev (ft)	91.41	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	Wt. n-Val.		0.045
W. S. Elev (ft)	91.41	Reach Len. (ft)	716.00	716.00
715.00				

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Crit W. S. (ft)		Flow Area (sq ft)	140.04
E. G. Slope (ft/ft)	0.000003	Area (sq ft)	140.04
Q Total (cfs)	20.00	Flow (cfs)	20.00
Top Width (ft)	35.76	Top Width (ft)	35.76
Vel Total (ft/s)	0.14	Avg. Vel. (ft/s)	0.14
Max Chl Dpth (ft)	5.55	Hydr. Depth (ft)	3.92
Conv. Total (cfs)	10944.8	Conv. (cfs)	10944.8
Length Wtd. (ft)	716.00	Wetted Per. (ft)	38.46
Min Ch El (ft)	85.86	Shear (lb/sq ft)	0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	231.78
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	7.31
C & E Loss (ft)	0.00	Cum SA (acres)	2.01

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #EX 25Y

E. G. Elev (ft)	91.97	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	Wt. n-Val.		0.045
W. S. Elev (ft)	91.97	Reach Len. (ft)	716.00	716.00
715.00 Crit W. S. (ft)		Flow Area (sq ft)		160.56
E. G. Slope (ft/ft)	0.000004	Area (sq ft)		160.56
Q Total (cfs)	26.00	Flow (cfs)		26.00
Top Width (ft)	37.16	Top Width (ft)		37.16
Vel Total (ft/s)	0.16	Avg. Vel. (ft/s)		0.16
Max Chl Dpth (ft)	6.11	Hydr. Depth (ft)		4.32
Conv. Total (cfs)	13332.5	Conv. (cfs)		13332.5
Length Wtd. (ft)	716.00	Wetted Per. (ft)		40.26
Min Ch El (ft)	85.86	Shear (lb/sq ft)		0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	231.78	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)		8.73
C & E Loss (ft)	0.00	Cum SA (acres)		2.11

ES100 OUTPUT REPORT.pdf

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #EX 100Y

E. G. Elev (ft)	93.07	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	Wt. n-Val.		0.045
W. S. Elev (ft)	93.07	Reach Len. (ft)	716.00	716.00
715.00				
Crit W. S. (ft)		Flow Area (sq ft)		202.66
E. G. Slope (ft/ft)	0.000005	Area (sq ft)		202.66
Q Total (cfs)	41.00	Flow (cfs)		41.00
Top Width (ft)	39.94	Top Width (ft)		39.94
Vel Total (ft/s)	0.20	Avg. Vel. (ft/s)		0.20
Max Chl Dpth (ft)	7.21	Hydr. Depth (ft)		5.07
Conv. Total (cfs)	18580.5	Conv. (cfs)		18580.5
Length Wtd. (ft)	716.00	Wetted Per. (ft)		43.80
Min Ch El (ft)	85.86	Shear (lb/sq ft)		0.00
Alpha	1.00	Stream Power (lb/ft s)	231.78	0.00
0.00				
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)		11.69
0.16				
C & E Loss (ft)	0.00	Cum SA (acres)		2.31
1.01				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 10Y

E. G. Elev (ft)	91.44	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	Wt. n-Val.		0.045
W. S. Elev (ft)	91.44	Reach Len. (ft)	716.00	716.00
715.00				
Crit W. S. (ft)		Flow Area (sq ft)		141.03
E. G. Slope (ft/ft)	0.000003	Area (sq ft)		141.03
Q Total (cfs)	20.00	Flow (cfs)		20.00

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Top Width (ft)	35.83	Top Width (ft)	35.83
Vel Total (ft/s)	0.14	Avg. Vel. (ft/s)	0.14
Max Chl Dpth (ft)	5.58	Hydr. Depth (ft)	3.94
Conv. Total (cfs)	11057.8	Conv. (cfs)	11057.8
Length Wtd. (ft)	716.00	Wetted Per. (ft)	38.55
Min Ch El (ft)	85.86	Shear (lb/sq ft)	0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	231.78
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	7.38
C & E Loss (ft)	0.00	Cum SA (acres)	2.02

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 25Y

E. G. Elev (ft)	92.01	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	Wt. n-Val.		0.045
W. S. Elev (ft)	92.01	Reach Len. (ft)	716.00	716.00
715.00 Crit W. S. (ft)		Flow Area (sq ft)		161.98
E. G. Slope (ft/ft)	0.000005	Area (sq ft)		161.98
Q Total (cfs)	30.00	Flow (cfs)		30.00
Top Width (ft)	37.26	Top Width (ft)		37.26
Vel Total (ft/s)	0.19	Avg. Vel. (ft/s)		0.19
Max Chl Dpth (ft)	6.15	Hydr. Depth (ft)		4.35
Conv. Total (cfs)	13501.8	Conv. (cfs)		13501.8
Length Wtd. (ft)	716.00	Wetted Per. (ft)		40.38
Min Ch El (ft)	85.86	Shear (lb/sq ft)		0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	231.78	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)		8.81
C & E Loss (ft)	0.00	Cum SA (acres)		2.11

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

ES100 OUTPUT REPORT.pdf

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 100Y

E. G. Elev (ft)	93.10	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	Wt. n-Val.		0.045
W. S. Elev (ft)	93.10	Reach Len. (ft)	716.00	716.00
715.00				
Crit W. S. (ft)		Flow Area (sq ft)		203.83
E. G. Slope (ft/ft)	0.000007	Area (sq ft)		203.83
Q Total (cfs)	50.00	Flow (cfs)		50.00
Top Width (ft)	40.01	Top Width (ft)		40.01
Vel Total (ft/s)	0.25	Avg. Vel. (ft/s)		0.25
Max Chl Dpth (ft)	7.24	Hydr. Depth (ft)		5.09
Conv. Total (cfs)	18732.0	Conv. (cfs)		18732.0
Length Wtd. (ft)	716.00	Wetted Per. (ft)		43.90
Min Ch El (ft)	85.86	Shear (lb/sq ft)		0.00
Alpha	1.00	Stream Power (lb/ft s)	231.78	0.00
0.00				
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)		11.74
0.18				
C & E Loss (ft)	0.00	Cum SA (acres)		2.32
1.05				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: ES102-01
 REACH: ES102-01 RS: 2464

INPUT

Description:

Station	Elevation	Data	num=	47							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	99.87	4.96	99.92	9.91	99.97	14.87	99.98	19.82	99.8		
24.78	99.49	29.74	99.52	34.69	99.54	39.65	99.63	43.74	99.72		
44.6	99.74	49.56	100.72	54.51	100.85	59.47	99.82	64.43	93.91		
69.38	89.67	74.34	88.81	79.29	88.78	84.25	88.6	89.21	88.31		
94.16	92.02	99.12	93.81	103.78	94.35	104.07	94.39	109.03	94.6		
113.99	94.62	118.94	94.61	123.9	94.58	128.85	94.47	133.81	94.26		
138.77	94.19	143.72	94.21	148.68	94.17	153.63	94.13	158.59	94.15		
163.55	94.21	168.5	94.12	173.46	93.79	178.41	93.67	183.37	93.8		
188.32	93.88	193.28	94.11	198.24	94.1	203.19	93.7	208.15	93.77		
213.1	94.01	218.06	94.01								

ES100 OUTPUT REPORT.pdf

Manning's n Values
 Sta n Val Sta n Val num= 3
 0 .06 64.43 .045 103.78 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 64.43 103.78 560 560 557 .1 .3

CROSS SECTION OUTPUT Profile #EX 10Y

E. G. Elev (ft)	91.41	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	Wt. n-Val.		0.045
W. S. Elev (ft)	91.40	Reach Len. (ft)	560.00	560.00
557.00 Crit W. S. (ft)		Flow Area (sq ft)		59.88
E. G. Slope (ft/ft)	0.000037	Area (sq ft)		59.88
Q Total (cfs)	20.00	Flow (cfs)		20.00
Top Width (ft)	25.98	Top Width (ft)		25.98
Vel Total (ft/s)	0.33	Avg. Vel. (ft/s)		0.33
Max Chl Dpth (ft)	3.09	Hydr. Depth (ft)		2.30
Conv. Total (cfs)	3302.5	Conv. (cfs)		3302.5
Length Wtd. (ft)	560.00	Wetted Per. (ft)		27.74
Min Ch El (ft)	88.31	Shear (lb/sq ft)		0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	218.06	0.00
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)		5.66
C & E Loss (ft)	0.00	Cum SA (acres)		1.50

CROSS SECTION OUTPUT Profile #EX 25Y

E. G. Elev (ft)	91.97	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	Wt. n-Val.		0.045
W. S. Elev (ft)	91.97	Reach Len. (ft)	560.00	560.00
557.00 Crit W. S. (ft)		Flow Area (sq ft)		74.89
E. G. Slope (ft/ft)	0.000032	Area (sq ft)		74.89
Q Total (cfs)	26.00	Flow (cfs)		26.00
Top Width (ft)	27.39	Top Width (ft)		27.39
Vel Total (ft/s)	0.35	Avg. Vel. (ft/s)		0.35
Max Chl Dpth (ft)	3.66	Hydr. Depth (ft)		2.73

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Conv. Total (cfs)	4597.5	Conv. (cfs)		4597.5
Length Wtd. (ft)	560.00	Wetted Per. (ft)		29.54
Min Ch El (ft)	88.31	Shear (lb/sq ft)		0.01
Alpha 0.00	1.00	Stream Power (lb/ft s)	218.06	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)		6.80
C & E Loss (ft)	0.00	Cum SA (acres)		1.58

CROSS SECTION OUTPUT Profile #EX 100Y

E. G. Elev (ft)	93.06	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	Wt. n-Val.		0.045
W. S. Elev (ft)	93.06	Reach Len. (ft)	560.00	560.00
557.00 Crit W. S. (ft)		Flow Area (sq ft)		107.04
E. G. Slope (ft/ft)	0.000030	Area (sq ft)		107.04
Q Total (cfs)	41.00	Flow (cfs)		41.00
Top Width (ft)	31.61	Top Width (ft)		31.61
Vel Total (ft/s)	0.38	Avg. Vel. (ft/s)		0.38
Max Chl Dpth (ft)	4.75	Hydr. Depth (ft)		3.39
Conv. Total (cfs)	7538.5	Conv. (cfs)		7538.5
Length Wtd. (ft)	559.98	Wetted Per. (ft)		34.37
Min Ch El (ft)	88.31	Shear (lb/sq ft)		0.01
Alpha 0.00	1.00	Stream Power (lb/ft s)	218.06	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)		9.15
0.16 C & E Loss (ft)	0.00	Cum SA (acres)		1.73
1.01				

CROSS SECTION OUTPUT Profile #ULT 10Y

E. G. Elev (ft)	91.43	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	Wt. n-Val.		0.045
W. S. Elev (ft)	91.43	Reach Len. (ft)	560.00	560.00
557.00 Crit W. S. (ft)		Flow Area (sq ft)		60.61

ES100 OUTPUT REPORT.pdf

E. G. Slope (ft/ft)	0.000035	Area (sq ft)		60.61
Q Total (cfs)	20.00	Flow (cfs)		20.00
Top Width (ft)	26.05	Top Width (ft)		26.05
Vel Total (ft/s)	0.33	Avg. Vel. (ft/s)		0.33
Max Chl Dpth (ft)	3.12	Hydr. Depth (ft)		2.33
Conv. Total (cfs)	3362.5	Conv. (cfs)		3362.5
Length Wtd. (ft)	560.00	Wetted Per. (ft)		27.83
Min Ch El (ft)	88.31	Shear (lb/sq ft)		0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	218.06	0.00
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)		5.72
C & E Loss (ft)	0.00	Cum SA (acres)		1.51

CROSS SECTION OUTPUT Profile #ULT 25Y

E. G. Elev (ft)	92.00	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	Wt. n-Val.		0.045
W. S. Elev (ft)	92.00	Reach Len. (ft)	560.00	560.00
557.00 Crit W. S. (ft)		Flow Area (sq ft)		75.87
E. G. Slope (ft/ft)	0.000041	Area (sq ft)		75.87
Q Total (cfs)	30.00	Flow (cfs)		30.00
Top Width (ft)	27.48	Top Width (ft)		27.48
Vel Total (ft/s)	0.40	Avg. Vel. (ft/s)		0.40
Max Chl Dpth (ft)	3.69	Hydr. Depth (ft)		2.76
Conv. Total (cfs)	4686.4	Conv. (cfs)		4686.4
Length Wtd. (ft)	560.00	Wetted Per. (ft)		29.66
Min Ch El (ft)	88.31	Shear (lb/sq ft)		0.01
Alpha 0.00	1.00	Stream Power (lb/ft s)	218.06	0.00
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)		6.86
C & E Loss (ft)	0.00	Cum SA (acres)		1.58

CROSS SECTION OUTPUT Profile #ULT 100Y

ES100 OUTPUT REPORT.pdf

E. G. Elev (ft)	93.09	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	Wt. n-Val.		0.045
W. S. Elev (ft)	93.08	Reach Len. (ft)	560.00	560.00
557.00 Crit W. S. (ft)		Flow Area (sq ft)		107.84
E. G. Slope (ft/ft)	0.000043	Area (sq ft)		107.84
Q Total (cfs)	50.00	Flow (cfs)		50.00
Top Width (ft)	31.71	Top Width (ft)		31.71
Vel Total (ft/s)	0.46	Avg. Vel. (ft/s)		0.46
Max Chl Dpth (ft)	4.77	Hydr. Depth (ft)		3.40
Conv. Total (cfs)	7615.6	Conv. (cfs)		7615.6
Length Wtd. (ft)	559.98	Wetted Per. (ft)		34.48
Min Ch El (ft)	88.31	Shear (lb/sq ft)		0.01
Alpha 0.00	1.00	Stream Power (lb/ft s)	218.06	0.00
Frctn Loss (ft) 0.18	0.02	Cum Volume (acre-ft)		9.18
C & E Loss (ft) 1.05	0.00	Cum SA (acres)		1.73

CROSS SECTION

RIVER: ES102-01
REACH: ES102-01 RS: 1904

INPUT

Description:

Station	Elevation	Data	num=	56	Sta	Elev	Sta	Elev	Sta	Elev
0	99.85	4.93	99.8	9.87	99.75	14.8	99.59	19.74	99.44	
24.67	99.42	29.6	99.43	34.54	99.49	39.47	99.55	44.41	99.54	
47.86	99.53	49.34	99.53	54.27	99.84	59.21	99.17	64.14	97.19	
69.08	94.77	74.01	89.97	78.94	88.32	83.88	88.4	88.81	88.45	
93.75	88.47	98.68	89.43	103.61	93.8	107.86	93.76	108.55	93.75	
113.48	93.75	118.42	93.56	123.35	93.65	128.28	93.47	133.22	93.46	
138.15	93.56	143.09	93.29	148.02	93.25	152.95	93.24	157.89	93.28	
162.82	93.3	167.76	93.31	172.69	93.31	177.62	93.32	182.56	93.38	
187.49	93.22	192.43	92.94	197.36	92.82	202.29	92.8	207.23	92.83	
212.16	92.95	217.1	93	222.03	92.96	226.96	92.9	231.9	92.93	
236.83	93.02	241.77	92.86	246.7	92.62	251.63	92.65	256.57	92.69	
261.5	92.75									

Manning's n	Values	num=	3
Sta	n Val	Sta	n Val
0	.06	69.08	.045
		103.61	.06

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.	Expan.
	69.08	103.61		323	323	.1	.3

ES100 OUTPUT REPORT.pdf

CROSS SECTION OUTPUT Profile #EX 10Y

E. G. Elev (ft)	91.39	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	Wt. n-Val.		0.045
W. S. Elev (ft)	91.39	Reach Len. (ft)	323.00	323.00
326.00 Crit W. S. (ft)		Flow Area (sq ft)		70.30
E. G. Slope (ft/ft)	0.000024	Area (sq ft)		70.30
Q Total (cfs)	20.00	Flow (cfs)		20.00
Top Width (ft)	28.34	Top Width (ft)		28.34
Vel Total (ft/s)	0.28	Avg. Vel. (ft/s)		0.28
Max Chl Dpth (ft)	3.07	Hydr. Depth (ft)		2.48
Conv. Total (cfs)	4094.0	Conv. (cfs)		4094.0
Length Wtd. (ft)	323.00	Wetted Per. (ft)		30.02
Min Ch El (ft)	88.32	Shear (lb/sq ft)		0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	261.50	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		4.83
C & E Loss (ft)	0.00	Cum SA (acres)		1.16

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #EX 25Y

E. G. Elev (ft)	91.95	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	Wt. n-Val.		0.045
W. S. Elev (ft)	91.95	Reach Len. (ft)	323.00	323.00
326.00 Crit W. S. (ft)		Flow Area (sq ft)		86.63
E. G. Slope (ft/ft)	0.000022	Area (sq ft)		86.63
Q Total (cfs)	26.00	Flow (cfs)		26.00
Top Width (ft)	29.55	Top Width (ft)		29.55
Vel Total (ft/s)	0.30	Avg. Vel. (ft/s)		0.30
Max Chl Dpth (ft)	3.63	Hydr. Depth (ft)		2.93
Conv. Total (cfs)	5594.7	Conv. (cfs)		5594.7

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Length Wtd. (ft)	323.00	Wetted Per. (ft)		31.68
Min Ch El (ft)	88.32	Shear (lb/sq ft)		0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	261.50	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		5.76
C & E Loss (ft)	0.00	Cum SA (acres)		1.21

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #EX 100Y

E. G. Elev (ft)	93.05	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	Wt. n-Val.		0.045
0.060				
W. S. Elev (ft)	93.04	Reach Len. (ft)	323.00	323.00
326.00				
Crit W. S. (ft)		Flow Area (sq ft)		120.20
13.67				
E. G. Slope (ft/ft)	0.000020	Area (sq ft)		120.20
13.67				
Q Total (cfs)	41.00	Flow (cfs)		40.50
0.50				
Top Width (ft)	102.82	Top Width (ft)		31.91
70.92				
Vel Total (ft/s)	0.31	Avg. Vel. (ft/s)		0.34
0.04				
Max Chl Dpth (ft)	4.72	Hydr. Depth (ft)		3.77
0.19				
Conv. Total (cfs)	9166.7	Conv. (cfs)		9054.1
112.6				
Length Wtd. (ft)	323.02	Wetted Per. (ft)		34.89
71.23				
Min Ch El (ft)	88.32	Shear (lb/sq ft)		0.00
0.00				
Alpha	1.20	Stream Power (lb/ft s)	261.50	0.00
0.00				
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		7.69
0.07				
C & E Loss (ft)	0.00	Cum SA (acres)		1.32
0.56				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 10Y

ES100 OUTPUT REPORT.pdf

E. G. Elev (ft)	91.42	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	Wt. n-Val.		0.045
W. S. Elev (ft)	91.42	Reach Len. (ft)	323.00	323.00
326.00 Crit W. S. (ft)		Flow Area (sq ft)		71.11
E. G. Slope (ft/ft)	0.000023	Area (sq ft)		71.11
Q Total (cfs)	20.00	Flow (cfs)		20.00
Top Width (ft)	28.40	Top Width (ft)		28.40
Vel Total (ft/s)	0.28	Avg. Vel. (ft/s)		0.28
Max Chl Dpth (ft)	3.10	Hydr. Depth (ft)		2.50
Conv. Total (cfs)	4165.3	Conv. (cfs)		4165.3
Length Wtd. (ft)	323.00	Wetted Per. (ft)		30.10
Min Ch El (ft)	88.32	Shear (lb/sq ft)		0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	261.50	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		4.87
C & E Loss (ft)	0.00	Cum SA (acres)		1.16

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 25Y

E. G. Elev (ft)	91.99	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	Wt. n-Val.		0.045
W. S. Elev (ft)	91.98	Reach Len. (ft)	323.00	323.00
326.00 Crit W. S. (ft)		Flow Area (sq ft)		87.57
E. G. Slope (ft/ft)	0.000028	Area (sq ft)		87.57
Q Total (cfs)	30.00	Flow (cfs)		30.00
Top Width (ft)	29.62	Top Width (ft)		29.62
Vel Total (ft/s)	0.34	Avg. Vel. (ft/s)		0.34
Max Chl Dpth (ft)	3.66	Hydr. Depth (ft)		2.96
Conv. Total (cfs)	5685.0	Conv. (cfs)		5685.0
Length Wtd. (ft)	323.00	Wetted Per. (ft)		31.77

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Min Ch El (ft)	88.32	Shear (lb/sq ft)		0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	261.50	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)		5.81
C & E Loss (ft)	0.00	Cum SA (acres)		1.21

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 100Y

E. G. Elev (ft)	93.07	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	Wt. n-Val.		0.045
0.060 W. S. Elev (ft)	93.06	Reach Len. (ft)	323.00	323.00
326.00 Crit W. S. (ft)		Flow Area (sq ft)		120.81
15.03 E. G. Slope (ft/ft)	0.000029	Area (sq ft)		120.81
15.03 Q Total (cfs)	50.00	Flow (cfs)		49.29
0.71 Top Width (ft)	103.20	Top Width (ft)		31.95
71.25 Vel Total (ft/s)	0.37	Avg. Vel. (ft/s)		0.41
0.05 Max Chl Dpth (ft)	4.74	Hydr. Depth (ft)		3.78
0.21 Conv. Total (cfs)	9252.6	Conv. (cfs)		9121.1
131.4 Length Wtd. (ft)	323.02	Wetted Per. (ft)		34.95
71.59 Min Ch El (ft)	88.32	Shear (lb/sq ft)		0.01
0.00 Alpha	1.21	Stream Power (lb/ft s)	261.50	0.00
0.00 Frctn Loss (ft)	0.01	Cum Volume (acre-ft)		7.71
0.08 C & E Loss (ft)	0.00	Cum SA (acres)		1.32
0.60				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: ES102-01
REACH: ES102-01

RS: 1581

ES100 OUTPUT REPORT.pdf

INPUT

Description:

Station	Elevation	Data	num=	82	Station	Elevation	Station	Elevation	Station	Elevation
0	94.28	4.99	94.26	9.97	94.22	14.96	94.1	19.94	94.09	
24.93	94.06	29.92	94.1	34.9	94.23	39.89	94.27	44.87	94.39	
49.86	94.21	54.84	94	59.83	94	64.82	94.01	69.8	94.17	
74.79	94.28	79.77	94.32	84.76	94.24	89.74	94.14	94.73	94.12	
99.72	94.17	104.7	94.18	109.69	93.97	114.67	94.14	119.66	94.28	
124.65	94.29	129.63	94.23	134.62	94.14	139.6	94.48	144.59	94.58	
149.57	95.98	154.56	96.62	159.55	97.56	164.53	97.74	169.52	98.05	
174.5	98.18	179.49	98.27	184.48	98.29	189.46	98.28	194.45	97.82	
194.96	97.64	199.43	96.06	204.42	94.02	209.4	93.41	214.39	91.8	
219.38	89.55	224.36	88.14	229.35	87.76	234.33	87.43	239.32	87.2	
244.3	88.76	249.29	90.01	254.28	92.19	254.98	92.58	259.26	94.94	
264.25	95.98	269.23	95.83	274.22	95.64	279.21	94.96	284.19	93.71	
289.18	93.11	294.16	93.06	299.15	93.02	304.13	92.95	309.12	92.94	
314.11	92.96	319.09	92.98	324.08	93.03	329.06	93.09	334.05	93.19	
339.04	93.17	344.02	93.18	349.01	93.25	353.99	93.25	358.98	93.39	
363.96	93.4	368.95	93.45	373.94	93.34	378.92	93.18	383.91	93.16	
388.89	93.03	393.88	92.94							

Manning's n	Values	num=	3
0	.06	204.42	.045
		259.26	.06

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	204.42	259.26		430	429		.1	.3

CROSS SECTION OUTPUT Profile #EX 10Y

E. G. Elev (ft)	91.38	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	Wt. n-Val.		0.045
W. S. Elev (ft)	91.38	Reach Len. (ft)	430.00	429.00
428.00				
Crit W. S. (ft)		Flow Area (sq ft)		101.76
E. G. Slope (ft/ft)	0.000010	Area (sq ft)		101.76
Q Total (cfs)	20.00	Flow (cfs)		20.00
Top Width (ft)	37.12	Top Width (ft)		37.12
Vel Total (ft/s)	0.20	Avg. Vel. (ft/s)		0.20
Max Chl Dpth (ft)	4.18	Hydr. Depth (ft)		2.74
Conv. Total (cfs)	6432.4	Conv. (cfs)		6432.4
Length Wtd. (ft)	429.00	Wetted Per. (ft)		38.42
Min Ch El (ft)	87.20	Shear (lb/sq ft)		0.00
Alpha	1.00	Stream Power (lb/ft s)	393.88	0.00
0.00				
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		4.19
C & E Loss (ft)	0.00	Cum SA (acres)		0.91

ES100 OUTPUT REPORT.pdf

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #EX 25Y

E. G. Elev (ft)	91.95	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	Wt. n-Val.		0.045
W. S. Elev (ft)	91.95	Reach Len. (ft)	430.00	429.00
428.00				
Crit W. S. (ft)		Flow Area (sq ft)		123.45
E. G. Slope (ft/ft)	0.000009	Area (sq ft)		123.45
Q Total (cfs)	26.00	Flow (cfs)		26.00
Top Width (ft)	39.80	Top Width (ft)		39.80
Vel Total (ft/s)	0.21	Avg. Vel. (ft/s)		0.21
Max Chl Dpth (ft)	4.75	Hydr. Depth (ft)		3.10
Conv. Total (cfs)	8454.6	Conv. (cfs)		8454.6
Length Wtd. (ft)	429.00	Wetted Per. (ft)		41.33
Min Ch El (ft)	87.20	Shear (lb/sq ft)		0.00
Alpha	1.00	Stream Power (lb/ft s)	393.88	0.00
0.00				
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		4.98
C & E Loss (ft)	0.00	Cum SA (acres)		0.95

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #EX 100Y

E. G. Elev (ft)	93.04	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	Wt. n-Val.		0.045
0.060				
W. S. Elev (ft)	93.04	Reach Len. (ft)	430.00	429.00
428.00				
Crit W. S. (ft)		Flow Area (sq ft)		169.97
2.06				
E. G. Slope (ft/ft)	0.000010	Area (sq ft)		169.97
2.06				
Q Total (cfs)	41.00	Flow (cfs)		40.98
0.02				
Top Width (ft)	79.12	Top Width (ft)		45.27

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33.85				
Vel Total (ft/s)	0.24	Avg. Vel. (ft/s)		0.24
0.01				
Max Chl Dpth (ft)	5.84	Hydr. Depth (ft)		3.75
0.06				
Conv. Total (cfs)	13184.9	Conv. (cfs)		13177.1
7.9				
Length Wtd. (ft)	429.00	Wetted Per. (ft)		47.25
33.96				
Min Ch El (ft)	87.20	Shear (lb/sq ft)		0.00
0.00				
Alpha	1.02	Stream Power (lb/ft s)	393.88	0.00
0.00				
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		6.61
0.01				
C & E Loss (ft)	0.00	Cum SA (acres)		1.03
0.17				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 10Y

E. G. Elev (ft)	91.41	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	Wt. n-Val.		0.045
W. S. Elev (ft)	91.41	Reach Len. (ft)	430.00	429.00
428.00				
Crit W. S. (ft)		Flow Area (sq ft)		102.83
E. G. Slope (ft/ft)	0.000009	Area (sq ft)		102.83
Q Total (cfs)	20.00	Flow (cfs)		20.00
Top Width (ft)	37.25	Top Width (ft)		37.25
Vel Total (ft/s)	0.19	Avg. Vel. (ft/s)		0.19
Max Chl Dpth (ft)	4.21	Hydr. Depth (ft)		2.76
Conv. Total (cfs)	6529.3	Conv. (cfs)		6529.3
Length Wtd. (ft)	429.00	Wetted Per. (ft)		38.56
Min Ch El (ft)	87.20	Shear (lb/sq ft)		0.00
Alpha	1.00	Stream Power (lb/ft s)	393.88	0.00
0.00				
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		4.23
C & E Loss (ft)	0.00	Cum SA (acres)		0.91

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Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 25Y

E. G. Elev (ft)	91.98	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	Wt. n-Val.		0.045
W. S. Elev (ft)	91.98	Reach Len. (ft)	430.00	429.00
428.00				
Crit W. S. (ft)		Flow Area (sq ft)		124.67
E. G. Slope (ft/ft)	0.000012	Area (sq ft)		124.67
Q Total (cfs)	30.00	Flow (cfs)		30.00
Top Width (ft)	39.96	Top Width (ft)		39.96
Vel Total (ft/s)	0.24	Avg. Vel. (ft/s)		0.24
Max Chl Dpth (ft)	4.78	Hydr. Depth (ft)		3.12
Conv. Total (cfs)	8570.0	Conv. (cfs)		8570.0
Length Wtd. (ft)	429.00	Wetted Per. (ft)		41.50
Min Ch El (ft)	87.20	Shear (lb/sq ft)		0.00
Alpha	1.00	Stream Power (lb/ft s)	393.88	0.00
0.00				
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		5.02
C & E Loss (ft)	0.00	Cum SA (acres)		0.95

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 100Y

E. G. Elev (ft)	93.06	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	Wt. n-Val.		0.045
0.060				
W. S. Elev (ft)	93.06	Reach Len. (ft)	430.00	429.00
428.00				
Crit W. S. (ft)		Flow Area (sq ft)		170.76
2.68				
E. G. Slope (ft/ft)	0.000014	Area (sq ft)		170.76
2.68				
Q Total (cfs)	50.00	Flow (cfs)		49.96
0.04				
Top Width (ft)	83.49	Top Width (ft)		45.36
38.13				
Vel Total (ft/s)	0.29	Avg. Vel. (ft/s)		0.29
0.02				

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Max Chl Dpth (ft) 0.07	5.86	Hydr. Depth (ft)		3.76
Conv. Total (cfs) 11.3	13273.0	Conv. (cfs)		13261.7
Length Wtd. (ft) 38.25	429.00	Wetted Per. (ft)		47.34
Min Ch El (ft) 0.00	87.20	Shear (lb/sq ft)		0.00
Alpha 0.00	1.03	Stream Power (lb/ft s)	393.88	0.00
Frctn Loss (ft) 0.01	0.00	Cum Volume (acre-ft)		6.63
C & E Loss (ft) 0.19	0.00	Cum SA (acres)		1.03

Warning: Divided flow computed for this cross-section.
 Warning: The cross-section end points had to be extended vertically for the computed water surface.
 Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: ES102-01
 REACH: ES102-01 RS: 1152

INPUT

Description:

Station	Elevation	Data	num=	85
Sta	El ev	Sta	El ev	Sta
0	95.38	4.98	95.33	9.97
24.92	94.91	29.91	94.86	34.89
49.84	95.28	54.83	95.29	59.81
74.77	95.3	79.75	95.27	84.73
99.69	94.57	104.67	94.54	109.66
124.61	94.65	129.59	94.6	134.58
149.53	94.42	154.52	94.43	159.5
174.45	96.03	179.44	96.07	184.42
199.38	99.61	204.36	99.97	209.34
219.31	99.78	224.3	100.04	229.28
244.24	88.39	249.22	87.15	254.2
269.16	86.66	271.39	87.42	274.14
289.09	95.54	294.08	95.98	299.06
314.02	93.93	319	93.81	323.99
338.94	93.79	343.92	94	348.91
363.86	94.26	368.85	94.3	373.83
388.78	93.98	393.77	93.98	398.75

Manning's n	Values	num=	3
Sta	n Val	Sta	n Val
0	.06	234.27	.045
		284.11	.06

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	234.27	284.11		250	252	255		.1	.3

CROSS SECTION OUTPUT Profile #EX 10Y

E. G. El ev (ft)	91.38	Element	Left OB	Channel
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Right OB				
Vel Head (ft)	0.00	Wt. n-Val.		0.045
W. S. Elev (ft)	91.38	Reach Len. (ft)	250.00	252.00
255.00		Flow Area (sq ft)		149.82
Crit W. S. (ft)		Area (sq ft)		149.82
E. G. Slope (ft/ft)	0.000003	Flow (cfs)		20.00
Q Total (cfs)	20.00	Top Width (ft)		39.75
Top Width (ft)	39.75	Avg. Vel. (ft/s)		0.13
Vel Total (ft/s)	0.13	Hydr. Depth (ft)		3.77
Max Chl Dpth (ft)	4.87	Conv. (cfs)		11484.1
Conv. Total (cfs)	11484.1	Wetted Per. (ft)		42.36
Length Wtd. (ft)	252.00	Shear (lb/sq ft)		0.00
Min Ch El (ft)	86.51	Stream Power (lb/ft s)	408.72	0.00
Alpha	1.00	Cum Volume (acre-ft)		2.95
0.00		Cum SA (acres)		0.53
Frctn Loss (ft)	0.00			
C & E Loss (ft)	0.00			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #EX 25Y

E. G. Elev (ft)	91.95	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	Wt. n-Val.		0.045
W. S. Elev (ft)	91.95	Reach Len. (ft)	250.00	252.00
255.00		Flow Area (sq ft)		172.57
Crit W. S. (ft)		Area (sq ft)		172.57
E. G. Slope (ft/ft)	0.000003	Flow (cfs)		26.00
Q Total (cfs)	26.00	Top Width (ft)		40.85
Top Width (ft)	40.85	Avg. Vel. (ft/s)		0.15
Vel Total (ft/s)	0.15	Hydr. Depth (ft)		4.22
Max Chl Dpth (ft)	5.44	Conv. (cfs)		14184.6
Conv. Total (cfs)	14184.6	Wetted Per. (ft)		43.94
Length Wtd. (ft)	252.00	Shear (lb/sq ft)		0.00
Min Ch El (ft)	86.51			

ES100 OUTPUT REPORT.pdf

Alpha 0.00	1.00	Stream Power (lb/ft s)	408.72	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		3.52
C & E Loss (ft)	0.00	Cum SA (acres)		0.56

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #EX 100Y

E. G. Elev (ft)	93.04	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	Wt. n-Val.		0.045
W. S. Elev (ft)	93.04	Reach Len. (ft)	250.00	252.00
255.00 Crit W. S. (ft)		Flow Area (sq ft)		218.36
E. G. Slope (ft/ft)	0.000004	Area (sq ft)		218.36
Q Total (cfs)	41.00	Flow (cfs)		41.00
Top Width (ft)	43.17	Top Width (ft)		43.17
Vel Total (ft/s)	0.19	Avg. Vel. (ft/s)		0.19
Max Chl Dpth (ft)	6.53	Hydr. Depth (ft)		5.06
Conv. Total (cfs)	20029.4	Conv. (cfs)		20029.4
Length Wtd. (ft)	252.00	Wetted Per. (ft)		47.16
Min Ch El (ft)	86.51	Shear (lb/sq ft)		0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	408.72	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		4.70
C & E Loss (ft)	0.00	Cum SA (acres)		0.60

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 10Y

E. G. Elev (ft)	91.41	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	Wt. n-Val.		0.045
W. S. Elev (ft)	91.41	Reach Len. (ft)	250.00	252.00
255.00 Crit W. S. (ft)		Flow Area (sq ft)		150.97

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E. G. Slope (ft/ft)	0.000003	Area (sq ft)	150.97
Q Total (cfs)	20.00	Flow (cfs)	20.00
Top Width (ft)	39.81	Top Width (ft)	39.81
Vel Total (ft/s)	0.13	Avg. Vel. (ft/s)	0.13
Max Chl Dpth (ft)	4.90	Hydr. Depth (ft)	3.79
Conv. Total (cfs)	11616.0	Conv. (cfs)	11616.0
Length Wtd. (ft)	252.00	Wetted Per. (ft)	42.44
Min Ch El (ft)	86.51	Shear (lb/sq ft)	0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	408.72
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	2.98
C & E Loss (ft)	0.00	Cum SA (acres)	0.54

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 25Y

E. G. Elev (ft)	91.98	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	Wt. n-Val.		0.045
W. S. Elev (ft)	91.98	Reach Len. (ft)	250.00	252.00
255.00 Crit W. S. (ft)		Flow Area (sq ft)		173.80
E. G. Slope (ft/ft)	0.000004	Area (sq ft)		173.80
Q Total (cfs)	30.00	Flow (cfs)		30.00
Top Width (ft)	40.91	Top Width (ft)		40.91
Vel Total (ft/s)	0.17	Avg. Vel. (ft/s)		0.17
Max Chl Dpth (ft)	5.47	Hydr. Depth (ft)		4.25
Conv. Total (cfs)	14334.7	Conv. (cfs)		14334.7
Length Wtd. (ft)	252.00	Wetted Per. (ft)		44.02
Min Ch El (ft)	86.51	Shear (lb/sq ft)		0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	408.72	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		3.55
C & E Loss (ft)	0.00	Cum SA (acres)		0.56

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Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 100Y

E. G. Elev (ft)	93.06	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	Wt. n-Val.		0.045
W. S. Elev (ft)	93.05	Reach Len. (ft)	250.00	252.00
255.00				
Crit W. S. (ft)		Flow Area (sq ft)		219.06
E. G. Slope (ft/ft)	0.000006	Area (sq ft)		219.06
Q Total (cfs)	50.00	Flow (cfs)		50.00
Top Width (ft)	43.23	Top Width (ft)		43.23
Vel Total (ft/s)	0.23	Avg. Vel. (ft/s)		0.23
Max Chl Dpth (ft)	6.54	Hydr. Depth (ft)		5.07
Conv. Total (cfs)	20117.6	Conv. (cfs)		20117.6
Length Wtd. (ft)	252.00	Wetted Per. (ft)		47.23
Min Ch El (ft)	86.51	Shear (lb/sq ft)		0.00
Alpha	1.00	Stream Power (lb/ft s)	408.72	0.00
0.00				
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		4.71
C & E Loss (ft)	0.00	Cum SA (acres)		0.60

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: ES102-01
 REACH: ES102-01 RS: 899

INPUT

Description:

Station	Elevation	Data	num=	88	Station	Elevation	Station	Elevation	Station	Elevation
0	94.88	4.96	94.31	9.91	94.29	14.87	94.23	19.83	94.52	
24.78	94.5	29.74	94.47	34.7	94.3	39.65	94.75	44.61	95.11	
49.57	95.18	54.52	95.38	59.48	95.4	64.44	95.63	69.4	95.72	
74.35	95.73	79.31	95.54	84.27	95.57	89.22	95.55	94.18	95.49	
99.14	95.36	104.09	95.41	109.05	95.49	114.01	95.5	118.96	95.42	
123.92	95.27	128.88	95.43	133.83	95.62	138.79	95.72	143.75	95.77	

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148.7	95.58	153.66	95.51	158.62	95.43	163.57	95.41	168.53	95.81
173.49	96.23	178.44	96.74	183.4	98.49	188.36	99.9	193.32	100.14
198.27	100.12	203.23	100.13	208.19	100.07	213.14	99.93	218.1	100.07
219	100.09	223.06	100.19	228.01	100.43	232.97	95.38	237.93	90.67
242.88	90.43	247.84	88.89	252.8	87.86	257.75	86.87	262.71	86.88
267.67	88.22	272.62	93.57	277.58	96.22	279	96.21	282.54	96.17
287.49	96.13	292.45	95.41	297.41	94.76	302.36	94.6	307.32	94.59
312.28	94.36	317.24	94.05	322.19	94.39	327.15	94.55	332.11	94.35
337.06	94.3	342.02	94.22	346.98	94.16	351.93	94.22	356.89	94.45
361.85	94.55	366.8	94.54	371.76	94.54	376.72	94.54	381.67	94.56
386.63	94.53	391.59	94.47	396.54	94.52	401.5	94.6	406.46	94.6
411.41	94.56	416.37	94.56	421.33	94.51				

Manning's n	Values	num=	3	
Sta n Val	Sta n Val	Sta n Val	Sta n Val	
0 .06	232.97	.045	277.58	.06

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	232.97	277.58		436	429		.1	.3

CROSS SECTION OUTPUT Profile #EX 10Y

E. G. Elev (ft)	91.38	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	Wt. n-Val.		0.045
W. S. Elev (ft)	91.38	Reach Len. (ft)	436.00	429.00
423.00		Flow Area (sq ft)		93.65
Crit W. S. (ft)		Area (sq ft)		93.65
E. G. Slope (ft/ft)	0.000012	Flow (cfs)		20.00
Q Total (cfs)	20.00	Top Width (ft)		33.41
Top Width (ft)	33.41	Avg. Vel. (ft/s)		0.21
Vel Total (ft/s)	0.21	Hydr. Depth (ft)		2.80
Max Chl Dpth (ft)	4.51	Conv. (cfs)		5881.8
Conv. Total (cfs)	5881.8	Wetted Per. (ft)		35.70
Length Wtd. (ft)	429.00	Shear (lb/sq ft)		0.00
Min Ch El (ft)	86.87	Stream Power (lb/ft s)	421.33	0.00
Alpha	1.00	Cum Volume (acre-ft)		2.25
0.00		Cum SA (acres)		0.32
Frctn Loss (ft)	0.01			
C & E Loss (ft)	0.00			

CROSS SECTION OUTPUT Profile #EX 25Y

E. G. Elev (ft)	91.95	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	Wt. n-Val.		0.045

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W. S. Elev (ft)	91.94	Reach Len. (ft)	436.00	429.00
423.00 Crit W. S. (ft)		Flow Area (sq ft)		112.82
E. G. Slope (ft/ft)	0.000011	Area (sq ft)		112.82
Q Total (cfs)	26.00	Flow (cfs)		26.00
Top Width (ft)	34.53	Top Width (ft)		34.53
Vel Total (ft/s)	0.23	Avg. Vel. (ft/s)		0.23
Max Chl Dpth (ft)	5.07	Hydr. Depth (ft)		3.27
Conv. Total (cfs)	7793.1	Conv. (cfs)		7793.1
Length Wtd. (ft)	429.00	Wetted Per. (ft)		37.29
Min Ch El (ft)	86.87	Shear (lb/sq ft)		0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	421.33	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)		2.70
C & E Loss (ft)	0.00	Cum SA (acres)		0.34

CROSS SECTION OUTPUT Profile #EX 100Y

E. G. Elev (ft)	93.04	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	Wt. n-Val.		0.045
W. S. Elev (ft)	93.04	Reach Len. (ft)	436.00	429.00
423.00 Crit W. S. (ft)		Flow Area (sq ft)		151.70
E. G. Slope (ft/ft)	0.000011	Area (sq ft)		151.70
Q Total (cfs)	41.00	Flow (cfs)		41.00
Top Width (ft)	36.69	Top Width (ft)		36.69
Vel Total (ft/s)	0.27	Avg. Vel. (ft/s)		0.27
Max Chl Dpth (ft)	6.17	Hydr. Depth (ft)		4.13
Conv. Total (cfs)	12109.2	Conv. (cfs)		12109.2
Length Wtd. (ft)	429.00	Wetted Per. (ft)		40.36
Min Ch El (ft)	86.87	Shear (lb/sq ft)		0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	421.33	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)		3.63
C & E Loss (ft)	0.00	Cum SA (acres)		0.37

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CROSS SECTION OUTPUT Profile #ULT 10Y

E. G. Elev (ft)	91.41	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	Wt. n-Val.		0.045
W. S. Elev (ft)	91.41	Reach Len. (ft)	436.00	429.00
423.00 Crit W. S. (ft)		Flow Area (sq ft)		94.61
E. G. Slope (ft/ft)	0.000011	Area (sq ft)		94.61
Q Total (cfs)	20.00	Flow (cfs)		20.00
Top Width (ft)	33.47	Top Width (ft)		33.47
Vel Total (ft/s)	0.21	Avg. Vel. (ft/s)		0.21
Max Chl Dpth (ft)	4.54	Hydr. Depth (ft)		2.83
Conv. Total (cfs)	5974.0	Conv. (cfs)		5974.0
Length Wtd. (ft)	429.00	Wetted Per. (ft)		35.78
Min Ch El (ft)	86.87	Shear (lb/sq ft)		0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	421.33	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)		2.27
C & E Loss (ft)	0.00	Cum SA (acres)		0.32

CROSS SECTION OUTPUT Profile #ULT 25Y

E. G. Elev (ft)	91.97	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	Wt. n-Val.		0.045
W. S. Elev (ft)	91.97	Reach Len. (ft)	436.00	429.00
423.00 Crit W. S. (ft)		Flow Area (sq ft)		113.83
E. G. Slope (ft/ft)	0.000014	Area (sq ft)		113.83
Q Total (cfs)	30.00	Flow (cfs)		30.00
Top Width (ft)	34.59	Top Width (ft)		34.59
Vel Total (ft/s)	0.26	Avg. Vel. (ft/s)		0.26
Max Chl Dpth (ft)	5.10	Hydr. Depth (ft)		3.29
Conv. Total (cfs)	7898.8	Conv. (cfs)		7898.8
Length Wtd. (ft)	429.00	Wetted Per. (ft)		37.37

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Min Ch El (ft)	86.87	Shear (lb/sq ft)		0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	421.33	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)		2.72
C & E Loss (ft)	0.00	Cum SA (acres)		0.34

CROSS SECTION OUTPUT Profile #ULT 100Y

E. G. Elev (ft)	93.05	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	Wt. n-Val.		0.045
W. S. Elev (ft)	93.05	Reach Len. (ft)	436.00	429.00
423.00 Crit W. S. (ft)		Flow Area (sq ft)		152.25
E. G. Slope (ft/ft)	0.000017	Area (sq ft)		152.25
Q Total (cfs)	50.00	Flow (cfs)		50.00
Top Width (ft)	36.72	Top Width (ft)		36.72
Vel Total (ft/s)	0.33	Avg. Vel. (ft/s)		0.33
Max Chl Dpth (ft)	6.18	Hydr. Depth (ft)		4.15
Conv. Total (cfs)	12174.9	Conv. (cfs)		12174.9
Length Wtd. (ft)	429.00	Wetted Per. (ft)		40.40
Min Ch El (ft)	86.87	Shear (lb/sq ft)		0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	421.33	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)		3.64
C & E Loss (ft)	0.00	Cum SA (acres)		0.37

CROSS SECTION

RIVER: ES102-01
 REACH: ES102-01 RS: 470

INPUT

Description:

Station	Elevation	Data	num=	102	Station	Elevation	Station	Elevation	Station	Elevation
0	95.12	4.95	95.1	9.91	95.03	14.86	94.85	19.81	94.77	
24.77	94.58	29.72	94.31	34.67	94.21	39.62	94.21	44.58	94.19	
49.53	94.22	54.48	94.38	59.44	94.71	64.39	94.99	69.34	95.05	
74.3	95.22	79.25	95.35	84.2	95.37	89.16	95.38	94.11	95.5	
99.06	95.54	104.02	95.47	108.97	95.42	113.92	95.28	118.87	95.24	
123.83	95.27	128.78	95.27	133.73	95.23	138.69	95.17	143.64	95.13	

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148.59	95.02	153.55	95.01	158.5	95.46	163.45	95.59	168.41	95.38
173.36	95.13	178.31	95.04	183.27	95.06	188.22	95.39	193.17	96.22
198.12	97.77	203.08	98.98	208.03	99.52	212.98	100.48	217.94	100.63
222.89	100.74	227.84	100.82	232.8	100.77	237.75	100.54	241.27	100.53
242.7	100.53	247.66	100.49	252.61	99.87	257.56	95.89	262.51	93.3
267.47	91.03	272.42	90.93	277.37	88.88	282.33	87.33	287.28	87.46
292.23	87.76	297.19	89.81	301.36	93.72	302.14	94.45	307.09	96.35
312.05	96.29	317	96.16	321.95	95.53	326.91	94.89	331.86	94.63
336.81	94.56	341.76	94.65	346.72	94.81	351.67	94.97	356.62	95.01
361.58	94.93	366.53	94.78	371.48	94.79	376.44	94.79	381.39	94.8
386.34	94.91	391.3	95.04	396.25	95.14	401.2	95.16	406.16	95.23
411.11	95.14	416.06	95.03	421.01	94.95	425.97	94.96	430.92	94.88
435.87	94.88	440.83	94.64	445.78	94.63	450.73	94.48	455.69	94.22
460.64	93.48	465.59	93.27	470.55	93.17	475.5	93.3	480.45	93.45
485.41	93.5	490.36	93.4						

Manning's n Values num= 3
 Station Val Station Val Station Val
 0 .06 257.56 .045 307.09 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 257.56 307.09 363 470 377 .1 .3

CROSS SECTION OUTPUT Profile #EX 10Y

E. G. Elev (ft)	91.37	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	Wt. n-Val.		0.045
W. S. Elev (ft)	91.37	Reach Len. (ft)	470.00	470.00
470.00		Flow Area (sq ft)		78.02
Crit W. S. (ft)		Area (sq ft)		78.02
E. G. Slope (ft/ft)	0.000020	Flow (cfs)		20.00
Q Total (cfs)	20.00	Top Width (ft)		32.14
Top Width (ft)	32.14	Avg. Vel. (ft/s)		0.26
Vel Total (ft/s)	0.26	Hydr. Depth (ft)		2.43
Max Chl Dpth (ft)	4.04	Conv. (cfs)		4491.1
Conv. Total (cfs)	4491.1	Wetted Per. (ft)		33.89
Length Wtd. (ft)	470.00	Shear (lb/sq ft)		0.00
Min Ch El (ft)	87.33	Stream Power (lb/ft s)	490.36	0.00
Alpha	1.00	Cum Volume (acre-ft)		1.40
0.00		Cum SA (acres)		
Frctn Loss (ft)	0.04			
C & E Loss (ft)	0.00			

CROSS SECTION OUTPUT Profile #EX 25Y

E. G. Elev (ft)	91.94	Element	Left OB	Channel
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Right OB				
Vel Head (ft)	0.00	Wt. n-Val.		0.045
W. S. Elev (ft)	91.94	Reach Len. (ft)	470.00	470.00
470.00 Crit W. S. (ft)		Flow Area (sq ft)		96.69
E. G. Slope (ft/ft)	0.000018	Area (sq ft)		96.69
Q Total (cfs)	26.00	Flow (cfs)		26.00
Top Width (ft)	33.97	Top Width (ft)		33.97
Vel Total (ft/s)	0.27	Avg. Vel. (ft/s)		0.27
Max Chl Dpth (ft)	4.61	Hydr. Depth (ft)		2.85
Conv. Total (cfs)	6159.9	Conv. (cfs)		6159.9
Length Wtd. (ft)	470.00	Wetted Per. (ft)		36.08
Min Ch El (ft)	87.33	Shear (lb/sq ft)		0.00
Alpha	1.00	Stream Power (lb/ft s)	490.36	0.00
0.00 Frctn Loss (ft)	0.04	Cum Volume (acre-ft)		1.67
C & E Loss (ft)	0.00	Cum SA (acres)		

CROSS SECTION OUTPUT Profile #EX 100Y

E. G. Elev (ft)	93.03	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	Wt. n-Val.		0.045
W. S. Elev (ft)	93.03	Reach Len. (ft)	470.00	470.00
470.00 Crit W. S. (ft)		Flow Area (sq ft)		135.72
E. G. Slope (ft/ft)	0.000017	Area (sq ft)		135.72
Q Total (cfs)	41.00	Flow (cfs)		41.00
Top Width (ft)	37.52	Top Width (ft)		37.52
Vel Total (ft/s)	0.30	Avg. Vel. (ft/s)		0.30
Max Chl Dpth (ft)	5.70	Hydr. Depth (ft)		3.62
Conv. Total (cfs)	10069.9	Conv. (cfs)		10069.9
Length Wtd. (ft)	470.00	Wetted Per. (ft)		40.30
Min Ch El (ft)	87.33	Shear (lb/sq ft)		0.00
Alpha	1.00	Stream Power (lb/ft s)	490.36	0.00
0.00 Frctn Loss (ft)	0.04	Cum Volume (acre-ft)		2.21

C & E Loss (ft)

ES100 OUTPUT REPORT.pdf
0.00 Cum SA (acres)

CROSS SECTION OUTPUT Profile #ULT 10Y

E. G. Elev (ft)	91.40	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	Wt. n-Val.		0.045
W. S. Elev (ft)	91.40	Reach Len. (ft)	470.00	470.00
470.00 Crit W. S. (ft)		Flow Area (sq ft)		78.95
E. G. Slope (ft/ft)	0.000019	Area (sq ft)		78.95
Q Total (cfs)	20.00	Flow (cfs)		20.00
Top Width (ft)	32.23	Top Width (ft)		32.23
Vel Total (ft/s)	0.25	Avg. Vel. (ft/s)		0.25
Max Chl Dpth (ft)	4.07	Hydr. Depth (ft)		2.45
Conv. Total (cfs)	4571.0	Conv. (cfs)		4571.0
Length Wtd. (ft)	470.00	Wetted Per. (ft)		34.01
Min Ch El (ft)	87.33	Shear (lb/sq ft)		0.00
Al pha 0.00	1.00	Stream Power (lb/ft s)	490.36	0.00
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)		1.41
C & E Loss (ft)	0.00	Cum SA (acres)		

CROSS SECTION OUTPUT Profile #ULT 25Y

E. G. Elev (ft)	91.97	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	Wt. n-Val.		0.045
W. S. Elev (ft)	91.97	Reach Len. (ft)	470.00	470.00
470.00 Crit W. S. (ft)		Flow Area (sq ft)		97.62
E. G. Slope (ft/ft)	0.000023	Area (sq ft)		97.62
Q Total (cfs)	30.00	Flow (cfs)		30.00
Top Width (ft)	34.06	Top Width (ft)		34.06
Vel Total (ft/s)	0.31	Avg. Vel. (ft/s)		0.31
Max Chl Dpth (ft)	4.64	Hydr. Depth (ft)		2.87
Conv. Total (cfs)	6247.4	Conv. (cfs)		6247.4

ES100 OUTPUT REPORT.pdf

Length Wtd. (ft)	470.00	Wetted Per. (ft)	36.18
Min Ch El (ft)	87.33	Shear (lb/sq ft)	0.00
Alpha 0.00	1.00	Stream Power (lb/ft s)	490.36
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	1.68
C & E Loss (ft)	0.00	Cum SA (acres)	

CROSS SECTION OUTPUT Profile #ULT 100Y

E. G. Elev (ft)	93.04	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	Wt. n-Val.		0.045
W. S. Elev (ft)	93.04	Reach Len. (ft)	470.00	470.00
470.00 Crit W. S. (ft)		Flow Area (sq ft)		136.19
E. G. Slope (ft/ft)	0.000024	Area (sq ft)		136.19
Q Total (cfs)	50.00	Flow (cfs)		50.00
Top Width (ft)	37.56	Top Width (ft)		37.56
Vel Total (ft/s)	0.37	Avg. Vel. (ft/s)		0.37
Max Chl Dpth (ft)	5.71	Hydr. Depth (ft)		3.63
Conv. Total (cfs)	10119.2	Conv. (cfs)		10119.2
Length Wtd. (ft)	470.00	Wetted Per. (ft)		40.34
Min Ch El (ft)	87.33	Shear (lb/sq ft)		0.01
Alpha 0.00	1.00	Stream Power (lb/ft s)	490.36	0.00
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)		2.22
C & E Loss (ft)	0.00	Cum SA (acres)		

CROSS SECTION

RIVER: ES102
 REACH: ES102-00 RS: 3110

INPUT

Description:

Station	Elevation	Data	num=	99					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	94.65	4.96	94.68	9.92	94.57	14.89	94.59	19.85	95.01
24.81	95.3	29.77	95.34	34.73	95.47	39.7	95.7	44.66	95.84
49.62	95.88	54.58	95.9	59.54	95.86	64.5	95.78	69.47	95.8

ES100 OUTPUT REPORT. pdf

74.43	95.81	79.39	95.85	84.35	95.88	89.31	95.9	94.28	95.9
99.24	95.89	104.2	95.81	109.16	95.63	114.12	95.48	119.09	95.38
124.05	95.16	129.01	95.43	133.97	95.4	138.93	95.42	143.89	95.48
148.86	95.91	153.82	96.77	158.78	96.75	163.74	96.44	168.7	93.82
173.67	89.79	178.63	89.72	178.72	89.69	183.59	88.12	188.55	87.46
193.51	86.85	198.48	86.24	203.44	86.19	208.4	85.83	213.36	87.41
218.32	89.66	223.28	89.89	228.25	92.96	233.21	97.88	238.17	100.47
238.72	100.51	243.13	100.82	248.09	101.43	253.06	101.6	258.02	101.71
262.98	101.75	267.94	101.45	272.9	101.19	277.87	101.49	282.83	101.5
287.79	101.43	292.75	99.96	297.71	97.39	302.67	95.2	307.64	94.57
312.6	94.83	317.56	95.86	322.52	96.46	327.48	96.47	332.45	95.95
337.41	95.24	342.37	94.71	347.33	94.44	352.29	94.3	357.26	94.13
362.22	94.24	367.18	94.49	372.14	94.59	377.1	94.59	382.06	94.51
387.03	94.4	391.99	94.42	396.95	94.44	401.91	94.56	406.87	94.74
411.84	94.79	416.8	94.84	421.76	94.95	426.72	95.02	431.68	95.1
436.65	95.16	441.61	95.47	446.57	95.7	451.53	95.7	456.49	95.69
461.45	95.67	466.42	95.63	471.38	95.7	476.34	95.82		

Manning's n Values num= 3
 Sta n Val Sta n Val
 0 .06 163.74 .045 233.21 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 163.74 233.21 443 445 446 .1 .3

CROSS SECTION OUTPUT Profile #EX 10Y

E. G. Elev (ft)	91.34	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	91.33	Reach Len. (ft)	443.00	445.00
446.00		Flow Area (sq ft)		181.48
Crit W. S. (ft)		Area (sq ft)		181.48
E. G. Slope (ft/ft)	0.000110	Flow (cfs)		138.00
Q Total (cfs)	138.00	Top Width (ft)		53.83
Top Width (ft)	53.83	Avg. Vel. (ft/s)		0.76
Vel Total (ft/s)	0.76	Hydr. Depth (ft)		3.37
Max Chl Dpth (ft)	5.50	Conv. (cfs)		13137.9
Conv. Total (cfs)	13137.9	Wetted Per. (ft)		55.91
Length Wtd. (ft)	445.00	Shear (lb/sq ft)		0.02
Min Ch El (ft)	85.83	Stream Power (lb/ft s)	476.34	0.00
Alpha	1.00	Cum Volume (acre-ft)		11.74
0.00		Cum SA (acres)		3.46
Frctn Loss (ft)	0.03			
C & E Loss (ft)	0.00			

CROSS SECTION OUTPUT Profile #EX 25Y

ES100 OUTPUT REPORT.pdf

E. G. Elev (ft)	91.90	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	91.89	Reach Len. (ft)	443.00	445.00
446.00 Crit W. S. (ft)		Flow Area (sq ft)		212.24
E. G. Slope (ft/ft)	0.000114	Area (sq ft)		212.24
Q Total (cfs)	178.00	Flow (cfs)		178.00
Top Width (ft)	55.44	Top Width (ft)		55.44
Vel Total (ft/s)	0.84	Avg. Vel. (ft/s)		0.84
Max Chl Dpth (ft)	6.06	Hydr. Depth (ft)		3.83
Conv. Total (cfs)	16666.6	Conv. (cfs)		16666.6
Length Wtd. (ft)	445.00	Wetted Per. (ft)		57.87
Min Ch El (ft)	85.83	Shear (lb/sq ft)		0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	476.34	0.00
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)		13.72
C & E Loss (ft)	0.00	Cum SA (acres)		3.64

CROSS SECTION OUTPUT Profile #EX 100Y

E. G. Elev (ft)	92.99	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	92.98	Reach Len. (ft)	443.00	445.00
446.00 Crit W. S. (ft)		Flow Area (sq ft)		274.22
E. G. Slope (ft/ft)	0.000121	Area (sq ft)		274.22
Q Total (cfs)	269.00	Flow (cfs)		269.00
Top Width (ft)	58.53	Top Width (ft)		58.53
Vel Total (ft/s)	0.98	Avg. Vel. (ft/s)		0.98
Max Chl Dpth (ft)	7.15	Hydr. Depth (ft)		4.69
Conv. Total (cfs)	24487.6	Conv. (cfs)		24487.6
Length Wtd. (ft)	445.00	Wetted Per. (ft)		61.66
Min Ch El (ft)	85.83	Shear (lb/sq ft)		0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	476.34	0.00

Frctn Loss (ft)	0.04	ES100 OUTPUT REPORT.pdf Cum Volume (acre-ft)	17.77
C & E Loss (ft)	0.00	Cum SA (acres)	3.88

CROSS SECTION OUTPUT Profile #ULT 10Y

E. G. Elev (ft)	91.36	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	91.36	Reach Len. (ft)	443.00	445.00
446.00 Crit W. S. (ft)		Flow Area (sq ft)		183.04
E. G. Slope (ft/ft)	0.000111	Area (sq ft)		183.04
Q Total (cfs)	140.00	Flow (cfs)		140.00
Top Width (ft)	53.91	Top Width (ft)		53.91
Vel Total (ft/s)	0.76	Avg. Vel. (ft/s)		0.76
Max Chl Dpth (ft)	5.53	Hydr. Depth (ft)		3.40
Conv. Total (cfs)	13311.0	Conv. (cfs)		13311.0
Length Wtd. (ft)	445.00	Wetted Per. (ft)		56.01
Min Ch El (ft)	85.83	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	476.34	0.00
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)		11.84
C & E Loss (ft)	0.00	Cum SA (acres)		3.48

CROSS SECTION OUTPUT Profile #ULT 25Y

E. G. Elev (ft)	91.93	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	91.92	Reach Len. (ft)	443.00	445.00
446.00 Crit W. S. (ft)		Flow Area (sq ft)		213.71
E. G. Slope (ft/ft)	0.000114	Area (sq ft)		213.71
Q Total (cfs)	180.00	Flow (cfs)		180.00
Top Width (ft)	55.51	Top Width (ft)		55.51
Vel Total (ft/s)	0.84	Avg. Vel. (ft/s)		0.84
Max Chl Dpth (ft)	6.09	Hydr. Depth (ft)		3.85

ES100 OUTPUT REPORT.pdf

Conv. Total (cfs)	16841.3	Conv. (cfs)	16841.3
Length Wtd. (ft)	445.00	Wetted Per. (ft)	57.96
Min Ch El (ft)	85.83	Shear (lb/sq ft)	0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	476.34
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	13.81
C & E Loss (ft)	0.00	Cum SA (acres)	3.64

CROSS SECTION OUTPUT Profile #ULT 100Y

E. G. Elev (ft)	93.00	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	92.99	Reach Len. (ft)	443.00	445.00
446.00 Crit W. S. (ft)		Flow Area (sq ft)		274.85
E. G. Slope (ft/ft)	0.000121	Area (sq ft)		274.85
Q Total (cfs)	270.00	Flow (cfs)		270.00
Top Width (ft)	58.55	Top Width (ft)		58.55
Vel Total (ft/s)	0.98	Avg. Vel. (ft/s)		0.98
Max Chl Dpth (ft)	7.16	Hydr. Depth (ft)		4.69
Conv. Total (cfs)	24573.5	Conv. (cfs)		24573.5
Length Wtd. (ft)	445.00	Wetted Per. (ft)		61.69
Min Ch El (ft)	85.83	Shear (lb/sq ft)		0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	476.34	0.00
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)		17.82
C & E Loss (ft)	0.00	Cum SA (acres)		3.88

CROSS SECTION

RIVER: ES102
 REACH: ES102-00 RS: 2666

INPUT

Description:

Station	Elevation	Data	num=	76	Sta	Elev	Sta	Elev	Sta	Elev
0	94.97	4.98	95.09	9.96	95.25	14.94	95.34	19.92	95.35	

ES100 OUTPUT REPORT. pdf

24.9	95.35	29.88	95.34	34.86	95.34	39.84	95.33	44.82	95.3
49.8	95.3	54.77	95.3	59.75	95.26	64.73	95.21	69.71	95.24
74.69	95.25	79.67	95.28	84.65	95.33	89.63	95.28	94.61	95.22
99.59	95.61	104.57	96.24	109.55	96.44	114.53	96.48	119.51	96.51
124.49	96.64	129.47	97.02	134.45	96.6	139.43	95.45	144.41	94.22
149.39	90.78	151.74	89.31	154.37	87.67	159.35	86.29	164.33	86.24
169.3	86.11	174.28	86.19	179.26	86.58	184.24	86.58	189.22	86.62
194.2	87.03	199.18	88.68	204.16	91.2	209.14	91.94	211.77	93.6
214.12	95.09	219.1	98.37	224.08	100.45	229.06	100.58	234.04	101.09
239.02	101.24	244	100.87	248.98	100.77	253.96	100.3	258.94	101.95
263.92	101.9	268.9	101.82	273.88	101.05	278.85	99.19	283.83	97.14
288.81	96.58	293.79	96.57	298.77	96.46	303.75	96.29	308.73	96.18
313.71	96.18	318.69	95.79	323.67	95.36	328.65	95.02	333.63	95.01
338.61	94.8	343.59	94.81	348.57	95.24	353.55	95.28	358.53	95.19
363.51	95.09								

Manning's n Values num= 3
 Station Val Station Val Station Val
 0 .06 134.45 .045 219.1 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 134.45 219.1 513 506 498 .1 .3

CROSS SECTION OUTPUT Profile #EX 10Y

E. G. Elev (ft)	91.30	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	91.29	Reach Len. (ft)	513.00	506.00
498.00		Flow Area (sq ft)		225.59
Crit W. S. (ft)		Area (sq ft)		225.59
E. G. Slope (ft/ft)	0.000057	Flow (cfs)		138.00
Q Total (cfs)	138.00	Top Width (ft)		56.15
Top Width (ft)	56.15	Avg. Vel. (ft/s)		0.61
Vel Total (ft/s)	0.61	Hydr. Depth (ft)		4.02
Max Chl Dpth (ft)	5.18	Conv. (cfs)		18359.2
Conv. Total (cfs)	18359.2	Wetted Per. (ft)		58.30
Length Wtd. (ft)	506.00	Shear (lb/sq ft)		0.01
Min Ch El (ft)	86.11	Stream Power (lb/ft s)	363.51	0.00
Alpha	1.00	Cum Volume (acre-ft)		9.66
0.00		Cum SA (acres)		2.90
Frctn Loss (ft)	0.04			
C & E Loss (ft)	0.00			

CROSS SECTION OUTPUT Profile #EX 25Y

E. G. Elev (ft)	91.86	Element	Left OB	Channel
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ES100 OUTPUT REPORT.pdf

Right OB				
Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	91.85	Reach Len. (ft)	513.00	506.00
498.00 Crit W. S. (ft)		Flow Area (sq ft)		258.28
E. G. Slope (ft/ft)	0.000067	Area (sq ft)		258.28
Q Total (cfs)	178.00	Flow (cfs)		178.00
Top Width (ft)	60.73	Top Width (ft)		60.73
Vel Total (ft/s)	0.69	Avg. Vel. (ft/s)		0.69
Max Chl Dpth (ft)	5.74	Hydr. Depth (ft)		4.25
Conv. Total (cfs)	21824.4	Conv. (cfs)		21824.4
Length Wtd. (ft)	506.00	Wetted Per. (ft)		63.09
Min Ch El (ft)	86.11	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	363.51	0.00
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)		11.31
C & E Loss (ft)	0.00	Cum SA (acres)		3.04

CROSS SECTION OUTPUT Profile #EX 100Y

E. G. Elev (ft)	92.95	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	92.94	Reach Len. (ft)	513.00	506.00
498.00 Crit W. S. (ft)		Flow Area (sq ft)		326.36
E. G. Slope (ft/ft)	0.000076	Area (sq ft)		326.36
Q Total (cfs)	269.00	Flow (cfs)		269.00
Top Width (ft)	64.46	Top Width (ft)		64.46
Vel Total (ft/s)	0.82	Avg. Vel. (ft/s)		0.82
Max Chl Dpth (ft)	6.83	Hydr. Depth (ft)		5.06
Conv. Total (cfs)	30827.2	Conv. (cfs)		30827.2
Length Wtd. (ft)	506.00	Wetted Per. (ft)		67.45
Min Ch El (ft)	86.11	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	363.51	0.00
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)		14.71

C & E Loss (ft)	0.00	ES100 OUTPUT REPORT.pdf Cum SA (acres)	3.25
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CROSS SECTION OUTPUT Profile #ULT 10Y

E. G. Elev (ft)	91.33	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	91.32	Reach Len. (ft)	513.00	506.00
498.00 Crit W. S. (ft)		Flow Area (sq ft)		227.21
E. G. Slope (ft/ft)	0.000057	Area (sq ft)		227.21
Q Total (cfs)	140.00	Flow (cfs)		140.00
Top Width (ft)	56.39	Top Width (ft)		56.39
Vel Total (ft/s)	0.62	Avg. Vel. (ft/s)		0.62
Max Chl Dpth (ft)	5.21	Hydr. Depth (ft)		4.03
Conv. Total (cfs)	18527.3	Conv. (cfs)		18527.3
Length Wtd. (ft)	506.00	Wetted Per. (ft)		58.55
Min Ch El (ft)	86.11	Shear (lb/sq ft)		0.01
Alpha 0.00	1.00	Stream Power (lb/ft s)	363.51	0.00
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)		9.74
C & E Loss (ft)	0.00	Cum SA (acres)		2.92

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 25Y

E. G. Elev (ft)	91.89	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	91.88	Reach Len. (ft)	513.00	506.00
498.00 Crit W. S. (ft)		Flow Area (sq ft)		259.88
E. G. Slope (ft/ft)	0.000067	Area (sq ft)		259.88
Q Total (cfs)	180.00	Flow (cfs)		180.00
Top Width (ft)	60.94	Top Width (ft)		60.94
Vel Total (ft/s)	0.69	Avg. Vel. (ft/s)		0.69

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ES100 OUTPUT REPORT.pdf

Max Chl Dpth (ft)	5.77	Hydr. Depth (ft)		4.26
Conv. Total (cfs)	21998.1	Conv. (cfs)		21998.1
Length Wtd. (ft)	506.00	Wetted Per. (ft)		63.32
Min Ch El (ft)	86.11	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	363.51	0.00
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)		11.39
C & E Loss (ft)	0.00	Cum SA (acres)		3.05

CROSS SECTION OUTPUT Profile #ULT 100Y

E. G. Elev (ft)	92.96	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	92.95	Reach Len. (ft)	513.00	506.00
498.00 Crit W. S. (ft)		Flow Area (sq ft)		327.06
E. G. Slope (ft/ft)	0.000076	Area (sq ft)		327.06
Q Total (cfs)	270.00	Flow (cfs)		270.00
Top Width (ft)	64.49	Top Width (ft)		64.49
Vel Total (ft/s)	0.83	Avg. Vel. (ft/s)		0.83
Max Chl Dpth (ft)	6.84	Hydr. Depth (ft)		5.07
Conv. Total (cfs)	30925.1	Conv. (cfs)		30925.1
Length Wtd. (ft)	506.00	Wetted Per. (ft)		67.49
Min Ch El (ft)	86.11	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	363.51	0.00
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)		14.74
C & E Loss (ft)	0.00	Cum SA (acres)		3.25

CROSS SECTION

RIVER: ES102
 REACH: ES102-00 RS: 2160

INPUT

Desription:
 Station Elevation Data

num= 107

ES100 OUTPUT REPORT. pdf

Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev
0	95.74	4.96	95.76	9.93	95.81	14.89	95.85	19.85	95.87
24.82	95.95	29.78	96.11	34.74	96.25	39.71	96.33	44.67	96.16
49.63	95.89	54.6	95.75	59.56	95.65	64.52	95.61	69.49	95.48
74.45	95.37	79.41	95.29	84.38	95.25	89.34	95.19	94.3	95.23
99.27	95.34	104.23	95.53	109.19	95.5	114.16	95.15	119.12	94.41
124.08	94.58	129.05	94.59	134.01	94.62	138.97	94.56	143.94	94.52
148.9	94.52	153.86	94.96	158.83	95.49	163.79	95.71	168.75	95.73
173.72	95.59	178.68	95.47	183.64	95.64	188.61	95.72	193.57	95.87
198.53	96.01	203.5	96.14	208.46	96.28	213.42	96.35	218.38	96.31
223.35	96.13	228.31	96.06	233.28	96.16	238.24	96.19	243.2	96.16
248.16	96.09	253.13	96.13	258.09	96.11	263.05	96.11	268.02	96.14
272.98	96.11	277.94	96.09	282.91	96.02	287.87	96.13	292.83	96.16
297.8	96.12	302.76	96.12	307.72	96.17	312.69	95.6	317.65	91.32
319.74	91.27	322.61	91.2	327.58	88.91	332.54	87.85	337.5	86.93
342.47	86.84	347.43	86.7	352.39	87.67	357.36	87.46	362.32	87.36
367.28	87.51	372.25	88.21	377.21	90.63	379.8	92.14	382.17	93.52
387.14	94.43	392.1	98.55	397.06	101.43	402.03	101.81	406.99	101.84
411.95	101.75	416.92	101.68	421.88	101.77	426.84	101.86	431.81	101.86
436.77	101.51	441.73	100.61	446.7	99.95	451.66	99.4	456.62	97.77
461.59	96.56	466.55	96	471.51	95.93	476.48	95.99	481.44	96.18
486.4	96.09	491.37	95.9	496.33	95.89	501.29	95.89	506.26	95.91
511.22	95.88	516.18	95.84						

Manning's n	Values	num=	3
Sta	n Val	Sta	n Val
0	.06	312.69	.045

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	312.69	392.1		230	239		.1	.3

CROSS SECTION OUTPUT Profile #EX 10Y

E. G. El ev (ft)	91.26	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. El ev (ft)	91.25	Reach Len. (ft)	230.00	239.00
248.00				
Crit W. S. (ft)		Flow Area (sq ft)		186.17
E. G. Slope (ft/ft)	0.000110	Area (sq ft)		186.17
Q Total (cfs)	138.00	Flow (cfs)		138.00
Top Width (ft)	57.85	Top Width (ft)		57.85
Vel Total (ft/s)	0.74	Avg. Vel. (ft/s)		0.74
Max Chl Dpth (ft)	4.55	Hydr. Depth (ft)		3.22
Conv. Total (cfs)	13161.3	Conv. (cfs)		13161.3
Length Wtd. (ft)	239.00	Wetted Per. (ft)		59.43
Min Ch El (ft)	86.70	Shear (lb/sq ft)		0.02
Al pha	1.00	Stream Power (lb/ft s)	516.18	0.00
0.00				
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)		7.27
C & E Loss (ft)	0.00	Cum SA (acres)		2.24

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CROSS SECTION OUTPUT Profile #EX 25Y

E. G. Elev (ft)	91.82	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	91.81	Reach Len. (ft)	230.00	239.00
248.00 Crit W. S. (ft)		Flow Area (sq ft)		220.09
E. G. Slope (ft/ft)	0.000116	Area (sq ft)		220.09
Q Total (cfs)	178.00	Flow (cfs)		178.00
Top Width (ft)	62.15	Top Width (ft)		62.15
Vel Total (ft/s)	0.81	Avg. Vel. (ft/s)		0.81
Max Chl Dpth (ft)	5.11	Hydr. Depth (ft)		3.54
Conv. Total (cfs)	16548.3	Conv. (cfs)		16548.3
Length Wtd. (ft)	239.00	Wetted Per. (ft)		64.06
Min Ch El (ft)	86.70	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	516.18	0.00
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)		8.53
C & E Loss (ft)	0.00	Cum SA (acres)		2.33

CROSS SECTION OUTPUT Profile #EX 100Y

E. G. Elev (ft)	92.90	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	92.89	Reach Len. (ft)	230.00	239.00
248.00 Crit W. S. (ft)		Flow Area (sq ft)		288.93
E. G. Slope (ft/ft)	0.000115	Area (sq ft)		288.93
Q Total (cfs)	269.00	Flow (cfs)		269.00
Top Width (ft)	65.25	Top Width (ft)		65.25
Vel Total (ft/s)	0.93	Avg. Vel. (ft/s)		0.93
Max Chl Dpth (ft)	6.19	Hydr. Depth (ft)		4.43
Conv. Total (cfs)	25063.1	Conv. (cfs)		25063.1

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Length Wtd. (ft)	239.00	Wetted Per. (ft)		67.86
Min Ch El (ft)	86.70	Shear (lb/sq ft)		0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	516.18	0.00
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)		11.13
C & E Loss (ft)	0.00	Cum SA (acres)		2.50

CROSS SECTION OUTPUT Profile #ULT 10Y

E. G. Elev (ft)	91.29	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	91.28	Reach Len. (ft)	230.00	239.00
248.00 Crit W. S. (ft)		Flow Area (sq ft)		187.81
E. G. Slope (ft/ft)	0.000113	Area (sq ft)		187.81
Q Total (cfs)	140.00	Flow (cfs)		140.00
Top Width (ft)	59.06	Top Width (ft)		59.06
Vel Total (ft/s)	0.75	Avg. Vel. (ft/s)		0.75
Max Chl Dpth (ft)	4.58	Hydr. Depth (ft)		3.18
Conv. Total (cfs)	13176.1	Conv. (cfs)		13176.1
Length Wtd. (ft)	239.00	Wetted Per. (ft)		60.65
Min Ch El (ft)	86.70	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	516.18	0.00
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)		7.33
C & E Loss (ft)	0.00	Cum SA (acres)		2.25

CROSS SECTION OUTPUT Profile #ULT 25Y

E. G. Elev (ft)	91.84	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	91.83	Reach Len. (ft)	230.00	239.00
248.00 Crit W. S. (ft)		Flow Area (sq ft)		221.72
E. G. Slope (ft/ft)	0.000116	Area (sq ft)		221.72
Q Total (cfs)	180.00	Flow (cfs)		180.00

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Top Width (ft)	62.22	Top Width (ft)	62.22
Vel Total (ft/s)	0.81	Avg. Vel. (ft/s)	0.81
Max Chl Dpth (ft)	5.13	Hydr. Depth (ft)	3.56
Conv. Total (cfs)	16736.7	Conv. (cfs)	16736.7
Length Wtd. (ft)	239.00	Wetted Per. (ft)	64.15
Min Ch El (ft)	86.70	Shear (lb/sq ft)	0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	516.18
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	8.59
C & E Loss (ft)	0.00	Cum SA (acres)	2.33

CROSS SECTION OUTPUT Profile #ULT 100Y

E. G. Elev (ft)	92.91	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	92.90	Reach Len. (ft)	230.00	239.00
248.00 Crit W. S. (ft)		Flow Area (sq ft)		289.63
E. G. Slope (ft/ft)	0.000115	Area (sq ft)		289.63
Q Total (cfs)	270.00	Flow (cfs)		270.00
Top Width (ft)	65.28	Top Width (ft)		65.28
Vel Total (ft/s)	0.93	Avg. Vel. (ft/s)		0.93
Max Chl Dpth (ft)	6.20	Hydr. Depth (ft)		4.44
Conv. Total (cfs)	25155.6	Conv. (cfs)		25155.6
Length Wtd. (ft)	239.00	Wetted Per. (ft)		67.90
Min Ch El (ft)	86.70	Shear (lb/sq ft)		0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	516.18	0.00
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)		11.16
C & E Loss (ft)	0.00	Cum SA (acres)		2.50

CROSS SECTION

RIVER: ES102
REACH: ES102-00

RS: 1920

ES100 OUTPUT REPORT.pdf

INPUT

Description:

Station	Elevation	Data	num=	117	Station	Elevation	Station	Elevation	Station	Elevation
0	95.83	4.96	95.81	9.92	95.76	14.87	95.76	19.83	95.71	
24.79	95.71	29.75	95.75	34.71	95.72	39.67	95.7	44.62	95.66	
49.58	95.64	54.54	95.63	59.5	95.58	64.46	95.51	69.42	95.56	
74.37	95.66	79.33	95.65	84.29	95.63	89.25	95.66	94.21	95.7	
99.16	95.68	104.12	95.62	109.08	95.59	114.04	95.6	119	95.63	
123.96	95.74	128.91	95.75	133.87	95.85	138.83	95.99	143.79	96	
148.75	96.07	153.7	96.11	158.66	96.19	163.62	96.18	168.58	95.97	
173.54	96.06	178.5	96.1	183.45	96.1	188.41	96.16	193.37	96.32	
198.33	96.33	203.29	96.32	208.25	96.37	213.2	96.63	218.16	96.49	
223.12	96.47	228.08	96.47	233.04	96.41	237.99	96.71	242.95	96.97	
247.91	96.99	252.87	97.88	257.83	97.7	262.79	95.11	267.74	94.48	
271.21	92.37	272.7	91.45	277.66	88.17	282.62	86.65	287.58	86.38	
292.53	86.01	297.49	86.36	302.45	87.33	307.41	88.04	312.37	88.21	
317.33	88.56	322.28	88.86	327.24	89.13	331.4	89.47	332.2	89.54	
337.16	89.99	342.12	90.12	347.08	92.82	352.03	97.19	356.99	100.09	
361.95	100.95	366.91	101.18	371.87	101.46	376.82	101.18	381.78	100.82	
386.74	100.5	391.7	101.01	396.66	101.94	401.62	101.51	406.57	101.03	
411.53	100.33	416.49	98.33	421.45	96.29	426.41	95.52	431.36	95.38	
436.32	95.17	441.28	95.22	446.24	94.97	451.2	95.07	456.16	95.32	
461.11	95.26	466.07	95.26	471.03	95.29	475.99	95.33	480.95	95.34	
485.91	95.36	490.86	95.46	495.82	95.49	500.78	95.66	505.74	95.77	
510.7	95.94	515.65	95.99	520.61	96.19	525.57	96.13	530.53	96.14	
535.49	96.14	540.45	96.18	545.4	96.18	550.36	96.07	555.32	96.06	
560.28	95.93	565.24	95.9							

Manning's n	Values	num=	3
0	.06	257.83	.045
		352.03	.06

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	257.83	352.03		402	398		.1	.3

CROSS SECTION OUTPUT Profile #EX 10Y

E. G. Elev (ft)	91.24	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	91.23	Reach Len. (ft)	402.00	398.00
395.00		Flow Area (sq ft)		215.48
Crit W. S. (ft)		Area (sq ft)		215.48
E. G. Slope (ft/ft)	0.000089	Flow (cfs)		138.00
Q Total (cfs)	138.00	Top Width (ft)		71.13
Top Width (ft)	71.13	Avg. Vel. (ft/s)		0.64
Vel Total (ft/s)	0.64	Hydr. Depth (ft)		3.03
Max Chl Dpth (ft)	5.22	Conv. (cfs)		14667.0
Conv. Total (cfs)	14667.0	Wetted Per. (ft)		72.81
Length Wtd. (ft)	398.00	Shear (lb/sq ft)		0.02
Min Ch El (ft)	86.01			

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Alpha 0.00	1.00	Stream Power (lb/ft s)	565.24	0.00
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)		6.17
C & E Loss (ft)	0.00	Cum SA (acres)		1.89

CROSS SECTION OUTPUT Profile #EX 25Y

E. G. Elev (ft)	91.79	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	91.79	Reach Len. (ft)	402.00	398.00
395.00 Crit W. S. (ft)		Flow Area (sq ft)		255.44
E. G. Slope (ft/ft)	0.000087	Area (sq ft)		255.44
Q Total (cfs)	178.00	Flow (cfs)		178.00
Top Width (ft)	73.02	Top Width (ft)		73.02
Vel Total (ft/s)	0.70	Avg. Vel. (ft/s)		0.70
Max Chl Dpth (ft)	5.78	Hydr. Depth (ft)		3.50
Conv. Total (cfs)	19093.0	Conv. (cfs)		19093.0
Length Wtd. (ft)	398.00	Wetted Per. (ft)		75.01
Min Ch El (ft)	86.01	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	565.24	0.00
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)		7.23
C & E Loss (ft)	0.00	Cum SA (acres)		1.96

CROSS SECTION OUTPUT Profile #EX 100Y

E. G. Elev (ft)	92.88	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	92.87	Reach Len. (ft)	402.00	398.00
395.00 Crit W. S. (ft)		Flow Area (sq ft)		336.45
E. G. Slope (ft/ft)	0.000085	Area (sq ft)		336.45
Q Total (cfs)	269.00	Flow (cfs)		269.00
Top Width (ft)	76.74	Top Width (ft)		76.74

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Vel Total (ft/s)	0.80	Avg. Vel. (ft/s)	0.80
Max Chl Dpth (ft)	6.86	Hydr. Depth (ft)	4.38
Conv. Total (cfs)	29113.2	Conv. (cfs)	29113.2
Length Wtd. (ft)	398.00	Wetted Per. (ft)	79.31
Min Ch El (ft)	86.01	Shear (lb/sq ft)	0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	565.24
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	9.42
C & E Loss (ft)	0.00	Cum SA (acres)	2.11

CROSS SECTION OUTPUT Profile #ULT 10Y

E. G. Elev (ft)	91.27	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	91.26	Reach Len. (ft)	402.00	398.00
395.00 Crit W. S. (ft)		Flow Area (sq ft)		217.46
E. G. Slope (ft/ft)	0.000089	Area (sq ft)		217.46
Q Total (cfs)	140.00	Flow (cfs)		140.00
Top Width (ft)	71.22	Top Width (ft)		71.22
Vel Total (ft/s)	0.64	Avg. Vel. (ft/s)		0.64
Max Chl Dpth (ft)	5.25	Hydr. Depth (ft)		3.05
Conv. Total (cfs)	14877.5	Conv. (cfs)		14877.5
Length Wtd. (ft)	398.00	Wetted Per. (ft)		72.92
Min Ch El (ft)	86.01	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	565.24	0.00
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)		6.22
C & E Loss (ft)	0.00	Cum SA (acres)		1.89

CROSS SECTION OUTPUT Profile #ULT 25Y

E. G. Elev (ft)	91.82	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	91.81	Reach Len. (ft)	402.00	398.00

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395.00				
Crit W. S. (ft)		Flow Area (sq ft)		257.36
E. G. Slope (ft/ft)	0.000087	Area (sq ft)		257.36
Q Total (cfs)	180.00	Flow (cfs)		180.00
Top Width (ft)	73.11	Top Width (ft)		73.11
Vel Total (ft/s)	0.70	Avg. Vel. (ft/s)		0.70
Max Chl Dpth (ft)	5.80	Hydr. Depth (ft)		3.52
Conv. Total (cfs)	19314.0	Conv. (cfs)		19314.0
Length Wtd. (ft)	398.00	Wetted Per. (ft)		75.11
Min Ch El (ft)	86.01	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	565.24	0.00
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)		7.28
C & E Loss (ft)	0.00	Cum SA (acres)		1.96

CROSS SECTION OUTPUT Profile #ULT 100Y

E. G. Elev (ft)	92.89	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	92.88	Reach Len. (ft)	402.00	398.00
395.00 Crit W. S. (ft)		Flow Area (sq ft)		337.27
E. G. Slope (ft/ft)	0.000085	Area (sq ft)		337.27
Q Total (cfs)	270.00	Flow (cfs)		270.00
Top Width (ft)	76.77	Top Width (ft)		76.77
Vel Total (ft/s)	0.80	Avg. Vel. (ft/s)		0.80
Max Chl Dpth (ft)	6.87	Hydr. Depth (ft)		4.39
Conv. Total (cfs)	29223.7	Conv. (cfs)		29223.7
Length Wtd. (ft)	398.00	Wetted Per. (ft)		79.35
Min Ch El (ft)	86.01	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	565.24	0.00
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)		9.44
C & E Loss (ft)	0.00	Cum SA (acres)		2.11

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CROSS SECTION

RIVER: ES102
REACH: ES102-00

RS: 1522

INPUT

Description:

Station		Elevation		Data		num=		99	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	96.29	4.96	96.33	9.92	96.31	14.89	96.31	19.85	96.3
24.81	96.38	29.77	96.55	34.73	96.57	39.7	96.49	44.66	96.27
49.62	96.13	54.58	96.13	59.54	96.04	64.5	96.03	69.47	96.06
74.43	96.06	79.39	96.09	84.35	96.15	89.31	96.23	94.28	96.35
99.24	96.36	104.2	96.25	109.16	96.26	114.12	96.38	119.09	96.39
124.05	96.38	129.01	96.43	133.97	96.35	138.93	96.3	143.89	96.38
148.86	96.43	153.82	96.34	158.78	96.3	163.74	96.34	168.7	96.42
173.67	96.5	178.63	96.65	183.59	96.78	188.55	96.6	193.51	96.1
198.48	96.06	203.44	96.39	208.4	96.51	213.36	96.1	218.32	94.62
223.28	93.57	224.55	93.32	228.25	92.6	233.21	89.99	238.17	87.66
243.13	86.59	248.09	86.47	253.06	86.75	258.02	88	262.98	88.19
267.94	88.09	272.9	88.16	277.87	88.89	282.83	91.62	284.62	92.5
287.79	94.06	292.75	94.66	297.71	98.41	302.67	101.09	307.64	101.64
312.6	101.64	317.56	101.71	322.52	100.98	327.48	101.11	332.45	101.13
337.41	101.98	342.37	102.17	347.33	100.18	352.29	100.1	357.26	98.78
362.22	97.2	367.18	96.65	372.14	96.04	377.1	95.94	382.06	94.74
387.03	94.53	391.99	94.82	396.95	94.88	401.91	94.91	406.87	94.84
411.84	94.89	416.8	94.91	421.76	94.94	426.72	95.03	431.68	95.35
436.65	95.43	441.61	95.05	446.57	94.87	451.53	94.93	456.49	95.03
461.45	95.08	466.42	95.04	471.38	95.02	476.34	95.01		

Manning's n Values		num=		3	
Sta	n Val	Sta	n Val	Sta	n Val
0	.06	213.36	.045	292.75	.06

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	213.36	292.75		570	566	561		.1	.3

CROSS SECTION OUTPUT Profile #EX 10Y

E. G. Elev (ft)	91.19	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	91.18	Reach Len. (ft)	570.00	566.00
561.00				
Crit W. S. (ft)		Flow Area (sq ft)		161.30
E. G. Slope (ft/ft)	0.000152	Area (sq ft)		161.30
Q Total (cfs)	138.00	Flow (cfs)		138.00
Top Width (ft)	51.08	Top Width (ft)		51.08
Vel Total (ft/s)	0.86	Avg. Vel. (ft/s)		0.86
Max Chl Dpth (ft)	4.71	Hydr. Depth (ft)		3.16
Conv. Total (cfs)	11210.2	Conv. (cfs)		11210.2
Length Wtd. (ft)	566.00	Wetted Per. (ft)		52.82

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Min Ch El (ft)	86.47	Shear (lb/sq ft)		0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	476.34	0.00
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)		4.45
C & E Loss (ft)	0.00	Cum SA (acres)		1.33

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #EX 25Y

E. G. Elev (ft)	91.75	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	91.73	Reach Len. (ft)	570.00	566.00
561.00 Crit W. S. (ft)		Flow Area (sq ft)		190.13
E. G. Slope (ft/ft)	0.000154	Area (sq ft)		190.13
Q Total (cfs)	178.00	Flow (cfs)		178.00
Top Width (ft)	53.16	Top Width (ft)		53.16
Vel Total (ft/s)	0.94	Avg. Vel. (ft/s)		0.94
Max Chl Dpth (ft)	5.26	Hydr. Depth (ft)		3.58
Conv. Total (cfs)	14322.4	Conv. (cfs)		14322.4
Length Wtd. (ft)	566.00	Wetted Per. (ft)		55.18
Min Ch El (ft)	86.47	Shear (lb/sq ft)		0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	476.34	0.00
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)		5.19
C & E Loss (ft)	0.00	Cum SA (acres)		1.38

CROSS SECTION OUTPUT Profile #EX 100Y

E. G. Elev (ft)	92.83	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	92.81	Reach Len. (ft)	570.00	566.00
561.00 Crit W. S. (ft)		Flow Area (sq ft)		249.87

ES100 OUTPUT REPORT.pdf

E. G. Slope (ft/ft)	0.000161	Area (sq ft)	249.87
Q Total (cfs)	269.00	Flow (cfs)	269.00
Top Width (ft)	58.10	Top Width (ft)	58.10
Vel Total (ft/s)	1.08	Avg. Vel. (ft/s)	1.08
Max Chl Dpth (ft)	6.34	Hydr. Depth (ft)	4.30
Conv. Total (cfs)	21215.1	Conv. (cfs)	21215.1
Length Wtd. (ft)	566.00	Wetted Per. (ft)	60.60
Min Ch El (ft)	86.47	Shear (lb/sq ft)	0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	476.34
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)	6.74
C & E Loss (ft)	0.00	Cum SA (acres)	1.49

CROSS SECTION OUTPUT Profile #ULT 10Y

E. G. Elev (ft)	91.22	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	91.21	Reach Len. (ft)	570.00	566.00
561.00 Crit W. S. (ft)		Flow Area (sq ft)		162.71
E. G. Slope (ft/ft)	0.000152	Area (sq ft)		162.71
Q Total (cfs)	140.00	Flow (cfs)		140.00
Top Width (ft)	51.19	Top Width (ft)		51.19
Vel Total (ft/s)	0.86	Avg. Vel. (ft/s)		0.86
Max Chl Dpth (ft)	4.74	Hydr. Depth (ft)		3.18
Conv. Total (cfs)	11358.0	Conv. (cfs)		11358.0
Length Wtd. (ft)	566.00	Wetted Per. (ft)		52.94
Min Ch El (ft)	86.47	Shear (lb/sq ft)		0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	476.34	0.00
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)		4.48
C & E Loss (ft)	0.00	Cum SA (acres)		1.33

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

ES100 OUTPUT REPORT.pdf

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 25Y

E. G. Elev (ft)	91.77	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	91.76	Reach Len. (ft)	570.00	566.00
561.00 Crit W. S. (ft)		Flow Area (sq ft)		191.52
E. G. Slope (ft/ft)	0.000155	Area (sq ft)		191.52
Q Total (cfs)	180.00	Flow (cfs)		180.00
Top Width (ft)	53.27	Top Width (ft)		53.27
Vel Total (ft/s)	0.94	Avg. Vel. (ft/s)		0.94
Max Chl Dpth (ft)	5.29	Hydr. Depth (ft)		3.60
Conv. Total (cfs)	14477.3	Conv. (cfs)		14477.3
Length Wtd. (ft)	566.00	Wetted Per. (ft)		55.30
Min Ch El (ft)	86.47	Shear (lb/sq ft)		0.03
Alpha 0.00	1.00	Stream Power (lb/ft s)	476.34	0.00
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)		5.23
C & E Loss (ft)	0.00	Cum SA (acres)		1.39

CROSS SECTION OUTPUT Profile #ULT 100Y

E. G. Elev (ft)	92.84	Element	Left OB	Channel
Right OB Vel Head (ft)	0.02	Wt. n-Val.		0.045
W. S. Elev (ft)	92.82	Reach Len. (ft)	570.00	566.00
561.00 Crit W. S. (ft)		Flow Area (sq ft)		250.49
E. G. Slope (ft/ft)	0.000161	Area (sq ft)		250.49
Q Total (cfs)	270.00	Flow (cfs)		270.00
Top Width (ft)	58.18	Top Width (ft)		58.18
Vel Total (ft/s)	1.08	Avg. Vel. (ft/s)		1.08
Max Chl Dpth (ft)	6.35	Hydr. Depth (ft)		4.31
Conv. Total (cfs)	21284.8	Conv. (cfs)		21284.8
Length Wtd. (ft)	566.00	Wetted Per. (ft)		60.68

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Min Ch El (ft)	86.47	Shear (lb/sq ft)		0.04
Alpha 0.00	1.00	Stream Power (lb/ft s)	476.34	0.00
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)		6.75
C & E Loss (ft)	0.00	Cum SA (acres)		1.49

CROSS SECTION

RIVER: ES102
 REACH: ES102-00 RS: 956

INPUT

Description:

Station	Elevation	Data	num=	114					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	95.64	4.96	95.77	9.92	95.84	14.87	95.98	19.83	95.88
24.79	96	29.75	96.01	34.7	96.17	39.66	95.86	44.62	95.55
49.58	95.72	54.54	95.78	59.49	95.77	64.45	95.14	69.41	95.24
74.37	95.28	79.33	95.39	84.28	95.31	89.24	95.35	94.2	95.44
99.16	95.62	104.12	95.73	109.07	95.76	114.03	95.76	118.99	95.85
123.95	96	128.9	96.08	133.86	96.19	138.82	96.26	143.78	96.28
148.74	96.33	153.69	96.38	158.65	96.4	163.61	96.43	168.57	96.49
173.53	96.47	178.48	96.36	183.44	96.35	188.4	96.26	193.36	96.14
198.31	96.1	203.27	96.09	208.23	96.02	213.19	95.89	218.15	95.83
223.1	95.2	228.06	95.19	233.02	95.2	237.98	95.69	242.94	95.21
247.89	95.17	252.85	93.69	257.81	91.61	259.61	90.75	262.77	89.25
267.72	89.12	272.68	86.94	277.64	85.62	282.6	85.54	287.56	85.54
292.51	85.58	297.47	87.08	302.43	87.95	307.39	88.44	312.35	88.52
317.3	90.2	319.61	91.19	322.26	92.33	327.22	95.64	332.18	97.18
337.13	99.28	342.09	101.18	347.05	101.77	352.01	101.94	356.97	101.88
361.92	101.79	366.88	101.77	371.84	101.79	376.8	101.64	381.76	100.37
386.71	97.84	391.67	95.8	396.63	95.12	401.59	94.77	406.55	93.73
411.5	93.33	416.46	93.64	421.42	93.57	426.38	93.34	431.33	93.52
436.29	93.63	441.25	93.61	446.21	93.49	451.17	93.5	456.12	93.67
461.08	93.67	466.04	93.87	471	94.18	475.95	94.19	480.91	94.16
485.87	94.16	490.83	94.19	495.79	94.17	500.74	94.02	505.7	93.98
510.66	94.07	515.62	94.11	520.58	94.17	525.53	94.19	530.49	94.15
535.45	94.12	540.41	94.08	545.36	94.09	550.32	94.09		

Manning's n Values	num=	3
Sta n Val	Sta n Val	Sta n Val
0 .06	247.89	.045
		327.22
		.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.	Expan.
247.89	327.22	544	546	548	.1		.3

CROSS SECTION OUTPUT Profile #EX 10Y

E. G. Elev (ft)	91.13	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	91.13	Reach Len. (ft)	544.00	546.00
548.00				
Crit W. S. (ft)		Flow Area (sq ft)		214.58

ES100 OUTPUT REPORT.pdf

E. G. Slope (ft/ft)	0.000073	Area (sq ft)	214.58
Q Total (cfs)	138.00	Flow (cfs)	138.00
Top Width (ft)	60.64	Top Width (ft)	60.64
Vel Total (ft/s)	0.64	Avg. Vel. (ft/s)	0.64
Max Chl Dpth (ft)	5.59	Hydr. Depth (ft)	3.54
Conv. Total (cfs)	16128.3	Conv. (cfs)	16128.3
Length Wtd. (ft)	546.00	Wetted Per. (ft)	62.48
Min Ch El (ft)	85.54	Shear (lb/sq ft)	0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	550.32
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)	2.01
C & E Loss (ft)	0.00	Cum SA (acres)	0.60

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #EX 25Y

E. G. Elev (ft)	91.68	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	91.68	Reach Len. (ft)	544.00	546.00
548.00 Crit W. S. (ft)		Flow Area (sq ft)		248.65
E. G. Slope (ft/ft)	0.000079	Area (sq ft)		248.65
Q Total (cfs)	178.00	Flow (cfs)		178.00
Top Width (ft)	63.09	Top Width (ft)		63.09
Vel Total (ft/s)	0.72	Avg. Vel. (ft/s)		0.72
Max Chl Dpth (ft)	6.14	Hydr. Depth (ft)		3.94
Conv. Total (cfs)	20046.7	Conv. (cfs)		20046.7
Length Wtd. (ft)	546.00	Wetted Per. (ft)		65.17
Min Ch El (ft)	85.54	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	550.32	0.00
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)		2.34
C & E Loss (ft)	0.00	Cum SA (acres)		0.63

ES100 OUTPUT REPORT.pdf

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #EX 100Y

E. G. Elev (ft)	92.76	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	92.75	Reach Len. (ft)	544.00	546.00
548.00 Crit W. S. (ft)		Flow Area (sq ft)		319.15
E. G. Slope (ft/ft)	0.000087	Area (sq ft)		319.15
Q Total (cfs)	269.00	Flow (cfs)		269.00
Top Width (ft)	67.81	Top Width (ft)		67.81
Vel Total (ft/s)	0.84	Avg. Vel. (ft/s)		0.84
Max Chl Dpth (ft)	7.21	Hydr. Depth (ft)		4.71
Conv. Total (cfs)	28875.0	Conv. (cfs)		28875.0
Length Wtd. (ft)	546.00	Wetted Per. (ft)		70.37
Min Ch El (ft)	85.54	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	550.32	0.00
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)		3.04
C & E Loss (ft)	0.00	Cum SA (acres)		0.68

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 10Y

E. G. Elev (ft)	91.16	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	91.15	Reach Len. (ft)	544.00	546.00
548.00 Crit W. S. (ft)		Flow Area (sq ft)		216.25
E. G. Slope (ft/ft)	0.000074	Area (sq ft)		216.25
Q Total (cfs)	140.00	Flow (cfs)		140.00
Top Width (ft)	60.76	Top Width (ft)		60.76

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Vel Total (ft/s)	0.65	Avg. Vel. (ft/s)	0.65
Max Chl Dpth (ft)	5.61	Hydr. Depth (ft)	3.56
Conv. Total (cfs)	16314.5	Conv. (cfs)	16314.5
Length Wtd. (ft)	546.00	Wetted Per. (ft)	62.62
Min Ch El (ft)	85.54	Shear (lb/sq ft)	0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	550.32
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)	2.02
C & E Loss (ft)	0.00	Cum SA (acres)	0.60

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 25Y

E. G. Elev (ft)	91.71	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	91.70	Reach Len. (ft)	544.00	546.00
548.00 Crit W. S. (ft)		Flow Area (sq ft)		250.29
E. G. Slope (ft/ft)	0.000079	Area (sq ft)		250.29
Q Total (cfs)	180.00	Flow (cfs)		180.00
Top Width (ft)	63.21	Top Width (ft)		63.21
Vel Total (ft/s)	0.72	Avg. Vel. (ft/s)		0.72
Max Chl Dpth (ft)	6.16	Hydr. Depth (ft)		3.96
Conv. Total (cfs)	20240.4	Conv. (cfs)		20240.4
Length Wtd. (ft)	546.00	Wetted Per. (ft)		65.31
Min Ch El (ft)	85.54	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	550.32	0.00
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)		2.36
C & E Loss (ft)	0.00	Cum SA (acres)		0.63

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #ULT 100Y

E. G. Elev (ft)	92.77	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	92.76	Reach Len. (ft)	544.00	546.00
548.00 Crit W. S. (ft)		Flow Area (sq ft)		319.88
E. G. Slope (ft/ft)	0.000087	Area (sq ft)		319.88
Q Total (cfs)	270.00	Flow (cfs)		270.00
Top Width (ft)	67.85	Top Width (ft)		67.85
Vel Total (ft/s)	0.84	Avg. Vel. (ft/s)		0.84
Max Chl Dpth (ft)	7.22	Hydr. Depth (ft)		4.71
Conv. Total (cfs)	28971.8	Conv. (cfs)		28971.8
Length Wtd. (ft)	546.00	Wetted Per. (ft)		70.42
Min Ch El (ft)	85.54	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	550.32	0.00
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)		3.05
C & E Loss (ft)	0.00	Cum SA (acres)		0.68

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: ES102
REACH: ES102-00 RS: 410

INPUT

Description:

Station	Elevation	Data	num=	112						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	
0	94.46	4.97	94.39	9.93	94.27	14.89	94.08	19.86	94.06	
24.82	94.14	29.79	94.31	34.75	94.41	39.72	94.42	44.68	94.37	
49.65	94.24	54.61	94.16	59.58	94.03	64.54	93.93	69.51	94.02	
74.47	94.11	79.44	94.19	84.4	94.29	89.37	94.31	94.33	94.39	
99.3	94.51	104.26	94.58	109.23	94.29	114.19	94.01	119.16	94.09	
124.12	94.13	129.09	94.12	134.05	93.96	139.02	94.13	143.98	94.12	
148.95	94.14	153.91	94	158.88	93.91	163.84	93.94	167.3	94.11	
168.81	94.18	173.77	93.1	178.74	89.4	183.7	89.33	188.67	87.26	
193.63	86.68	198.6	86.2	203.56	87.99	208.53	88.23	213.49	92.07	
218.46	95.36	223.42	98.93	227.3	99.34	228.39	99.45	233.35	100.74	
238.32	101.56	243.28	101.72	248.25	101.7	253.21	100.28	258.18	100.31	
263.14	101.78	268.11	102.27	273.07	102.08	278.04	101.89	283	101.72	
287.97	101.03	292.93	99.81	297.9	97.79	302.86	96.78	307.83	95.83	

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312.79	94.83	317.76	94.41	322.72	94.23	327.69	93.81	332.65	93.29
337.61	93.75	342.58	94.33	347.54	94.33	352.51	94.32	357.47	94.34
362.44	94.49	367.4	94.6	372.37	94.85	377.33	94.97	382.3	95.08
387.26	95.2	392.23	95.16	397.19	95.03	402.16	95.02	407.12	94.96
412.09	94.97	417.05	94.94	422.02	94.85	426.98	94.88	431.95	94.88
436.91	94.83	441.88	94.97	446.84	94.82	451.81	94.82	456.77	94.78
461.74	94.88	466.7	94.78	471.67	94.79	476.63	94.63	481.6	94.55
486.56	94.47	491.53	94.54	496.49	94.56	501.46	94.57	506.42	94.44
511.39	94.47	516.35	94.47	521.32	94.43	526.28	94.21	531.25	94.1
536.21	94.07	541.18	94.02						

Manning's n	Val	num=	3
Sta	n Val	Sta	n Val
0	.06	168.81	.045
		218.46	.06

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	168.81	218.46		306	410		.1	.3

CROSS SECTION OUTPUT Profile #EX 10Y

E. G. Elev (ft)	91.05	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.03	Wt. n-Val.		0.045
W. S. Elev (ft)	91.03	Reach Len. (ft)		
Crit W. S. (ft)	88.28	Flow Area (sq ft)		105.52
E. G. Slope (ft/ft)	0.000400	Area (sq ft)		105.52
Q Total (cfs)	138.00	Flow (cfs)		138.00
Top Width (ft)	35.58	Top Width (ft)		35.58
Vel Total (ft/s)	1.31	Avg. Vel. (ft/s)		1.31
Max Chl Dpth (ft)	4.83	Hydr. Depth (ft)		2.97
Conv. Total (cfs)	6899.4	Conv. (cfs)		6899.4
Length Wtd. (ft)		Wetted Per. (ft)		37.87
Min Ch El (ft)	86.20	Shear (lb/sq ft)		0.07
Alpha	1.00	Stream Power (lb/ft s)	541.18	0.00
0.00		Cum Volume (acre-ft)		
Frctn Loss (ft)		Cum SA (acres)		
C & E Loss (ft)				

CROSS SECTION OUTPUT Profile #EX 25Y

E. G. Elev (ft)	91.60	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.03	Wt. n-Val.		0.045
W. S. Elev (ft)	91.57	Reach Len. (ft)		

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Crit W. S. (ft)	88.47	Flow Area (sq ft)		125.23
E. G. Slope (ft/ft)	0.000400	Area (sq ft)		125.23
Q Total (cfs)	178.00	Flow (cfs)		178.00
Top Width (ft)	37.02	Top Width (ft)		37.02
Vel Total (ft/s)	1.42	Avg. Vel. (ft/s)		1.42
Max Chl Dpth (ft)	5.37	Hydr. Depth (ft)		3.38
Conv. Total (cfs)	8899.2	Conv. (cfs)		8899.2
Length Wtd. (ft)		Wetted Per. (ft)		39.67
Min Ch El (ft)	86.20	Shear (lb/sq ft)		0.08
Alpha 0.00	1.00	Stream Power (lb/ft s)	541.18	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)		
C & E Loss (ft)		Cum SA (acres)		

CROSS SECTION OUTPUT Profile #EX 100Y

E. G. Elev (ft)	92.67	Element	Left OB	Channel
Right OB Vel Head (ft)	0.04	Wt. n-Val.		0.045
W. S. Elev (ft)	92.63	Reach Len. (ft)		
Crit W. S. (ft)	88.88	Flow Area (sq ft)		166.08
E. G. Slope (ft/ft)	0.000400	Area (sq ft)		166.08
Q Total (cfs)	269.00	Flow (cfs)		269.00
Top Width (ft)	39.94	Top Width (ft)		39.94
Vel Total (ft/s)	1.62	Avg. Vel. (ft/s)		1.62
Max Chl Dpth (ft)	6.43	Hydr. Depth (ft)		4.16
Conv. Total (cfs)	13442.0	Conv. (cfs)		13442.0
Length Wtd. (ft)		Wetted Per. (ft)		43.28
Min Ch El (ft)	86.20	Shear (lb/sq ft)		0.10
Alpha 0.00	1.00	Stream Power (lb/ft s)	541.18	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)		
C & E Loss (ft)		Cum SA (acres)		

CROSS SECTION OUTPUT Profile #ULT 10Y

E. G. Elev (ft)	91.08	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	Wt. n-Val.		0.045
W. S. Elev (ft)	91.05	Reach Len. (ft)		
Crit W. S. (ft)	88.29	Flow Area (sq ft)		106.48
E. G. Slope (ft/ft)	0.000401	Area (sq ft)		106.48
Q Total (cfs)	140.00	Flow (cfs)		140.00
Top Width (ft)	35.66	Top Width (ft)		35.66
Vel Total (ft/s)	1.31	Avg. Vel. (ft/s)		1.31
Max Chl Dpth (ft)	4.85	Hydr. Depth (ft)		2.99
Conv. Total (cfs)	6993.1	Conv. (cfs)		6993.1
Length Wtd. (ft)		Wetted Per. (ft)		37.96
Min Ch El (ft)	86.20	Shear (lb/sq ft)		0.07
Alpha 0.00	1.00	Stream Power (lb/ft s)	541.18	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)		
C & E Loss (ft)		Cum SA (acres)		

CROSS SECTION OUTPUT Profile #ULT 25Y

E. G. Elev (ft)	91.63	Element	Left OB	Channel
Right OB Vel Head (ft)	0.03	Wt. n-Val.		0.045
W. S. Elev (ft)	91.59	Reach Len. (ft)		
Crit W. S. (ft)	88.48	Flow Area (sq ft)		126.18
E. G. Slope (ft/ft)	0.000400	Area (sq ft)		126.18
Q Total (cfs)	180.00	Flow (cfs)		180.00
Top Width (ft)	37.08	Top Width (ft)		37.08
Vel Total (ft/s)	1.43	Avg. Vel. (ft/s)		1.43
Max Chl Dpth (ft)	5.39	Hydr. Depth (ft)		3.40
Conv. Total (cfs)	8999.3	Conv. (cfs)		8999.3
Length Wtd. (ft)		Wetted Per. (ft)		39.75
Min Ch El (ft)	86.20	Shear (lb/sq ft)		0.08

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Alpha	1.00	Stream Power (lb/ft s)	541.18	0.00
0.00				
Frctn Loss (ft)		Cum Volume (acre-ft)		
C & E Loss (ft)		Cum SA (acres)		

CROSS SECTION OUTPUT Profile #ULT 100Y

E. G. Elev (ft)	92.68	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.04	Wt. n-Val.		0.045
W. S. Elev (ft)	92.64	Reach Len. (ft)		
Crit W. S. (ft)	88.89	Flow Area (sq ft)		166.51
E. G. Slope (ft/ft)	0.000400	Area (sq ft)		166.51
Q Total (cfs)	270.00	Flow (cfs)		270.00
Top Width (ft)	39.97	Top Width (ft)		39.97
Vel Total (ft/s)	1.62	Avg. Vel. (ft/s)		1.62
Max Chl Dpth (ft)	6.44	Hydr. Depth (ft)		4.17
Conv. Total (cfs)	13491.7	Conv. (cfs)		13491.7
Length Wtd. (ft)		Wetted Per. (ft)		43.32
Min Ch El (ft)	86.20	Shear (lb/sq ft)		0.10
Alpha	1.00	Stream Power (lb/ft s)	541.18	0.00
0.00				
Frctn Loss (ft)		Cum Volume (acre-ft)		
C & E Loss (ft)		Cum SA (acres)		

CROSS SECTION

RIVER: ES102
 REACH: ES102-00A RS: 4248

INPUT

Description:

Station	Elevation	Data	num=	113						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	
0	95	4.97	94.98	9.95	94.97	14.92	94.98	19.89	94.97	
24.86	94.8	29.84	94.51	34.81	94.39	39.78	94.47	44.76	94.54	
49.73	94.41	54.7	94.32	59.68	94.32	64.65	94.32	69.62	94.36	
74.59	94.45	79.57	94.4	84.54	94.43	89.51	94.57	94.49	94.76	
99.46	94.87	104.43	94.82	109.41	94.75	114.38	94.51	119.35	94.78	
124.32	94.76	129.3	94.57	134.27	94.16	139.24	94.19	144.22	94.49	
149.19	94.5	154.16	94.81	159.14	95.08	164.11	94.72	169.08	94.76	
174.05	94.76	179.03	94.66	184	94.84	188.97	94.85	193.95	94.85	

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198.92	94.84	203.89	94.8	208.86	94.79	213.84	94.84	218.81	94.69
223.78	94.8	228.76	94.72	233.73	94.71	238.7	94.62	243.68	94.7
248.65	94.79	253.62	94.83	258.59	94.82	263.57	95.14	268.54	95.68
273.51	95.83	278.49	95.92	283.46	96.12	288.43	96.26	293.41	96.29
298.38	96.43	303.35	96.64	308.32	96.63	313.3	96.56	315.3	96.19
318.27	95.64	323.24	92.26	328.22	89.55	333.19	87.67	338.16	86.21
343.13	85.78	348.11	85.77	353.08	86.09	358.05	87.44	363.03	90.17
368	92.24	372.97	94.23	375.31	96.36	377.95	98.77	382.92	100.72
387.89	100.85	392.86	100.8	397.84	100.41	402.81	99.05	407.78	97.26
412.76	97.76	417.73	98.37	422.7	100.08	427.68	99.38	432.65	98
437.62	97.57	442.59	95.43	447.57	94.86	452.54	94.75	457.51	94.77
462.49	94.92	467.46	94.97	472.43	94.96	477.4	94.94	482.38	94.91
487.35	94.86	492.32	94.77	497.3	94.76	502.27	94.73	507.24	94.82
512.22	95.04	517.19	94.91	522.16	94.91	527.13	94.92	532.11	95.05
537.08	94.65	542.05	94.59	547.03	94.49				

Manning's n Values num= 3
 Station Val Station Val Station Val
 0 .06 315.3 .045 375.31 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 315.3 375.31 320 322 324 .1 .3

CROSS SECTION OUTPUT Profile #EX 10Y

E. G. Elev (ft)	91.40	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	Wt. n-Val.		0.045
W. S. Elev (ft)	91.39	Reach Len. (ft)	320.00	322.00
324.00		Flow Area (sq ft)		158.75
Crit W. S. (ft)		Area (sq ft)		158.75
E. G. Slope (ft/ft)	0.000047	Flow (cfs)		85.00
Q Total (cfs)	85.00	Top Width (ft)		41.14
Top Width (ft)	41.14	Avg. Vel. (ft/s)		0.54
Vel Total (ft/s)	0.54	Hydr. Depth (ft)		3.86
Max Chl Dpth (ft)	5.62	Conv. (cfs)		12461.3
Conv. Total (cfs)	12461.3	Wetted Per. (ft)		43.31
Length Wtd. (ft)	322.00	Shear (lb/sq ft)		0.01
Min Ch El (ft)	85.77	Stream Power (lb/ft s)	547.03	0.00
Alpha	1.00	Cum Volume (acre-ft)		4.42
0.00		Cum SA (acres)		0.68
Frctn Loss (ft)	0.01			
C & E Loss (ft)	0.00			

CROSS SECTION OUTPUT Profile #EX 25Y

E. G. Elev (ft)	91.97	Element	Left OB	Channel
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Right OB				
Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	91.96	Reach Len. (ft)	320.00	322.00
324.00 Crit W. S. (ft)		Flow Area (sq ft)		182.85
E. G. Slope (ft/ft)	0.000052	Area (sq ft)		182.85
Q Total (cfs)	109.00	Flow (cfs)		109.00
Top Width (ft)	43.55	Top Width (ft)		43.55
Vel Total (ft/s)	0.60	Avg. Vel. (ft/s)		0.60
Max Chl Dpth (ft)	6.19	Hydr. Depth (ft)		4.20
Conv. Total (cfs)	15154.4	Conv. (cfs)		15154.4
Length Wtd. (ft)	322.00	Wetted Per. (ft)		45.98
Min Ch El (ft)	85.77	Shear (lb/sq ft)		0.01
Alpha 0.00	1.00	Stream Power (lb/ft s)	547.03	0.00
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)		5.09
C & E Loss (ft)	0.00	Cum SA (acres)		0.71

CROSS SECTION OUTPUT Profile #EX 100Y

E. G. Elev (ft)	93.07	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	93.06	Reach Len. (ft)	320.00	322.00
324.00 Crit W. S. (ft)		Flow Area (sq ft)		233.28
E. G. Slope (ft/ft)	0.000060	Area (sq ft)		233.28
Q Total (cfs)	165.00	Flow (cfs)		165.00
Top Width (ft)	48.00	Top Width (ft)		48.00
Vel Total (ft/s)	0.71	Avg. Vel. (ft/s)		0.71
Max Chl Dpth (ft)	7.29	Hydr. Depth (ft)		4.86
Conv. Total (cfs)	21233.5	Conv. (cfs)		21233.5
Length Wtd. (ft)	322.00	Wetted Per. (ft)		50.97
Min Ch El (ft)	85.77	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	547.03	0.00
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)		6.49

C & E Loss (ft)

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0.00 Cum SA (acres)

0.78

CROSS SECTION OUTPUT Profile #ULT 10Y

E. G. Elev (ft)	91.43	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	Wt. n-Val.		0.045
W. S. Elev (ft)	91.43	Reach Len. (ft)	320.00	322.00
324.00 Crit W. S. (ft)		Flow Area (sq ft)		160.09
E. G. Slope (ft/ft)	0.000051	Area (sq ft)		160.09
Q Total (cfs)	90.00	Flow (cfs)		90.00
Top Width (ft)	41.27	Top Width (ft)		41.27
Vel Total (ft/s)	0.56	Avg. Vel. (ft/s)		0.56
Max Chl Dpth (ft)	5.66	Hydr. Depth (ft)		3.88
Conv. Total (cfs)	12608.1	Conv. (cfs)		12608.1
Length Wtd. (ft)	322.00	Wetted Per. (ft)		43.46
Min Ch El (ft)	85.77	Shear (lb/sq ft)		0.01
Alpha 0.00	1.00	Stream Power (lb/ft s)	547.03	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)		4.45
C & E Loss (ft)	0.00	Cum SA (acres)		0.68

CROSS SECTION OUTPUT Profile #ULT 25Y

E. G. Elev (ft)	91.99	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	91.99	Reach Len. (ft)	320.00	322.00
324.00 Crit W. S. (ft)		Flow Area (sq ft)		184.01
E. G. Slope (ft/ft)	0.000052	Area (sq ft)		184.01
Q Total (cfs)	110.00	Flow (cfs)		110.00
Top Width (ft)	43.66	Top Width (ft)		43.66
Vel Total (ft/s)	0.60	Avg. Vel. (ft/s)		0.60
Max Chl Dpth (ft)	6.22	Hydr. Depth (ft)		4.21
Conv. Total (cfs)	15287.4	Conv. (cfs)		15287.4

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Length Wtd. (ft)	322.00	Wetted Per. (ft)	46.11
Min Ch El (ft)	85.77	Shear (lb/sq ft)	0.01
Alpha 0.00	1.00	Stream Power (lb/ft s)	547.03
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	5.12
C & E Loss (ft)	0.00	Cum SA (acres)	0.71

CROSS SECTION OUTPUT Profile #ULT 100Y

E. G. Elev (ft)	93.09	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	93.08	Reach Len. (ft)	320.00	322.00
324.00 Crit W. S. (ft)		Flow Area (sq ft)		233.92
E. G. Slope (ft/ft)	0.000064	Area (sq ft)		233.92
Q Total (cfs)	170.00	Flow (cfs)		170.00
Top Width (ft)	48.05	Top Width (ft)		48.05
Vel Total (ft/s)	0.73	Avg. Vel. (ft/s)		0.73
Max Chl Dpth (ft)	7.31	Hydr. Depth (ft)		4.87
Conv. Total (cfs)	21314.0	Conv. (cfs)		21314.0
Length Wtd. (ft)	322.00	Wetted Per. (ft)		51.03
Min Ch El (ft)	85.77	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	547.03	0.00
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)		6.50
C & E Loss (ft)	0.00	Cum SA (acres)		0.78

CROSS SECTION

RIVER: ES102
 REACH: ES102-00A RS: 3926

INPUT

Description:

Station	Elevation	Data	num=	84					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	95.34	4.96	95.22	9.93	95.07	14.89	94.78	19.86	94.4
24.82	94.16	29.79	94.16	34.75	94.38	39.72	94.78	44.68	94.94
49.65	94.91	54.61	94.87	59.58	94.96	64.54	95.01	69.51	95.08

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74.47	95.14	79.44	95.29	84.4	95.29	89.37	95.24	94.33	95.21
99.3	95.1	104.26	94.96	109.23	94.87	114.19	94.91	119.16	95.03
124.12	95.15	129.08	95.14	134.05	95.13	139.01	95	143.98	94.72
148.94	94.82	153.91	95.37	158.87	95.44	163.84	96.24	168.8	96.05
173.77	96.33	178.73	96.33	183.7	96.65	188.66	96.51	192.17	94.45
193.63	93.59	198.59	93.39	203.56	88.56	208.52	85.95	213.49	85.77
218.45	85.76	223.42	85.99	228.38	86.12	233.35	87.7	238.31	90.28
243.28	90.72	248.24	94.72	252.2	98.53	253.21	99.5	258.17	101.02
263.13	101.17	268.1	101.08	273.06	100.64	278.03	98.31	282.99	97.58
287.96	97.19	292.92	98.67	297.89	99.26	302.85	99.18	307.82	98.36
312.78	97.05	317.75	95.81	322.71	95.37	327.68	94.96	332.64	94.57
337.61	94.41	342.57	94.28	347.54	94.23	352.5	94.22	357.47	94.14
362.43	94.13	367.4	94.18	372.36	94.25	377.33	94.36	382.29	94.38
387.25	94.36	392.22	94.42	397.18	94.47	402.15	94.44		

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 192.17 .045 252.2 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 192.17 252.2 374 374 374 .1 .3

CROSS SECTION OUTPUT Profile #EX 10Y

E. G. Elev (ft)	91.38	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	Wt. n-Val.		0.045
W. S. Elev (ft)	91.38	Reach Len. (ft)	374.00	374.00
374.00		Flow Area (sq ft)		172.34
Crit W. S. (ft)		Area (sq ft)		172.34
E. G. Slope (ft/ft)	0.000039	Flow (cfs)		85.00
Q Total (cfs)	85.00	Top Width (ft)		43.44
Top Width (ft)	43.44	Avg. Vel. (ft/s)		0.49
Vel Total (ft/s)	0.49	Hydr. Depth (ft)		3.97
Max Chl Dpth (ft)	5.62	Conv. (cfs)		13654.1
Conv. Total (cfs)	13654.1	Wetted Per. (ft)		46.37
Length Wtd. (ft)	374.00	Shear (lb/sq ft)		0.01
Min Ch El (ft)	85.76	Stream Power (lb/ft s)	402.15	0.00
Alpha	1.00	Cum Volume (acre-ft)		3.20
0.00		Cum SA (acres)		0.37
Frctn Loss (ft)	0.02			
C & E Loss (ft)	0.00			

CROSS SECTION OUTPUT Profile #EX 25Y

E. G. Elev (ft)	91.95	Element	Left OB	Channel
Right OB				

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Vel Head (ft)	0.00	Wt. n-Val.		0.045
W. S. Elev (ft)	91.95	Reach Len. (ft)	374.00	374.00
374.00 Crit W. S. (ft)		Flow Area (sq ft)		197.37
E. G. Slope (ft/ft)	0.000043	Area (sq ft)		197.37
Q Total (cfs)	109.00	Flow (cfs)		109.00
Top Width (ft)	44.73	Top Width (ft)		44.73
Vel Total (ft/s)	0.55	Avg. Vel. (ft/s)		0.55
Max Chl Dpth (ft)	6.19	Hydr. Depth (ft)		4.41
Conv. Total (cfs)	16706.8	Conv. (cfs)		16706.8
Length Wtd. (ft)	374.00	Wetted Per. (ft)		48.09
Min Ch El (ft)	85.76	Shear (lb/sq ft)		0.01
Alpha	1.00	Stream Power (lb/ft s)	402.15	0.00
0.00 Frctn Loss (ft)	0.02	Cum Volume (acre-ft)		3.69
C & E Loss (ft)	0.00	Cum SA (acres)		0.38

CROSS SECTION OUTPUT Profile #EX 100Y

E. G. Elev (ft)	93.05	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	93.05	Reach Len. (ft)	374.00	374.00
374.00 Crit W. S. (ft)		Flow Area (sq ft)		247.87
E. G. Slope (ft/ft)	0.000050	Area (sq ft)		247.87
Q Total (cfs)	165.00	Flow (cfs)		165.00
Top Width (ft)	47.22	Top Width (ft)		47.22
Vel Total (ft/s)	0.67	Avg. Vel. (ft/s)		0.67
Max Chl Dpth (ft)	7.29	Hydr. Depth (ft)		5.25
Conv. Total (cfs)	23358.4	Conv. (cfs)		23358.4
Length Wtd. (ft)	374.00	Wetted Per. (ft)		51.41
Min Ch El (ft)	85.76	Shear (lb/sq ft)		0.02
Alpha	1.00	Stream Power (lb/ft s)	402.15	0.00
0.00 Frctn Loss (ft)	0.02	Cum Volume (acre-ft)		4.71
C & E Loss (ft)	0.00	Cum SA (acres)		0.42

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CROSS SECTION OUTPUT Profile #ULT 10Y

E. G. Elev (ft)	91.42	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	Wt. n-Val.		0.045
W. S. Elev (ft)	91.41	Reach Len. (ft)	374.00	374.00
374.00 Crit W. S. (ft)		Flow Area (sq ft)		173.70
E. G. Slope (ft/ft)	0.000042	Area (sq ft)		173.70
Q Total (cfs)	90.00	Flow (cfs)		90.00
Top Width (ft)	43.51	Top Width (ft)		43.51
Vel Total (ft/s)	0.52	Avg. Vel. (ft/s)		0.52
Max Chl Dpth (ft)	5.65	Hydr. Depth (ft)		3.99
Conv. Total (cfs)	13816.0	Conv. (cfs)		13816.0
Length Wtd. (ft)	374.00	Wetted Per. (ft)		46.46
Min Ch El (ft)	85.76	Shear (lb/sq ft)		0.01
Alpha 0.00	1.00	Stream Power (lb/ft s)	402.15	0.00
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)		3.22
C & E Loss (ft)	0.00	Cum SA (acres)		0.37

CROSS SECTION OUTPUT Profile #ULT 25Y

E. G. Elev (ft)	91.98	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	Wt. n-Val.		0.045
W. S. Elev (ft)	91.97	Reach Len. (ft)	374.00	374.00
374.00 Crit W. S. (ft)		Flow Area (sq ft)		198.56
E. G. Slope (ft/ft)	0.000043	Area (sq ft)		198.56
Q Total (cfs)	110.00	Flow (cfs)		110.00
Top Width (ft)	44.79	Top Width (ft)		44.79
Vel Total (ft/s)	0.55	Avg. Vel. (ft/s)		0.55
Max Chl Dpth (ft)	6.21	Hydr. Depth (ft)		4.43
Conv. Total (cfs)	16856.2	Conv. (cfs)		16856.2

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Length Wtd. (ft)	374.00	Wetted Per. (ft)	48.17
Min Ch El (ft)	85.76	Shear (lb/sq ft)	0.01
Alpha 0.00	1.00	Stream Power (lb/ft s)	402.15
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	3.71
C & E Loss (ft)	0.00	Cum SA (acres)	0.38

CROSS SECTION OUTPUT Profile #ULT 100Y

E. G. Elev (ft)	93.07	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	93.06	Reach Len. (ft)	374.00	374.00
374.00 Crit W. S. (ft)		Flow Area (sq ft)		248.46
E. G. Slope (ft/ft)	0.000053	Area (sq ft)		248.46
Q Total (cfs)	170.00	Flow (cfs)		170.00
Top Width (ft)	47.25	Top Width (ft)		47.25
Vel Total (ft/s)	0.68	Avg. Vel. (ft/s)		0.68
Max Chl Dpth (ft)	7.30	Hydr. Depth (ft)		5.26
Conv. Total (cfs)	23439.1	Conv. (cfs)		23439.1
Length Wtd. (ft)	374.00	Wetted Per. (ft)		51.45
Min Ch El (ft)	85.76	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	402.15	0.00
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)		4.72
C & E Loss (ft)	0.00	Cum SA (acres)		0.42

CROSS SECTION

RIVER: ES102
 REACH: ES102-00A RS: 3552

INPUT

Description:

Station	Elevation	Data	num=	97	Station	Elevation	Station	Elevation	Station	Elevation
0	96.36	4.98	96.39	9.97	96.32	14.95	95.65	19.94	94.85	
24.92	94.68	29.91	94.64	34.89	94.47	39.88	94.35	44.86	94.4	
49.85	94.44	54.83	94.59	59.82	94.69	64.8	94.74	69.79	94.71	
74.77	94.7	79.76	94.79	84.74	94.95	89.73	94.92	94.71	94.86	

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99.7	94.93	104.68	95.15	109.67	95.25	114.65	95.23	119.64	95.11
124.62	94.88	129.61	94.85	134.59	94.88	139.58	94.94	144.56	94.76
149.55	94.78	154.53	94.86	159.52	95.32	164.5	95.94	169.49	96.16
174.47	96.2	179.46	96.51	184.44	96.67	189.43	96.53	194.41	96.58
199.4	96.57	204.27	95.79	204.38	95.77	209.37	92.1	214.35	87.64
219.34	87.46	224.32	85.93	229.31	86.04	234.29	86.24	239.28	86.28
244.26	87.94	249.25	89.91	254.23	92.37	259.22	92.54	264.2	97.32
264.31	97.39	269.19	100.59	274.17	101.06	279.16	101.05	284.14	100.99
289.13	99.28	294.11	97.45	299.1	98.93	304.08	99.13	309.07	99.81
314.05	99.41	319.03	97.94	324.02	97.67	329	96.52	333.99	95.36
338.97	94.88	343.96	94.82	348.94	94.56	353.93	94.47	358.91	94.46
363.9	94.53	368.88	94.57	373.87	94.59	378.85	94.59	383.84	94.63
388.82	94.66	393.81	94.72	398.79	94.75	403.78	94.86	408.76	94.96
413.75	95	418.73	95.01	423.72	95.01	428.7	95.05	433.69	95.14
438.67	95.18	443.66	95.1	448.64	94.86	453.63	94.77	458.61	94.79
463.6	94.8	468.58	94.54						

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .06 204.27 .045 264.31 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 204.27 264.31 243 442 440 .1 .3

CROSS SECTION OUTPUT Profile #EX 10Y

E. G. Elev (ft)	91.37	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	Wt. n-Val.		0.045
W. S. Elev (ft)	91.36	Reach Len. (ft)	442.00	442.00
442.00		Flow Area (sq ft)		163.87
Crit W. S. (ft)		Area (sq ft)		163.87
E. G. Slope (ft/ft)	0.000044	Flow (cfs)		85.00
Q Total (cfs)	85.00	Top Width (ft)		42.00
Top Width (ft)	42.00	Avg. Vel. (ft/s)		0.52
Vel Total (ft/s)	0.52	Hydr. Depth (ft)		3.90
Max Chl Dpth (ft)	5.43	Conv. (cfs)		12874.8
Conv. Total (cfs)	12874.8	Wetted Per. (ft)		44.65
Length Wtd. (ft)	442.00	Shear (lb/sq ft)		0.01
Min Ch El (ft)	85.93	Stream Power (lb/ft s)	468.58	0.00
Alpha	1.00	Cum Volume (acre-ft)		1.75
0.00		Cum SA (acres)		
Frctn Loss (ft)	0.03			
C & E Loss (ft)	0.00			

CROSS SECTION OUTPUT Profile #EX 25Y

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		Element	Left OB	Channel
E. G. Elev (ft)	91.94			
Right OB				
Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	91.93	Reach Len. (ft)	442.00	442.00
442.00				
Crit W. S. (ft)		Flow Area (sq ft)		188.16
E. G. Slope (ft/ft)	0.000048	Area (sq ft)		188.16
Q Total (cfs)	109.00	Flow (cfs)		109.00
Top Width (ft)	43.78	Top Width (ft)		43.78
Vel Total (ft/s)	0.58	Avg. Vel. (ft/s)		0.58
Max Chl Dpth (ft)	6.00	Hydr. Depth (ft)		4.30
Conv. Total (cfs)	15714.3	Conv. (cfs)		15714.3
Length Wtd. (ft)	442.00	Wetted Per. (ft)		46.78
Min Ch El (ft)	85.93	Shear (lb/sq ft)		0.01
Alpha	1.00	Stream Power (lb/ft s)	468.58	0.00
0.00				
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)		2.03
C & E Loss (ft)	0.00	Cum SA (acres)		

CROSS SECTION OUTPUT Profile #EX 100Y

		Element	Left OB	Channel
E. G. Elev (ft)	93.03			
Right OB				
Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	93.03	Reach Len. (ft)	442.00	442.00
442.00				
Crit W. S. (ft)		Flow Area (sq ft)		240.62
E. G. Slope (ft/ft)	0.000061	Area (sq ft)		240.62
Q Total (cfs)	165.00	Flow (cfs)		165.00
Top Width (ft)	51.61	Top Width (ft)		51.61
Vel Total (ft/s)	0.69	Avg. Vel. (ft/s)		0.69
Max Chl Dpth (ft)	7.10	Hydr. Depth (ft)		4.66
Conv. Total (cfs)	21181.4	Conv. (cfs)		21181.4
Length Wtd. (ft)	442.00	Wetted Per. (ft)		55.28
Min Ch El (ft)	85.93	Shear (lb/sq ft)		0.02
Alpha	1.00	Stream Power (lb/ft s)	468.58	0.00
0.00				
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)		2.61

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C & E Loss (ft) 0.00 Cum SA (acres)

CROSS SECTION OUTPUT Profile #ULT 10Y

E. G. Elev (ft)	91.40	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	Wt. n-Val.		0.045
W. S. Elev (ft)	91.39	Reach Len. (ft)	442.00	442.00
442.00 Crit W. S. (ft)		Flow Area (sq ft)		165.13
E. G. Slope (ft/ft)	0.000048	Area (sq ft)		165.13
Q Total (cfs)	90.00	Flow (cfs)		90.00
Top Width (ft)	42.10	Top Width (ft)		42.10
Vel Total (ft/s)	0.55	Avg. Vel. (ft/s)		0.55
Max Chl Dpth (ft)	5.46	Hydr. Depth (ft)		3.92
Conv. Total (cfs)	13018.0	Conv. (cfs)		13018.0
Length Wtd. (ft)	442.00	Wetted Per. (ft)		44.76
Min Ch El (ft)	85.93	Shear (lb/sq ft)		0.01
Alpha 0.00	1.00	Stream Power (lb/ft s)	468.58	0.00
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)		1.77
C & E Loss (ft)	0.00	Cum SA (acres)		

CROSS SECTION OUTPUT Profile #ULT 25Y

E. G. Elev (ft)	91.96	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	91.96	Reach Len. (ft)	442.00	442.00
442.00 Crit W. S. (ft)		Flow Area (sq ft)		189.32
E. G. Slope (ft/ft)	0.000048	Area (sq ft)		189.32
Q Total (cfs)	110.00	Flow (cfs)		110.00
Top Width (ft)	43.87	Top Width (ft)		43.87
Vel Total (ft/s)	0.58	Avg. Vel. (ft/s)		0.58
Max Chl Dpth (ft)	6.03	Hydr. Depth (ft)		4.32

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Conv. Total (cfs)	15854.3	Conv. (cfs)	15854.3
Length Wtd. (ft)	442.00	Wetted Per. (ft)	46.88
Min Ch El (ft)	85.93	Shear (lb/sq ft)	0.01
Alpha 0.00	1.00	Stream Power (lb/ft s)	468.58
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	2.04
C & E Loss (ft)	0.00	Cum SA (acres)	

CROSS SECTION OUTPUT Profile #ULT 100Y

E. G. Elev (ft)	93.04	Element	Left OB	Channel
Right OB Vel Head (ft)	0.01	Wt. n-Val.		0.045
W. S. Elev (ft)	93.04	Reach Len. (ft)	442.00	442.00
442.00 Crit W. S. (ft)		Flow Area (sq ft)		241.20
E. G. Slope (ft/ft)	0.000064	Area (sq ft)		241.20
Q Total (cfs)	170.00	Flow (cfs)		170.00
Top Width (ft)	51.64	Top Width (ft)		51.64
Vel Total (ft/s)	0.70	Avg. Vel. (ft/s)		0.70
Max Chl Dpth (ft)	7.11	Hydr. Depth (ft)		4.67
Conv. Total (cfs)	21257.7	Conv. (cfs)		21257.7
Length Wtd. (ft)	442.00	Wetted Per. (ft)		55.31
Min Ch El (ft)	85.93	Shear (lb/sq ft)		0.02
Alpha 0.00	1.00	Stream Power (lb/ft s)	468.58	0.00
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)		2.62
C & E Loss (ft)	0.00	Cum SA (acres)		

SUMMARY OF MANNING' S N VALUES

River: ES100

Reach	River Sta.	n1	n2	n3
ES100-00	12785	.06	.045	.06
ES100-00	12315	.06	.045	.06
ES100-00	11934	.06	.045	.06
ES100-00	11298	.06	.045	.06

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ES100-00	11071	.06	.045	.06
ES100-00	10472	.06	.045	.06
ES100-00	9850	.06	.045	.06
ES100-00	9208	.06	.045	.06
ES100-00	8727	.06	.045	.06
ES100-00	8275	.06	.045	.06
ES100-00	8051	.06	.045	.06
ES100-00	7508	.06	.045	.06
ES100-00	6753	.06	.045	.06
ES100-00	5846	.06	.045	.06
ES100-00	5158	.06	.045	.06
ES100-00	4608	.06	.045	.06
ES100-00	4186	.06	.045	.06
ES100-00	3991	.06	.045	.06
ES100-00	3683	.06	.045	.06
ES100-00	3244	.06	.045	.06
ES100-00	2515	.06	.045	.06
ES100-00	1936	.06	.045	.06
ES100-00	1384	.06	.045	.06
ES100-00	1236	.06	.045	.06
ES100-00	787	.06	.045	.06
ES100-00	308	.06	.045	.06

Ri ver: ES101

Reach	Ri ver Sta.	n1	n2	n3
ES101-00	4064	.06	.045	.06
ES101-00	3652	.06	.045	.06
ES101-00	3230	.06	.045	.06
ES101-00	2603	.06	.045	.06
ES101-00	2043	.06	.045	.06
ES101-00	1619	.06	.045	.06
ES101-00	1450	.06	.045	.06
ES101-00	1182	.06	.045	.06
ES101-00	830	.06	.045	.06
ES101-00	538	.06	.045	.06
ES101-00	298	.06	.045	.06

Ri ver: ES102-01

Reach	Ri ver Sta.	n1	n2	n3
ES102-01	5391	.06	.045	.06
ES102-01	4848	.06	.045	.06
ES102-01	4243	.06	.045	.06
ES102-01	3865	.06	.045	.06
ES102-01	3180	.06	.045	.06
ES102-01	2464	.06	.045	.06
ES102-01	1904	.06	.045	.06
ES102-01	1581	.06	.045	.06
ES102-01	1152	.06	.045	.06
ES102-01	899	.06	.045	.06
ES102-01	470	.06	.045	.06

Ri ver: ES102

Reach	Ri ver Sta.	n1	n2	n3
ES102-00	3110	.06	.045	.06

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ES102-00	2666	.06	.045	.06
ES102-00	2160	.06	.045	.06
ES102-00	1920	.06	.045	.06
ES102-00	1522	.06	.045	.06
ES102-00	956	.06	.045	.06
ES102-00	410	.06	.045	.06
ES102-00A	4248	.06	.045	.06
ES102-00A	3926	.06	.045	.06
ES102-00A	3552	.06	.045	.06

SUMMARY OF REACH LENGTHS

Ri ver: ES100

Reach	Ri ver Sta.	Left	Channel	Ri ght
ES100-00	12785	469	470	471
ES100-00	12315	380	381	382
ES100-00	11934	631	635	640
ES100-00	11298	233	228	223
ES100-00	11071	599	598	597
ES100-00	10472	622	623	623
ES100-00	9850	636	642	644
ES100-00	9208	490	481	472
ES100-00	8727	447	452	457
ES100-00	8275	224	224	224
ES100-00	8051	543	542	542
ES100-00	7508	757	755	754
ES100-00	6753	910	907	898
ES100-00	5846	853	688	523
ES100-00	5158	551	550	550
ES100-00	4608	417	422	427
ES100-00	4186	194	194	192
ES100-00	3991	315	309	305
ES100-00	3683	438	438	439
ES100-00	3244	563	729	888
ES100-00	2515	579	579	580
ES100-00	1936	550	551	553
ES100-00	1384	146	148	149
ES100-00	1236	450	449	449
ES100-00	787	478	479	480
ES100-00	308	316	308	300

Ri ver: ES101

Reach	Ri ver Sta.	Left	Channel	Ri ght
ES101-00	4064	412	412	407
ES101-00	3652	422	422	421
ES101-00	3230	627	627	626
ES101-00	2603	560	560	567
ES101-00	2043	424	424	421
ES101-00	1619	169	169	441
ES101-00	1450	268	268	268
ES101-00	1182	352	352	810
ES101-00	830	292	292	292
ES101-00	538	539	240	240
ES101-00	298	298	298	188

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River: ES102-01

Reach	River Sta.	Left	Channel	Right
ES102-01	5391	547	543	539
ES102-01	4848	599	604	610
ES102-01	4243	378	378	371
ES102-01	3865	685	685	688
ES102-01	3180	716	716	715
ES102-01	2464	560	560	557
ES102-01	1904	323	323	326
ES102-01	1581	430	429	428
ES102-01	1152	250	252	255
ES102-01	899	436	429	423
ES102-01	470	363	470	377

River: ES102

Reach	River Sta.	Left	Channel	Right
ES102-00	3110	443	445	446
ES102-00	2666	513	506	498
ES102-00	2160	230	239	248
ES102-00	1920	402	398	395
ES102-00	1522	570	566	561
ES102-00	956	544	546	548
ES102-00	410	306	410	405
ES102-00A	4248	320	322	324
ES102-00A	3926	374	374	374
ES102-00A	3552	243	442	440

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS

River: ES100

Reach	River Sta.	Contr.	Expan.
ES100-00	12785	.1	.3
ES100-00	12315	.1	.3
ES100-00	11934	.1	.3
ES100-00	11298	.1	.3
ES100-00	11071	.1	.3
ES100-00	10472	.1	.3
ES100-00	9850	.1	.3
ES100-00	9208	.1	.3
ES100-00	8727	.1	.3
ES100-00	8275	.1	.3
ES100-00	8051	.1	.3
ES100-00	7508	.1	.3
ES100-00	6753	.1	.3
ES100-00	5846	.1	.3
ES100-00	5158	.1	.3
ES100-00	4608	.1	.3
ES100-00	4186	.1	.3
ES100-00	3991	.1	.3
ES100-00	3683	.1	.3
ES100-00	3244	.1	.3
ES100-00	2515	.1	.3

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ES100-00	1936	.1	.3
ES100-00	1384	.1	.3
ES100-00	1236	.1	.3
ES100-00	787	.1	.3
ES100-00	308	.1	.3

Ri ver: ES101

Reach	Ri ver Sta.	Contr.	Expan.
ES101-00	4064	.1	.3
ES101-00	3652	.1	.3
ES101-00	3230	.1	.3
ES101-00	2603	.1	.3
ES101-00	2043	.1	.3
ES101-00	1619	.1	.3
ES101-00	1450	.1	.3
ES101-00	1182	.1	.3
ES101-00	830	.1	.3
ES101-00	538	.1	.3
ES101-00	298	.1	.3

Ri ver: ES102-01

Reach	Ri ver Sta.	Contr.	Expan.
ES102-01	5391	.1	.3
ES102-01	4848	.1	.3
ES102-01	4243	.1	.3
ES102-01	3865	.1	.3
ES102-01	3180	.1	.3
ES102-01	2464	.1	.3
ES102-01	1904	.1	.3
ES102-01	1581	.1	.3
ES102-01	1152	.1	.3
ES102-01	899	.1	.3
ES102-01	470	.1	.3

Ri ver: ES102

Reach	Ri ver Sta.	Contr.	Expan.
ES102-00	3110	.1	.3
ES102-00	2666	.1	.3
ES102-00	2160	.1	.3
ES102-00	1920	.1	.3
ES102-00	1522	.1	.3
ES102-00	956	.1	.3
ES102-00	410	.1	.3
ES102-00A	4248	.1	.3
ES102-00A	3926	.1	.3
ES102-00A	3552	.1	.3

Profi le Output Table - Table 1

Ri ver El ev	Rea ch Mi n Ch El	Rea ch Vel	Ri ver Sta Chnl	Ri ver Sta Fl ow Area	Profi le Top Wi dth	Q Total Vol ume (cfs)	W. S. El ev (ft)	E. G.
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(sq ft) (ft) (acre-ft)

(ft)	(ft)	(ft/s)	(sq ft)	(ft)	(acre-ft)	
ES100	ES100-00		308	EX 10Y	214.00	87.31
87.35	81.61	1.59	134.38	32.70		
ES100	ES100-00		308	EX 25Y	279.00	88.13
88.18	81.61	1.72	162.27	34.87		
ES100	ES100-00		308	EX 100Y	431.00	89.88
89.93	81.61	1.89	228.01	42.36		
ES100	ES100-00		308	ULT 10Y	220.00	87.39
87.43	81.61	1.61	136.96	32.90		
ES100	ES100-00		308	ULT 25Y	280.00	88.14
88.19	81.61	1.72	162.69	34.91		
ES100	ES100-00		308	ULT 100Y	440.00	89.98
90.04	81.61	1.89	232.52	43.19		
ES100	ES100-00		787	EX 10Y	214.00	87.48
87.51	81.10	1.34	159.43	38.23	1.62	
ES100	ES100-00		787	EX 25Y	279.00	88.30
88.34	81.10	1.45	191.97	40.46	1.95	
ES100	ES100-00		787	EX 100Y	431.00	90.05
90.09	81.10	1.61	272.17	67.76	2.75	
ES100	ES100-00		787	ULT 10Y	220.00	87.56
87.59	81.10	1.35	162.46	38.44	1.65	
ES100	ES100-00		787	ULT 25Y	280.00	88.32
88.35	81.10	1.45	192.45	40.50	1.95	
ES100	ES100-00		787	ULT 100Y	440.00	90.15
90.19	81.10	1.62	279.35	69.32	2.81	
ES100	ES100-00		1236	EX 10Y	214.00	87.61
87.64	81.56	1.45	147.20	34.39	3.20	
ES100	ES100-00		1236	EX 25Y	279.00	88.43
88.47	81.56	1.58	176.48	36.42	3.85	
ES100	ES100-00		1236	EX 100Y	431.00	90.17
90.22	81.56	1.77	246.09	47.66	5.42	
ES100	ES100-00		1236	ULT 10Y	220.00	87.69
87.72	81.56	1.47	149.93	34.58	3.26	
ES100	ES100-00		1236	ULT 25Y	280.00	88.45
88.48	81.56	1.58	176.92	36.45	3.86	
ES100	ES100-00		1236	ULT 100Y	440.00	90.27
90.32	81.56	1.78	251.61	65.87	5.55	
ES100	ES100-00		1384	EX 10Y	214.00	87.65
87.68	81.55	1.21	176.30	40.39	3.75	
ES100	ES100-00		1384	EX 25Y	279.00	88.48
88.51	81.55	1.32	210.67	42.47	4.50	
ES100	ES100-00		1384	EX 100Y	431.00	90.22
90.25	81.55	1.50	288.11	46.82	6.33	
ES100	ES100-00		1384	ULT 10Y	220.00	87.73
87.76	81.55	1.23	179.52	40.59	3.82	
ES100	ES100-00		1384	ULT 25Y	280.00	88.50
88.52	81.55	1.33	211.18	42.50	4.52	
ES100	ES100-00		1384	ULT 100Y	440.00	90.32
90.36	81.55	1.50	292.93	47.07	6.48	
ES100	ES100-00		1936	EX 10Y	214.00	87.77
87.79	81.40	1.20	177.89	40.95	5.99	
ES100	ES100-00		1936	EX 25Y	279.00	88.60
88.63	81.40	1.31	212.64	42.68	7.18	

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ES100	ES100-00	1936	EX 100Y	431.00	90.33
90.37	81.40	1.49	289.70	46.30	9.98
ES100	ES100-00	1936	ULT 10Y	220.00	87.85
87.87	81.40	1.21	181.16	41.11	6.10
ES100	ES100-00	1936	ULT 25Y	280.00	88.61
88.64	81.40	1.31	213.15	42.71	7.20
ES100	ES100-00	1936	ULT 100Y	440.00	90.43
90.47	81.40	1.49	294.43	46.52	10.19
ES100	ES100-00	2515	EX 10Y	214.00	87.91
87.94	81.64	1.38	154.85	37.50	8.20
ES100	ES100-00	2515	EX 25Y	279.00	88.74
88.77	81.64	1.49	187.10	39.94	9.84
ES100	ES100-00	2515	EX 100Y	431.00	90.46
90.51	81.64	1.66	259.84	44.40	13.64
ES100	ES100-00	2515	ULT 10Y	220.00	87.99
88.02	81.64	1.39	157.85	37.78	8.35
ES100	ES100-00	2515	ULT 25Y	280.00	88.75
88.78	81.64	1.49	187.58	39.97	9.86
ES100	ES100-00	2515	ULT 100Y	440.00	90.56
90.61	81.64	1.66	264.35	44.66	13.90
ES100	ES100-00	3244	EX 10Y	214.00	88.20
88.26	83.47	1.83	117.19	36.07	10.47
ES100	ES100-00	3244	EX 25Y	279.00	89.02
89.07	83.47	1.89	147.32	38.06	12.64
ES100	ES100-00	3244	EX 100Y	431.00	90.71
90.77	83.47	2.00	215.12	42.19	17.61
ES100	ES100-00	3244	ULT 10Y	220.00	88.28
88.33	83.47	1.83	120.02	36.26	10.68
ES100	ES100-00	3244	ULT 25Y	280.00	89.03
89.08	83.47	1.89	147.77	38.08	12.67
ES100	ES100-00	3244	ULT 100Y	440.00	90.81
90.87	83.47	2.01	219.29	42.43	17.95
ES100	ES100-00	3683	EX 10Y	214.00	88.45
88.49	82.25	1.56	136.97	35.85	11.75
ES100	ES100-00	3683	EX 25Y	279.00	89.25
89.29	82.25	1.67	167.43	40.45	14.22
ES100	ES100-00	3683	EX 100Y	431.00	90.91
90.96	82.25	1.77	243.94	50.86	19.92
ES100	ES100-00	3683	ULT 10Y	220.00	88.53
88.57	82.25	1.57	139.75	36.28	11.98
ES100	ES100-00	3683	ULT 25Y	280.00	89.26
89.30	82.25	1.67	167.90	40.53	14.26
ES100	ES100-00	3683	ULT 100Y	440.00	91.01
91.06	82.25	1.77	248.84	51.20	20.30
ES100	ES100-00	3991	EX 10Y	214.00	88.56
88.60	82.29	1.44	148.33	33.93	12.76
ES100	ES100-00	3991	EX 25Y	279.00	89.37
89.41	82.29	1.58	176.51	36.31	15.44
ES100	ES100-00	3991	EX 100Y	431.00	91.03
91.07	82.29	1.78	241.86	46.05	21.64
ES100	ES100-00	3991	ULT 10Y	220.00	88.64
88.68	82.29	1.46	150.97	34.16	13.01
ES100	ES100-00	3991	ULT 25Y	280.00	89.38
89.42	82.29	1.58	176.93	36.35	15.48
ES100	ES100-00	3991	ULT 100Y	440.00	91.12

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91.17	82.29	1.79	246.36	49.47	22.06	
ES100	ES100-00		4186	EX 10Y	214.00	88.62
88.64	82.04	1.10	193.77	41.42	13.52	
ES100	ES100-00		4186	EX 25Y	279.00	89.43
89.45	82.04	1.22	228.09	43.61	16.34	
ES100	ES100-00		4186	EX 100Y	431.00	91.10
91.12	82.04	1.38	357.38	194.66	22.97	
ES100	ES100-00		4186	ULT 10Y	220.00	88.70
88.72	82.04	1.12	197.01	41.63	13.79	
ES100	ES100-00		4186	ULT 25Y	280.00	89.44
89.46	82.04	1.22	228.60	43.65	16.38	
ES100	ES100-00		4186	ULT 100Y	440.00	91.19
91.22	82.04	1.37	376.29	196.78	23.45	
ES100	ES100-00		4608	EX 10Y	214.00	88.69
88.71	82.04	1.09	196.14	43.96	15.41	
ES100	ES100-00		4608	EX 25Y	279.00	89.50
89.52	82.04	1.20	233.06	47.00	18.57	
ES100	ES100-00		4608	EX 100Y	431.00	91.17
91.20	82.04	1.22	510.32	398.77	27.17	
ES100	ES100-00		4608	ULT 10Y	220.00	88.77
88.79	82.04	1.10	199.61	44.26	15.71	
ES100	ES100-00		4608	ULT 25Y	280.00	89.51
89.53	82.04	1.20	233.61	47.04	18.62	
ES100	ES100-00		4608	ULT 100Y	440.00	91.27
91.29	82.04	1.20	548.44	401.12	27.92	
ES100	ES100-00		5158	EX 10Y	214.00	88.77
88.79	81.55	1.04	205.09	40.53	17.95	
ES100	ES100-00		5158	EX 25Y	279.00	89.59
89.61	81.55	1.17	239.38	43.52	21.56	
ES100	ES100-00		5158	EX 100Y	431.00	91.25
91.26	81.55	1.06	647.51	323.23	34.49	
ES100	ES100-00		5158	ULT 10Y	220.00	88.85
88.87	81.55	1.06	208.31	40.76	18.28	
ES100	ES100-00		5158	ULT 25Y	280.00	89.60
89.62	81.55	1.17	239.90	43.56	21.61	
ES100	ES100-00		5158	ULT 100Y	440.00	91.34
91.35	81.55	1.05	677.25	327.11	35.66	
ES100	ES100-00		5846	EX 10Y	214.00	88.87
88.88	81.54	1.07	200.57	43.72	21.15	
ES100	ES100-00		5846	EX 25Y	279.00	89.69
89.71	81.54	1.13	310.58	337.10	25.99	
ES100	ES100-00		5846	EX 100Y	431.00	91.31
91.32	81.54	0.82	953.10	436.62	47.30	
ES100	ES100-00		5846	ULT 10Y	220.00	88.95
88.96	81.54	1.08	204.09	44.04	21.54	
ES100	ES100-00		5846	ULT 25Y	280.00	89.70
89.72	81.54	1.13	314.62	340.41	26.08	
ES100	ES100-00		5846	ULT 100Y	440.00	91.40
91.40	81.54	0.81	991.85	438.43	49.03	
ES100	ES100-00		6753	EX 10Y	214.00	89.01
89.03	82.32	1.11	193.29	41.49	25.25	
ES100	ES100-00		6753	EX 25Y	279.00	89.83
89.85	82.32	1.17	329.44	449.07	32.65	

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ES100	ES100-00	6753	EX 100Y	431.00	91.36
91.37	82.32	0.80	1038.73	483.80	68.00
ES100	ES100-00	6753	ULT 10Y	220.00	89.09
89.11	82.32	1.12	196.67	41.70	25.71
ES100	ES100-00	6753	ULT 25Y	280.00	89.84
89.86	82.32	1.17	334.52	449.28	32.84
ES100	ES100-00	6753	ULT 100Y	440.00	91.45
91.45	82.32	0.79	1080.51	493.84	70.56
ES100	ES100-00	7508	EX 10Y	214.00	89.14
89.16	82.23	1.26	169.41	34.29	28.39
ES100	ES100-00	7508	EX 25Y	279.00	89.96
89.99	82.23	1.38	238.49	207.32	37.57
ES100	ES100-00	7508	EX 100Y	431.00	91.41
91.43	82.23	1.10	729.20	423.12	83.33
ES100	ES100-00	7508	ULT 10Y	220.00	89.22
89.25	82.23	1.28	172.24	34.48	28.91
ES100	ES100-00	7508	ULT 25Y	280.00	89.97
90.00	82.23	1.38	240.72	207.60	37.82
ES100	ES100-00	7508	ULT 100Y	440.00	91.50
91.51	82.23	1.08	764.49	423.99	86.56
ES100	ES100-00	8051	EX 10Y	214.00	89.26
89.28	83.29	1.20	178.91	43.99	30.56
ES100	ES100-00	8051	EX 25Y	279.00	90.08
90.11	83.29	1.29	216.39	46.94	40.40
ES100	ES100-00	8051	EX 100Y	431.00	91.48
91.51	83.29	1.46	342.89	168.91	90.01
ES100	ES100-00	8051	ULT 10Y	220.00	89.34
89.36	83.29	1.21	182.56	44.29	31.12
ES100	ES100-00	8051	ULT 25Y	280.00	90.09
90.12	83.29	1.29	216.89	46.98	40.67
ES100	ES100-00	8051	ULT 100Y	440.00	91.56
91.59	83.29	1.46	356.42	169.76	93.54
ES100	ES100-00	8275	EX 10Y	214.00	89.30
89.32	82.40	1.04	206.64	41.28	31.55
ES100	ES100-00	8275	EX 25Y	279.00	90.12
90.15	82.40	1.16	241.55	43.30	41.58
ES100	ES100-00	8275	EX 100Y	431.00	91.53
91.56	82.40	1.41	304.78	46.81	91.67
ES100	ES100-00	8275	ULT 10Y	220.00	89.38
89.40	82.40	1.05	210.07	41.47	32.13
ES100	ES100-00	8275	ULT 25Y	280.00	90.14
90.16	82.40	1.16	242.01	43.33	41.85
ES100	ES100-00	8275	ULT 100Y	440.00	91.61
91.64	82.40	1.43	308.48	47.00	95.25
ES100	ES100-00	8727	EX 10Y	214.00	89.37
89.39	82.28	1.25	170.61	35.65	33.51
ES100	ES100-00	8727	EX 25Y	279.00	90.20
90.23	82.28	1.39	201.25	38.10	43.88
ES100	ES100-00	8727	EX 100Y	431.00	91.62
91.66	82.28	1.66	259.48	44.67	94.60
ES100	ES100-00	8727	ULT 10Y	220.00	89.45
89.47	82.28	1.27	173.59	35.89	34.12
ES100	ES100-00	8727	ULT 25Y	280.00	90.21
90.24	82.28	1.39	201.66	38.14	44.15
ES100	ES100-00	8727	ULT 100Y	440.00	91.70

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91.74	82.28	1.67	263.05	45.16	98.21	
ES100	ES100-00	9208		EX 10Y	214.00	89.47
89.50	82.68	1.34	159.25	34.16	35.33	
ES100	ES100-00	9208		EX 25Y	279.00	90.31
90.34	82.68	1.48	188.77	36.30	46.03	
ES100	ES100-00	9208		EX 100Y	431.00	91.76
91.81	82.68	1.73	248.50	44.70	97.40	
ES100	ES100-00	9208		ULT 10Y	220.00	89.55
89.58	82.68	1.36	162.13	34.38	35.97	
ES100	ES100-00	9208		ULT 25Y	280.00	90.32
90.35	82.68	1.48	189.17	36.33	46.31	
ES100	ES100-00	9208		ULT 100Y	440.00	91.84
91.89	82.68	1.75	252.10	44.93	101.06	
ES100	ES100-00	9850		EX 10Y	187.00	89.60
89.62	82.55	1.02	183.21	40.99	37.85	
ES100	ES100-00	9850		EX 25Y	242.00	90.45
90.47	82.55	1.11	218.83	43.28	49.03	
ES100	ES100-00	9850		EX 100Y	368.00	91.93
91.95	82.55	1.29	286.01	48.03	101.34	
ES100	ES100-00	9850		ULT 10Y	190.00	89.69
89.70	82.55	1.02	186.66	41.22	38.54	
ES100	ES100-00	9850		ULT 25Y	250.00	90.46
90.48	82.55	1.14	219.40	43.31	49.32	
ES100	ES100-00	9850		ULT 100Y	370.00	92.01
92.03	82.55	1.28	289.86	48.35	105.05	
ES100	ES100-00	10472		EX 10Y	187.00	89.70
89.72	82.96	1.12	166.81	38.72	40.36	
ES100	ES100-00	10472		EX 25Y	242.00	90.55
90.57	82.96	1.21	200.59	41.20	52.03	
ES100	ES100-00	10472		EX 100Y	368.00	92.03
92.06	82.96	1.39	265.03	45.31	105.28	
ES100	ES100-00	10472		ULT 10Y	190.00	89.78
89.80	82.96	1.12	169.99	38.96	41.09	
ES100	ES100-00	10472		ULT 25Y	250.00	90.57
90.59	82.96	1.24	201.37	41.26	52.33	
ES100	ES100-00	10472		ULT 100Y	370.00	92.11
92.14	82.96	1.38	268.53	45.49	109.05	
ES100	ES100-00	11071		EX 10Y	187.00	89.82
89.85	84.25	1.23	151.91	38.91	42.54	
ES100	ES100-00	11071		EX 25Y	242.00	90.67
90.69	84.25	1.30	185.56	41.10	54.68	
ES100	ES100-00	11071		EX 100Y	368.00	92.15
92.19	84.25	1.47	249.66	45.00	108.82	
ES100	ES100-00	11071		ULT 10Y	190.00	89.90
89.93	84.25	1.23	154.98	39.11	43.32	
ES100	ES100-00	11071		ULT 25Y	250.00	90.69
90.72	84.25	1.34	186.60	41.17	54.99	
ES100	ES100-00	11071		ULT 100Y	370.00	92.23
92.26	84.25	1.46	253.00	45.20	112.63	
ES100	ES100-00	11298		EX 10Y	187.00	89.88
89.91	83.91	1.27	147.49	38.13	43.33	
ES100	ES100-00	11298		EX 25Y	242.00	90.72
90.75	83.91	1.34	180.82	41.23	55.64	

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ES100	ES100-00		11298	EX 100Y	368.00	92.21
92.24	83.91	1.49	247.61	48.04	110.12	
ES100	ES100-00		11298	ULT 10Y	190.00	89.96
89.98	83.91	1.26	150.47	38.56	44.12	
ES100	ES100-00		11298	ULT 25Y	250.00	90.75
90.78	83.91	1.37	181.98	41.36	55.96	
ES100	ES100-00		11298	ULT 100Y	370.00	92.28
92.32	83.91	1.47	251.11	48.27	113.94	
ES100	ES100-00		11934	EX 10Y	187.00	89.99
90.01	84.46	0.82	227.14	55.07	46.06	
ES100	ES100-00		11934	EX 25Y	242.00	90.83
90.84	84.46	0.88	274.04	57.30	58.96	
ES100	ES100-00		11934	EX 100Y	368.00	92.32
92.34	84.46	1.02	362.44	61.07	114.56	
ES100	ES100-00		11934	ULT 10Y	190.00	90.07
90.08	84.46	0.82	231.30	55.28	46.90	
ES100	ES100-00		11934	ULT 25Y	250.00	90.86
90.88	84.46	0.91	275.95	57.39	59.29	
ES100	ES100-00		11934	ULT 100Y	370.00	92.39
92.41	84.46	1.01	366.71	61.24	118.45	
ES100	ES100-00		12315	EX 10Y	187.00	90.04
90.05	84.29	0.94	199.65	47.47	47.93	
ES100	ES100-00		12315	EX 25Y	242.00	90.87
90.88	84.29	1.01	240.25	50.05	61.21	
ES100	ES100-00		12315	EX 100Y	368.00	92.36
92.38	84.29	1.16	318.44	54.77	117.54	
ES100	ES100-00		12315	ULT 10Y	190.00	90.11
90.12	84.29	0.94	203.19	47.70	48.80	
ES100	ES100-00		12315	ULT 25Y	250.00	90.90
90.92	84.29	1.03	242.01	50.16	61.56	
ES100	ES100-00		12315	ULT 100Y	370.00	92.43
92.45	84.29	1.15	322.22	55.02	121.46	
ES100	ES100-00		12785	EX 10Y	187.00	90.08
90.08	83.00	0.68	273.02	49.31	50.48	
ES100	ES100-00		12785	EX 25Y	242.00	90.91
90.92	83.00	0.77	315.01	51.25	64.20	
ES100	ES100-00		12785	EX 100Y	368.00	92.41
92.42	83.00	0.93	394.48	55.02	121.39	
ES100	ES100-00		12785	ULT 10Y	190.00	90.15
90.16	83.00	0.69	276.67	49.48	51.39	
ES100	ES100-00		12785	ULT 25Y	250.00	90.95
90.96	83.00	0.79	316.91	51.34	64.57	
ES100	ES100-00		12785	ULT 100Y	370.00	92.48
92.49	83.00	0.93	398.23	55.30	125.35	
ES101	ES101-00		298	EX 10Y	50.00	88.11
88.13	84.30	1.13	44.30	17.80		
ES101	ES101-00		298	EX 25Y	66.00	88.65
88.67	84.30	1.22	54.22	19.29		
ES101	ES101-00		298	EX 100Y	101.00	89.61
89.64	84.30	1.36	74.17	22.08		
ES101	ES101-00		298	ULT 10Y	50.00	88.11
88.13	84.30	1.13	44.30	17.80		
ES101	ES101-00		298	ULT 25Y	70.00	88.77
88.80	84.30	1.24	56.61	19.64		
ES101	ES101-00		298	ULT 100Y	110.00	89.83

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89. 86	84. 30	1. 39	79. 03	22. 72		
ES101	ES101-00	538		EX 10Y	50. 00	88. 69
89. 08	87. 39	4. 98	10. 05	13. 43	0. 15	
ES101	ES101-00	538		EX 25Y	66. 00	88. 86
89. 30	87. 39	5. 35	12. 33	14. 22	0. 18	
ES101	ES101-00	538		EX 100Y	101. 00	89. 74
89. 96	87. 39	3. 79	26. 66	18. 42	0. 28	
ES101	ES101-00	538		ULT 10Y	50. 00	88. 69
89. 08	87. 39	4. 98	10. 05	13. 43	0. 15	
ES101	ES101-00	538		ULT 25Y	70. 00	88. 90
89. 36	87. 39	5. 43	12. 88	14. 40	0. 19	
ES101	ES101-00	538		ULT 100Y	110. 00	89. 96
90. 16	87. 39	3. 56	30. 92	19. 45	0. 30	
ES101	ES101-00	830		EX 10Y	50. 00	91. 67
91. 74	89. 79	2. 15	23. 31	22. 16	0. 26	
ES101	ES101-00	830		EX 25Y	66. 00	91. 87
91. 96	89. 79	2. 37	27. 90	23. 01	0. 32	
ES101	ES101-00	830		EX 100Y	101. 00	92. 02
92. 18	89. 79	3. 23	31. 27	23. 61	0. 47	
ES101	ES101-00	830		ULT 10Y	50. 00	91. 67
91. 74	89. 79	2. 15	23. 31	22. 16	0. 26	
ES101	ES101-00	830		ULT 25Y	70. 00	91. 92
92. 01	89. 79	2. 41	29. 00	23. 21	0. 33	
ES101	ES101-00	830		ULT 100Y	110. 00	92. 05
92. 23	89. 79	3. 44	31. 95	23. 73	0. 51	
ES101	ES101-00	1182		EX 10Y	50. 00	92. 46
92. 50	90. 01	1. 53	32. 63	21. 68	0. 49	
ES101	ES101-00	1182		EX 25Y	66. 00	92. 72
92. 77	90. 01	1. 71	38. 54	23. 45	0. 59	
ES101	ES101-00	1182		EX 100Y	101. 00	93. 18
93. 24	90. 01	2. 03	49. 85	25. 95	0. 80	
ES101	ES101-00	1182		ULT 10Y	50. 00	92. 46
92. 50	90. 01	1. 53	32. 63	21. 68	0. 49	
ES101	ES101-00	1182		ULT 25Y	70. 00	92. 78
92. 83	90. 01	1. 75	39. 94	23. 85	0. 61	
ES101	ES101-00	1182		ULT 100Y	110. 00	93. 28
93. 35	90. 01	2. 09	52. 57	26. 64	0. 86	
ES101	ES101-00	1450		EX 10Y	50. 00	92. 73
92. 75	90. 39	1. 12	44. 84	29. 36	0. 73	
ES101	ES101-00	1450		EX 25Y	66. 00	93. 01
93. 03	90. 39	1. 24	53. 32	30. 52	0. 87	
ES101	ES101-00	1450		EX 100Y	101. 00	93. 51
93. 54	90. 39	1. 46	68. 96	32. 56	1. 17	
ES101	ES101-00	1450		ULT 10Y	50. 00	92. 73
92. 75	90. 39	1. 12	44. 84	29. 36	0. 73	
ES101	ES101-00	1450		ULT 25Y	70. 00	93. 07
93. 10	90. 39	1. 27	55. 28	30. 79	0. 90	
ES101	ES101-00	1450		ULT 100Y	110. 00	93. 62
93. 65	90. 39	1. 51	72. 62	32. 89	1. 24	
ES101	ES101-00	1619		EX 10Y	50. 00	92. 84
92. 86	89. 74	1. 24	40. 27	22. 72	0. 89	
ES101	ES101-00	1619		EX 25Y	66. 00	93. 13
93. 16	89. 74	1. 40	47. 10	24. 21	1. 06	

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ES101	ES101-00	1619		EX 100Y	101.00	93.64
93.69	89.74	1.67	60.32	27.37	1.42	
ES101	ES101-00	1619		ULT 10Y	50.00	92.84
92.86	89.74	1.24	40.27	22.72	0.89	
ES101	ES101-00	1619		ULT 25Y	70.00	93.20
93.23	89.74	1.44	48.72	24.63	1.10	
ES101	ES101-00	1619		ULT 100Y	110.00	93.76
93.80	89.74	1.73	63.49	28.07	1.50	
ES101	ES101-00	2043		EX 10Y	50.00	92.98
92.99	89.19	0.77	65.04	24.72	1.40	
ES101	ES101-00	2043		EX 25Y	66.00	93.30
93.31	89.19	0.90	73.18	25.94	1.65	
ES101	ES101-00	2043		EX 100Y	101.00	93.87
93.89	89.19	1.14	88.58	28.31	2.14	
ES101	ES101-00	2043		ULT 10Y	50.00	92.98
92.99	89.19	0.77	65.04	24.72	1.40	
ES101	ES101-00	2043		ULT 25Y	70.00	93.38
93.39	89.19	0.93	75.09	26.22	1.71	
ES101	ES101-00	2043		ULT 100Y	110.00	94.00
94.02	89.19	1.19	92.21	28.85	2.26	
ES101	ES101-00	2603		EX 10Y	50.00	93.08
93.09	89.55	0.79	62.96	25.49	2.23	
ES101	ES101-00	2603		EX 25Y	66.00	93.42
93.44	89.55	0.92	71.91	26.72	2.58	
ES101	ES101-00	2603		EX 100Y	101.00	94.03
94.05	89.55	1.13	89.26	29.90	3.28	
ES101	ES101-00	2603		ULT 10Y	50.00	93.08
93.09	89.55	0.79	62.96	25.49	2.23	
ES101	ES101-00	2603		ULT 25Y	70.00	93.50
93.51	89.55	0.95	74.04	27.13	2.67	
ES101	ES101-00	2603		ULT 100Y	110.00	94.17
94.19	89.55	1.18	93.39	30.60	3.46	
ES101	ES101-00	3230		EX 10Y	50.00	93.16
93.16	88.20	0.56	89.74	32.02	3.33	
ES101	ES101-00	3230		EX 25Y	66.00	93.52
93.53	88.20	0.65	101.81	34.51	3.83	
ES101	ES101-00	3230		EX 100Y	101.00	94.16
94.17	88.20	0.81	125.09	38.38	4.83	
ES101	ES101-00	3230		ULT 10Y	50.00	93.16
93.16	88.20	0.56	89.74	32.02	3.33	
ES101	ES101-00	3230		ULT 25Y	70.00	93.60
93.61	88.20	0.67	104.68	34.94	3.95	
ES101	ES101-00	3230		ULT 100Y	110.00	94.30
94.31	88.20	0.85	130.62	39.25	5.07	
ES101	ES101-00	3652		EX 10Y	50.00	93.19
93.20	89.17	0.60	83.23	29.50	4.16	
ES101	ES101-00	3652		EX 25Y	66.00	93.56
93.57	89.17	0.70	94.42	30.82	4.78	
ES101	ES101-00	3652		EX 100Y	101.00	94.21
94.22	89.17	0.88	115.63	34.62	5.99	
ES101	ES101-00	3652		ULT 10Y	50.00	93.19
93.20	89.17	0.60	83.23	29.50	4.16	
ES101	ES101-00	3652		ULT 25Y	70.00	93.65
93.65	89.17	0.72	97.03	31.12	4.93	
ES101	ES101-00	3652		ULT 100Y	110.00	94.36

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94.37	89.17	0.92	120.71	35.52	6.28	
ES101	ES101-00	4064		EX 10Y	50.00	93.23
93.24	88.52	0.68	73.85	22.94	4.91	
ES101	ES101-00	4064		EX 25Y	66.00	93.61
93.62	88.52	0.80	82.78	24.01	5.62	
ES101	ES101-00	4064		EX 100Y	101.00	94.27
94.29	88.52	1.02	99.39	25.89	7.01	
ES101	ES101-00	4064		ULT 10Y	50.00	93.23
93.24	88.52	0.68	73.85	22.94	4.91	
ES101	ES101-00	4064		ULT 25Y	70.00	93.70
93.71	88.52	0.82	84.86	24.25	5.79	
ES101	ES101-00	4064		ULT 100Y	110.00	94.42
94.44	88.52	1.07	103.26	26.31	7.34	
ES102	ES102-00	410		EX 10Y	138.00	91.03
91.05	86.20	1.31	105.52	35.58		
ES102	ES102-00	410		EX 25Y	178.00	91.57
91.60	86.20	1.42	125.23	37.02		
ES102	ES102-00	410		EX 100Y	269.00	92.63
92.67	86.20	1.62	166.08	39.94		
ES102	ES102-00	410		ULT 10Y	140.00	91.05
91.08	86.20	1.31	106.48	35.66		
ES102	ES102-00	410		ULT 25Y	180.00	91.59
91.63	86.20	1.43	126.18	37.08		
ES102	ES102-00	410		ULT 100Y	270.00	92.64
92.68	86.20	1.62	166.51	39.97		
ES102	ES102-00	956		EX 10Y	138.00	91.13
91.13	85.54	0.64	214.58	60.64	2.01	
ES102	ES102-00	956		EX 25Y	178.00	91.68
91.68	85.54	0.72	248.65	63.09	2.34	
ES102	ES102-00	956		EX 100Y	269.00	92.75
92.76	85.54	0.84	319.15	67.81	3.04	
ES102	ES102-00	956		ULT 10Y	140.00	91.15
91.16	85.54	0.65	216.25	60.76	2.02	
ES102	ES102-00	956		ULT 25Y	180.00	91.70
91.71	85.54	0.72	250.29	63.21	2.36	
ES102	ES102-00	956		ULT 100Y	270.00	92.76
92.77	85.54	0.84	319.88	67.85	3.05	
ES102	ES102-00	1522		EX 10Y	138.00	91.18
91.19	86.47	0.86	161.30	51.08	4.45	
ES102	ES102-00	1522		EX 25Y	178.00	91.73
91.75	86.47	0.94	190.13	53.16	5.19	
ES102	ES102-00	1522		EX 100Y	269.00	92.81
92.83	86.47	1.08	249.87	58.10	6.74	
ES102	ES102-00	1522		ULT 10Y	140.00	91.21
91.22	86.47	0.86	162.71	51.19	4.48	
ES102	ES102-00	1522		ULT 25Y	180.00	91.76
91.77	86.47	0.94	191.52	53.27	5.23	
ES102	ES102-00	1522		ULT 100Y	270.00	92.82
92.84	86.47	1.08	250.49	58.18	6.75	
ES102	ES102-00	1920		EX 10Y	138.00	91.23
91.24	86.01	0.64	215.48	71.13	6.17	
ES102	ES102-00	1920		EX 25Y	178.00	91.79
91.79	86.01	0.70	255.44	73.02	7.23	

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ES102	ES102-00		1920	EX 100Y	269.00	92.87
92.88	86.01	0.80	336.45	76.74	9.42	
ES102	ES102-00		1920	ULT 10Y	140.00	91.26
91.27	86.01	0.64	217.46	71.22	6.22	
ES102	ES102-00		1920	ULT 25Y	180.00	91.81
91.82	86.01	0.70	257.36	73.11	7.28	
ES102	ES102-00		1920	ULT 100Y	270.00	92.88
92.89	86.01	0.80	337.27	76.77	9.44	
ES102	ES102-00		2160	EX 10Y	138.00	91.25
91.26	86.70	0.74	186.17	57.85	7.27	
ES102	ES102-00		2160	EX 25Y	178.00	91.81
91.82	86.70	0.81	220.09	62.15	8.53	
ES102	ES102-00		2160	EX 100Y	269.00	92.89
92.90	86.70	0.93	288.93	65.25	11.13	
ES102	ES102-00		2160	ULT 10Y	140.00	91.28
91.29	86.70	0.75	187.81	59.06	7.33	
ES102	ES102-00		2160	ULT 25Y	180.00	91.83
91.84	86.70	0.81	221.72	62.22	8.59	
ES102	ES102-00		2160	ULT 100Y	270.00	92.90
92.91	86.70	0.93	289.63	65.28	11.16	
ES102	ES102-00		2666	EX 10Y	138.00	91.29
91.30	86.11	0.61	225.59	56.15	9.66	
ES102	ES102-00		2666	EX 25Y	178.00	91.85
91.86	86.11	0.69	258.28	60.73	11.31	
ES102	ES102-00		2666	EX 100Y	269.00	92.94
92.95	86.11	0.82	326.36	64.46	14.71	
ES102	ES102-00		2666	ULT 10Y	140.00	91.32
91.33	86.11	0.62	227.21	56.39	9.74	
ES102	ES102-00		2666	ULT 25Y	180.00	91.88
91.89	86.11	0.69	259.88	60.94	11.39	
ES102	ES102-00		2666	ULT 100Y	270.00	92.95
92.96	86.11	0.83	327.06	64.49	14.74	
ES102	ES102-00		3110	EX 10Y	138.00	91.33
91.34	85.83	0.76	181.48	53.83	11.74	
ES102	ES102-00		3110	EX 25Y	178.00	91.89
91.90	85.83	0.84	212.24	55.44	13.72	
ES102	ES102-00		3110	EX 100Y	269.00	92.98
92.99	85.83	0.98	274.22	58.53	17.77	
ES102	ES102-00		3110	ULT 10Y	140.00	91.36
91.36	85.83	0.76	183.04	53.91	11.84	
ES102	ES102-00		3110	ULT 25Y	180.00	91.92
91.93	85.83	0.84	213.71	55.51	13.81	
ES102	ES102-00		3110	ULT 100Y	270.00	92.99
93.00	85.83	0.98	274.85	58.55	17.82	
ES102	ES102-00A		3552	EX 10Y	85.00	91.36
91.37	85.93	0.52	163.87	42.00	1.75	
ES102	ES102-00A		3552	EX 25Y	109.00	91.93
91.94	85.93	0.58	188.16	43.78	2.03	
ES102	ES102-00A		3552	EX 100Y	165.00	93.03
93.03	85.93	0.69	240.62	51.61	2.61	
ES102	ES102-00A		3552	ULT 10Y	90.00	91.39
91.40	85.93	0.55	165.13	42.10	1.77	
ES102	ES102-00A		3552	ULT 25Y	110.00	91.96
91.96	85.93	0.58	189.32	43.87	2.04	
ES102	ES102-00A		3552	ULT 100Y	170.00	93.04

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93.04	85.93	0.70	241.20	51.64	2.62	
ES102	ES102-00A	3926		EX 10Y	85.00	91.38
91.38	85.76	0.49	172.34	43.44	3.20	
ES102	ES102-00A	3926		EX 25Y	109.00	91.95
91.95	85.76	0.55	197.37	44.73	3.69	
ES102	ES102-00A	3926		EX 100Y	165.00	93.05
93.05	85.76	0.67	247.87	47.22	4.71	
ES102	ES102-00A	3926		ULT 10Y	90.00	91.41
91.42	85.76	0.52	173.70	43.51	3.22	
ES102	ES102-00A	3926		ULT 25Y	110.00	91.97
91.98	85.76	0.55	198.56	44.79	3.71	
ES102	ES102-00A	3926		ULT 100Y	170.00	93.06
93.07	85.76	0.68	248.46	47.25	4.72	
ES102	ES102-00A	4248		EX 10Y	85.00	91.39
91.40	85.77	0.54	158.75	41.14	4.42	
ES102	ES102-00A	4248		EX 25Y	109.00	91.96
91.97	85.77	0.60	182.85	43.55	5.09	
ES102	ES102-00A	4248		EX 100Y	165.00	93.06
93.07	85.77	0.71	233.28	48.00	6.49	
ES102	ES102-00A	4248		ULT 10Y	90.00	91.43
91.43	85.77	0.56	160.09	41.27	4.45	
ES102	ES102-00A	4248		ULT 25Y	110.00	91.99
91.99	85.77	0.60	184.01	43.66	5.12	
ES102	ES102-00A	4248		ULT 100Y	170.00	93.08
93.09	85.77	0.73	233.92	48.05	6.50	
ES102-01	ES102-01	470		EX 10Y	20.00	91.37
91.37	87.33	0.26	78.02	32.14	1.40	
ES102-01	ES102-01	470		EX 25Y	26.00	91.94
91.94	87.33	0.27	96.69	33.97	1.67	
ES102-01	ES102-01	470		EX 100Y	41.00	93.03
93.03	87.33	0.30	135.72	37.52	2.21	
ES102-01	ES102-01	470		ULT 10Y	20.00	91.40
91.40	87.33	0.25	78.95	32.23	1.41	
ES102-01	ES102-01	470		ULT 25Y	30.00	91.97
91.97	87.33	0.31	97.62	34.06	1.68	
ES102-01	ES102-01	470		ULT 100Y	50.00	93.04
93.04	87.33	0.37	136.19	37.56	2.22	
ES102-01	ES102-01	899		EX 10Y	20.00	91.38
91.38	86.87	0.21	93.65	33.41	2.25	
ES102-01	ES102-01	899		EX 25Y	26.00	91.94
91.95	86.87	0.23	112.82	34.53	2.70	
ES102-01	ES102-01	899		EX 100Y	41.00	93.04
93.04	86.87	0.27	151.70	36.69	3.63	
ES102-01	ES102-01	899		ULT 10Y	20.00	91.41
91.41	86.87	0.21	94.61	33.47	2.27	
ES102-01	ES102-01	899		ULT 25Y	30.00	91.97
91.97	86.87	0.26	113.83	34.59	2.72	
ES102-01	ES102-01	899		ULT 100Y	50.00	93.05
93.05	86.87	0.33	152.25	36.72	3.64	
ES102-01	ES102-01	1152		EX 10Y	20.00	91.38
91.38	86.51	0.13	149.82	39.75	2.95	
ES102-01	ES102-01	1152		EX 25Y	26.00	91.95
91.95	86.51	0.15	172.57	40.85	3.52	

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ES102-01	ES102-01		1152	EX 100Y	41.00	93.04
93.04	86.51	0.19	218.36	43.17	4.70	
ES102-01	ES102-01		1152	ULT 10Y	20.00	91.41
91.41	86.51	0.13	150.97	39.81	2.98	
ES102-01	ES102-01		1152	ULT 25Y	30.00	91.98
91.98	86.51	0.17	173.80	40.91	3.55	
ES102-01	ES102-01		1152	ULT 100Y	50.00	93.05
93.06	86.51	0.23	219.06	43.23	4.71	
ES102-01	ES102-01		1581	EX 10Y	20.00	91.38
91.38	87.20	0.20	101.76	37.12	4.19	
ES102-01	ES102-01		1581	EX 25Y	26.00	91.95
91.95	87.20	0.21	123.45	39.80	4.98	
ES102-01	ES102-01		1581	EX 100Y	41.00	93.04
93.04	87.20	0.24	172.02	79.12	6.62	
ES102-01	ES102-01		1581	ULT 10Y	20.00	91.41
91.41	87.20	0.19	102.83	37.25	4.23	
ES102-01	ES102-01		1581	ULT 25Y	30.00	91.98
91.98	87.20	0.24	124.67	39.96	5.02	
ES102-01	ES102-01		1581	ULT 100Y	50.00	93.06
93.06	87.20	0.29	173.44	83.49	6.64	
ES102-01	ES102-01		1904	EX 10Y	20.00	91.39
91.39	88.32	0.28	70.30	28.34	4.83	
ES102-01	ES102-01		1904	EX 25Y	26.00	91.95
91.95	88.32	0.30	86.63	29.55	5.76	
ES102-01	ES102-01		1904	EX 100Y	41.00	93.04
93.05	88.32	0.34	133.87	102.82	7.75	
ES102-01	ES102-01		1904	ULT 10Y	20.00	91.42
91.42	88.32	0.28	71.11	28.40	4.87	
ES102-01	ES102-01		1904	ULT 25Y	30.00	91.98
91.99	88.32	0.34	87.57	29.62	5.81	
ES102-01	ES102-01		1904	ULT 100Y	50.00	93.06
93.07	88.32	0.41	135.84	103.20	7.79	
ES102-01	ES102-01		2464	EX 10Y	20.00	91.40
91.41	88.31	0.33	59.88	25.98	5.66	
ES102-01	ES102-01		2464	EX 25Y	26.00	91.97
91.97	88.31	0.35	74.89	27.39	6.80	
ES102-01	ES102-01		2464	EX 100Y	41.00	93.06
93.06	88.31	0.38	107.04	31.61	9.30	
ES102-01	ES102-01		2464	ULT 10Y	20.00	91.43
91.43	88.31	0.33	60.61	26.05	5.72	
ES102-01	ES102-01		2464	ULT 25Y	30.00	92.00
92.00	88.31	0.40	75.87	27.48	6.86	
ES102-01	ES102-01		2464	ULT 100Y	50.00	93.08
93.09	88.31	0.46	107.84	31.71	9.36	
ES102-01	ES102-01		3180	EX 10Y	20.00	91.41
91.41	85.86	0.14	140.04	35.76	7.31	
ES102-01	ES102-01		3180	EX 25Y	26.00	91.97
91.97	85.86	0.16	160.56	37.16	8.73	
ES102-01	ES102-01		3180	EX 100Y	41.00	93.07
93.07	85.86	0.20	202.66	39.94	11.85	
ES102-01	ES102-01		3180	ULT 10Y	20.00	91.44
91.44	85.86	0.14	141.03	35.83	7.38	
ES102-01	ES102-01		3180	ULT 25Y	30.00	92.01
92.01	85.86	0.19	161.98	37.26	8.81	
ES102-01	ES102-01		3180	ULT 100Y	50.00	93.10

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93.10	85.86	0.25	203.83	40.01	11.92	
ES102-01	ES102-01		3865	EX 10Y	20.00	91.41
91.41	86.20	0.18	111.43	29.14	9.28	
ES102-01	ES102-01		3865	EX 25Y	26.00	91.98
91.98	86.20	0.20	128.20	30.41	11.00	
ES102-01	ES102-01		3865	EX 100Y	41.00	93.07
93.07	86.20	0.25	162.78	32.92	14.72	
ES102-01	ES102-01		3865	ULT 10Y	20.00	91.44
91.44	86.20	0.18	112.24	29.20	9.37	
ES102-01	ES102-01		3865	ULT 25Y	30.00	92.02
92.02	86.20	0.23	129.39	30.49	11.11	
ES102-01	ES102-01		3865	ULT 100Y	50.00	93.10
93.10	86.20	0.31	163.81	33.05	14.81	
ES102-01	ES102-01		4243	EX 10Y	20.00	91.42
91.42	85.01	0.16	126.75	32.47	10.32	
ES102-01	ES102-01		4243	EX 25Y	26.00	91.98
91.98	85.01	0.18	145.61	34.50	12.19	
ES102-01	ES102-01		4243	EX 100Y	41.00	93.07
93.07	85.01	0.22	185.56	38.52	16.23	
ES102-01	ES102-01		4243	ULT 10Y	20.00	91.44
91.44	85.01	0.16	127.65	32.57	10.41	
ES102-01	ES102-01		4243	ULT 25Y	30.00	92.02
92.02	85.01	0.20	146.99	34.65	12.30	
ES102-01	ES102-01		4243	ULT 100Y	50.00	93.11
93.11	85.01	0.27	186.81	38.63	16.33	
ES102-01	ES102-01		4848	EX 10Y	20.00	91.42
91.42	84.84	0.12	164.60	36.63	12.34	
ES102-01	ES102-01		4848	EX 25Y	26.00	91.98
91.98	84.84	0.14	202.94	150.39	14.61	
ES102-01	ES102-01		4848	EX 100Y	41.00	93.08
93.08	84.84	0.15	445.74	244.05	20.62	
ES102-01	ES102-01		4848	ULT 10Y	20.00	91.45
91.45	84.84	0.12	165.62	36.97	12.44	
ES102-01	ES102-01		4848	ULT 25Y	30.00	92.02
92.02	84.84	0.16	209.48	175.37	14.78	
ES102-01	ES102-01		4848	ULT 100Y	50.00	93.11
93.11	84.84	0.18	454.11	252.47	20.78	
ES102-01	ES102-01		5391	EX 10Y	20.00	91.42
91.42	84.49	0.10	277.08	252.66	15.09	
ES102-01	ES102-01		5391	EX 25Y	26.00	91.98
91.98	84.49	0.10	425.54	271.12	18.53	
ES102-01	ES102-01		5391	EX 100Y	41.00	93.08
93.08	84.49	0.09	735.43	293.05	27.97	
ES102-01	ES102-01		5391	ULT 10Y	20.00	91.45
91.45	84.49	0.10	284.11	254.29	15.24	
ES102-01	ES102-01		5391	ULT 25Y	30.00	92.02
92.02	84.49	0.11	436.58	272.09	18.80	
ES102-01	ES102-01		5391	ULT 100Y	50.00	93.11
93.11	84.49	0.11	745.41	293.52	28.25	

APPENDIX D
HEC-RAS HYDRAULIC OUTPUT
ES-100 PROPOSED CONDITION
ES-100, ES-101, ES-102, ES-102-01

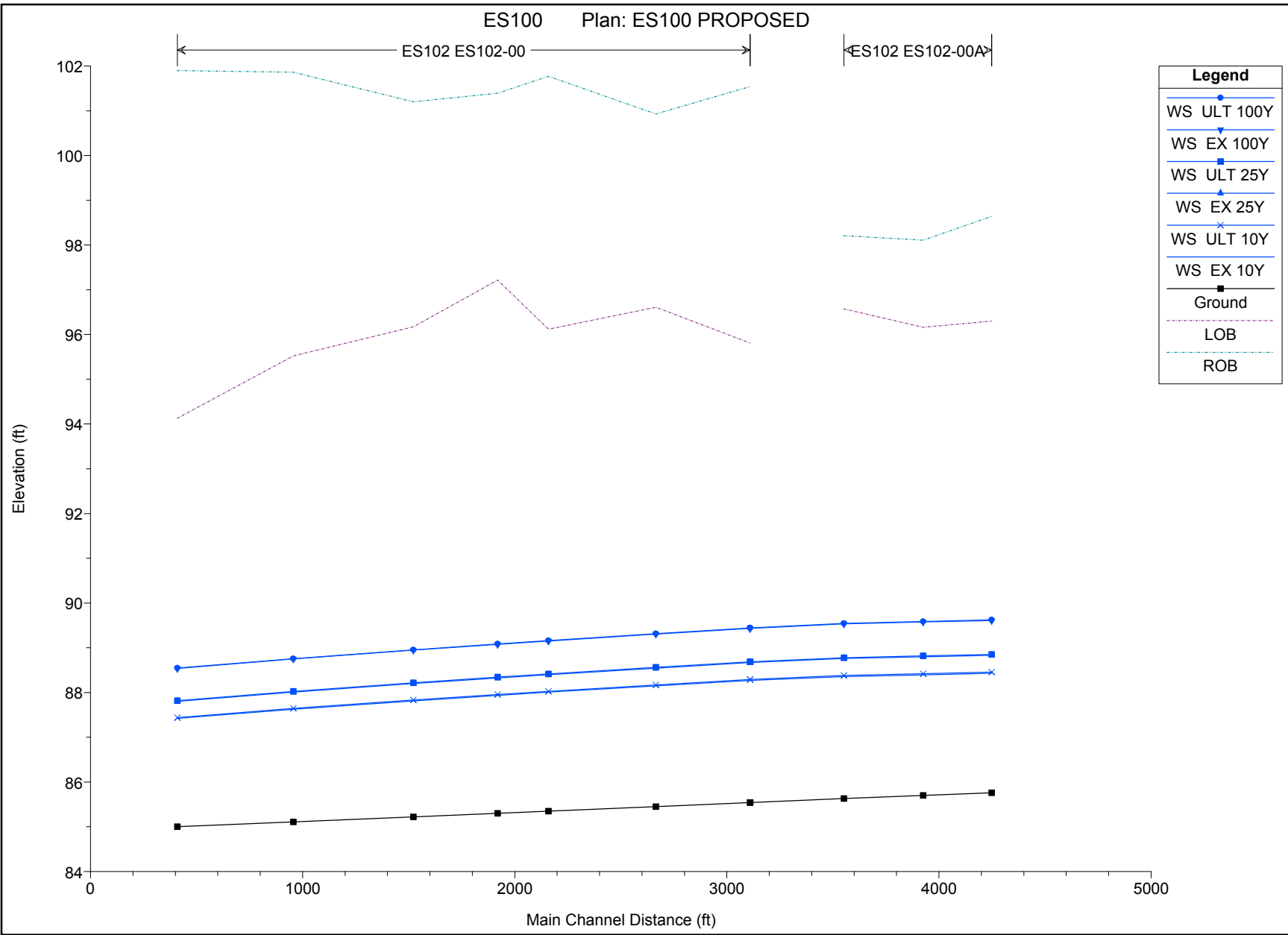
HEC-RAS Plan: PROPOSED

River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
ES102	ES102-00	410	EX 10Y	138.00	85.00	87.42	85.70	87.44	0.000400	1.21	114.39	54.52	0.15
ES102	ES102-00	410	EX 25Y	178.00	85.00	87.80	85.83	87.83	0.000400	1.31	135.56	56.80	0.15
ES102	ES102-00	410	EX 100Y	269.00	85.00	88.54	86.09	88.57	0.000401	1.50	179.07	61.23	0.15
ES102	ES102-00	410	ULT 10Y	140.00	85.00	87.44	85.71	87.46	0.000400	1.21	115.49	54.64	0.15
ES102	ES102-00	410	ULT 25Y	180.00	85.00	87.82	85.84	87.85	0.000400	1.32	136.58	56.91	0.15
ES102	ES102-00	410	ULT 100Y	270.00	85.00	88.55	86.09	88.58	0.000401	1.50	179.53	61.27	0.15
ES102	ES102-00	956	EX 10Y	138.00	85.11	87.63		87.65	0.000349	1.15	119.66	55.10	0.14
ES102	ES102-00	956	EX 25Y	178.00	85.11	88.01		88.03	0.000355	1.26	141.14	57.39	0.14
ES102	ES102-00	956	EX 100Y	269.00	85.11	88.75		88.78	0.000363	1.45	185.26	61.83	0.15
ES102	ES102-00	956	ULT 10Y	140.00	85.11	87.65		87.67	0.000350	1.16	120.78	55.22	0.14
ES102	ES102-00	956	ULT 25Y	180.00	85.11	88.03		88.05	0.000355	1.27	142.18	57.50	0.14
ES102	ES102-00	956	ULT 100Y	270.00	85.11	88.76		88.79	0.000363	1.45	185.72	61.88	0.15
ES102	ES102-00	1522	EX 10Y	138.00	85.22	87.81		87.83	0.000314	1.11	123.99	55.57	0.13
ES102	ES102-00	1522	EX 25Y	178.00	85.22	88.20		88.22	0.000322	1.22	145.89	57.88	0.14
ES102	ES102-00	1522	EX 100Y	269.00	85.22	88.95		88.98	0.000333	1.41	190.75	62.36	0.14
ES102	ES102-00	1522	ULT 10Y	140.00	85.22	87.84		87.85	0.000315	1.12	125.13	55.69	0.13
ES102	ES102-00	1522	ULT 25Y	180.00	85.22	88.22		88.24	0.000322	1.22	146.94	57.99	0.14
ES102	ES102-00	1522	ULT 100Y	270.00	85.22	88.95		88.99	0.000333	1.41	191.21	62.41	0.14
ES102	ES102-00	1920	EX 10Y	138.00	85.30	87.94		87.96	0.000297	1.09	126.35	55.83	0.13
ES102	ES102-00	1920	EX 25Y	178.00	85.30	88.33		88.35	0.000305	1.20	148.51	58.16	0.13
ES102	ES102-00	1920	EX 100Y	269.00	85.30	89.08		89.11	0.000317	1.39	193.90	62.67	0.14
ES102	ES102-00	1920	ULT 10Y	140.00	85.30	87.96		87.98	0.000297	1.10	127.50	55.95	0.13
ES102	ES102-00	1920	ULT 25Y	180.00	85.30	88.34		88.37	0.000305	1.20	149.58	58.27	0.13
ES102	ES102-00	1920	ULT 100Y	270.00	85.30	89.08		89.11	0.000318	1.39	194.37	62.72	0.14
ES102	ES102-00	2160	EX 10Y	138.00	85.35	88.01		88.03	0.000289	1.08	127.47	55.94	0.13
ES102	ES102-00	2160	EX 25Y	178.00	85.35	88.40		88.42	0.000297	1.19	149.80	58.29	0.13
ES102	ES102-00	2160	EX 100Y	269.00	85.35	89.15		89.18	0.000310	1.38	195.48	62.82	0.14
ES102	ES102-00	2160	ULT 10Y	140.00	85.35	88.03		88.05	0.000290	1.09	128.64	56.07	0.13
ES102	ES102-00	2160	ULT 25Y	180.00	85.35	88.42		88.44	0.000298	1.19	150.87	58.40	0.13
ES102	ES102-00	2160	ULT 100Y	270.00	85.35	89.16		89.19	0.000310	1.38	195.95	62.86	0.14
ES102	ES102-00	2666	EX 10Y	138.00	85.45	88.15		88.17	0.000273	1.06	129.86	56.20	0.12
ES102	ES102-00	2666	EX 25Y	178.00	85.45	88.55		88.57	0.000282	1.17	152.54	58.57	0.13
ES102	ES102-00	2666	EX 100Y	269.00	85.45	89.31		89.33	0.000295	1.35	198.87	63.14	0.13
ES102	ES102-00	2666	ULT 10Y	140.00	85.45	88.17		88.19	0.000274	1.07	131.04	56.33	0.12
ES102	ES102-00	2666	ULT 25Y	180.00	85.45	88.56		88.58	0.000282	1.17	153.63	58.68	0.13
ES102	ES102-00	2666	ULT 100Y	270.00	85.45	89.31		89.34	0.000295	1.35	199.35	63.18	0.13
ES102	ES102-00	3110	EX 10Y	138.00	85.54	88.27		88.29	0.000263	1.05	131.52	56.38	0.12
ES102	ES102-00	3110	EX 25Y	178.00	85.54	88.67		88.69	0.000271	1.15	154.49	58.77	0.13
ES102	ES102-00	3110	EX 100Y	269.00	85.54	89.44		89.46	0.000284	1.34	201.36	63.37	0.13
ES102	ES102-00	3110	ULT 10Y	140.00	85.54	88.29		88.31	0.000264	1.05	132.72	56.50	0.12
ES102	ES102-00	3110	ULT 25Y	180.00	85.54	88.69		88.71	0.000272	1.16	155.60	58.88	0.13
ES102	ES102-00	3110	ULT 100Y	270.00	85.54	89.44		89.47	0.000284	1.34	201.84	63.42	0.13
ES102	ES102-00A	3552	EX 10Y	85.00	85.63	88.36		88.36	0.000100	0.65	131.39	56.36	0.07
ES102	ES102-00A	3552	EX 25Y	109.00	85.63	88.76		88.77	0.000101	0.70	154.62	58.78	0.08
ES102	ES102-00A	3552	EX 100Y	165.00	85.63	89.54		89.55	0.000106	0.82	202.03	63.44	0.08
ES102	ES102-00A	3552	ULT 10Y	90.00	85.63	88.38		88.39	0.000109	0.68	132.71	56.50	0.08
ES102	ES102-00A	3552	ULT 25Y	110.00	85.63	88.78		88.79	0.000101	0.71	155.73	58.90	0.08
ES102	ES102-00A	3552	ULT 100Y	170.00	85.63	89.54		89.56	0.000112	0.84	202.58	63.49	0.08
ES102	ES102-00A	3926	EX 10Y	85.00	85.70	88.39		88.40	0.000104	0.66	129.58	56.17	0.08
ES102	ES102-00A	3926	EX 25Y	109.00	85.70	88.80		88.81	0.000105	0.71	152.76	58.59	0.08
ES102	ES102-00A	3926	EX 100Y	165.00	85.70	89.58		89.59	0.000109	0.82	200.12	63.26	0.08
ES102	ES102-00A	3926	ULT 10Y	90.00	85.70	88.42		88.43	0.000113	0.69	131.08	56.33	0.08
ES102	ES102-00A	3926	ULT 25Y	110.00	85.70	88.82		88.83	0.000105	0.71	153.86	58.71	0.08
ES102	ES102-00A	3926	ULT 100Y	170.00	85.70	89.59		89.60	0.000114	0.85	200.81	63.32	0.08
ES102	ES102-00A	4248	EX 10Y	85.00	85.76	88.43		88.44	0.000108	0.66	128.12	56.01	0.08
ES102	ES102-00A	4248	EX 25Y	109.00	85.76	88.83		88.84	0.000108	0.72	151.24	58.44	0.08
ES102	ES102-00A	4248	EX 100Y	165.00	85.76	89.61		89.62	0.000111	0.83	198.56	63.11	0.08
ES102	ES102-00A	4248	ULT 10Y	90.00	85.76	88.46		88.47	0.000117	0.69	129.78	56.19	0.08
ES102	ES102-00A	4248	ULT 25Y	110.00	85.76	88.85		88.86	0.000108	0.72	152.34	58.55	0.08
ES102	ES102-00A	4248	ULT 100Y	170.00	85.76	89.62		89.64	0.000117	0.85	199.35	63.18	0.08
ES102-01	ES102-01	470	EX 10Y	20.00	85.50	88.34		88.34	0.000008	0.18	109.22	47.02	0.02
ES102-01	ES102-01	470	EX 25Y	26.00	85.50	88.74		88.74	0.000008	0.20	128.72	49.44	0.02
ES102-01	ES102-01	470	EX 100Y	41.00	85.50	89.52		89.52	0.000010	0.24	168.99	54.11	0.02
ES102-01	ES102-01	470	ULT 10Y	20.00	85.50	88.36		88.36	0.000008	0.18	110.22	47.15	0.02
ES102-01	ES102-01	470	ULT 25Y	30.00	85.50	88.76		88.76	0.000011	0.23	129.74	49.57	0.03
ES102-01	ES102-01	470	ULT 100Y	50.00	85.50	89.53		89.53	0.000014	0.29	169.55	54.17	0.03
ES102-01	ES102-01	899	EX 10Y	20.00	85.59	88.34		88.34	0.000009	0.19	105.18	46.50	0.02
ES102-01	ES102-01	899	EX 25Y	26.00	85.59	88.74		88.75	0.000009	0.21	124.48	48.93	0.02
ES102-01	ES102-01	899	EX 100Y	41.00	85.59	89.52		89.52	0.000010	0.25	164.37	53.60	0.03
ES102-01	ES102-01	899	ULT 10Y	20.00	85.59	88.36		88.36	0.000009	0.19	106.17	46.63	0.02
ES102-01	ES102-01	899	ULT 25Y	30.00	85.59	88.77		88.77	0.000012	0.24	125.54	49.06	0.03
ES102-01	ES102-01	899	ULT 100Y	50.00	85.59	89.53		89.54	0.000015	0.30	165.03	53.67	0.03
ES102-01	ES102-01	1152	EX 10Y	20.00	85.64	88.34		88.34	0.000010	0.19	102.97	46.21	0.02
ES102-01	ES102-01	1152	EX 25Y	26.00	85.64	88.75		88.75	0.000010	0.21	122.15	48.64	0.02
ES102-01	ES102-01	1152	EX 100Y	41.00	85.64	89.53		89.53	0.000011	0.25	161.83	53.31	0.03

HEC-RAS Plan: PROPOSED (Continued)

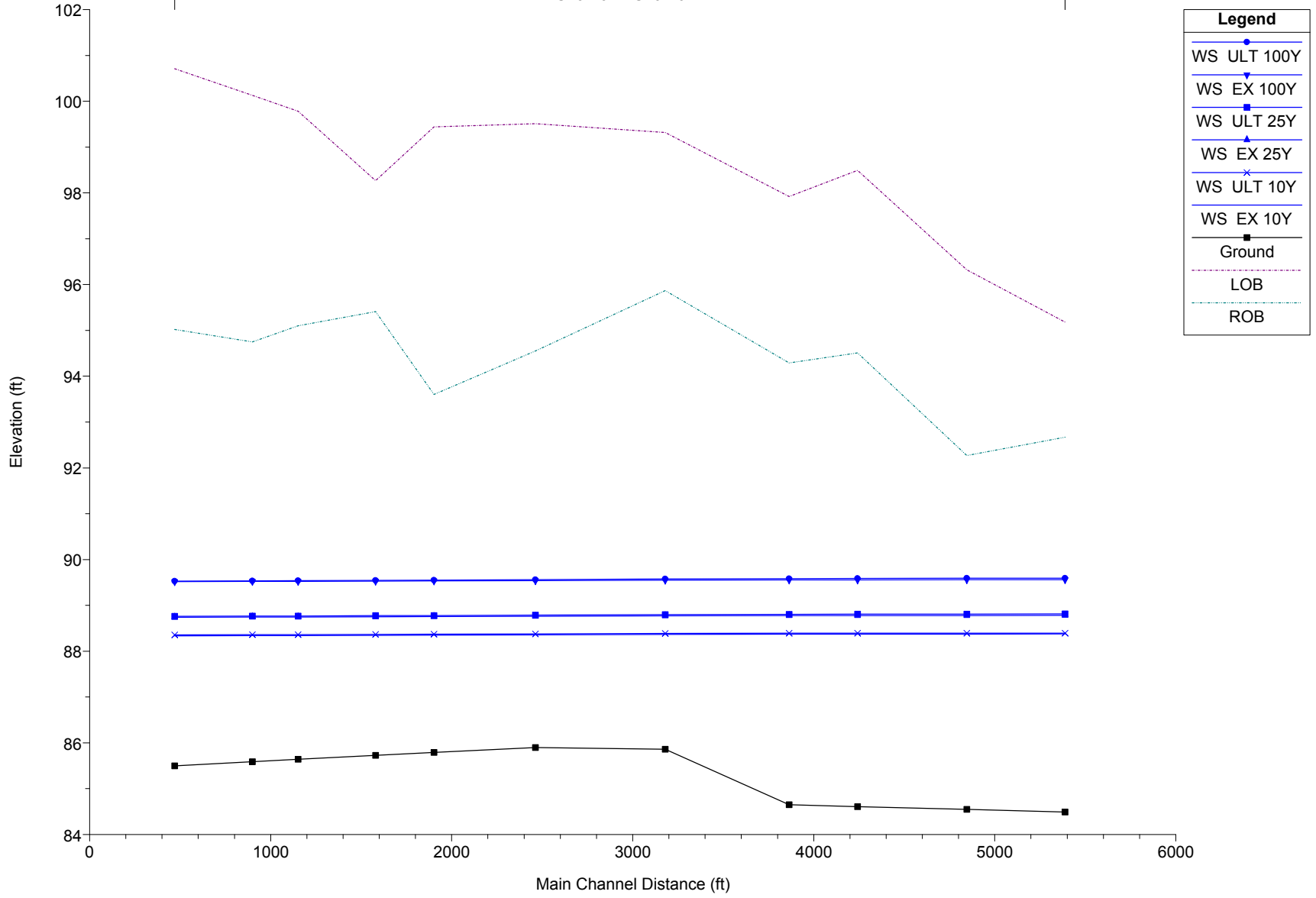
River	Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
ES102-01	ES102-01	1152	ULT 10Y	20.00	85.64	88.36		88.36	0.000009	0.19	103.95	46.34	0.02
ES102-01	ES102-01	1152	ULT 25Y	30.00	85.64	88.77		88.77	0.000013	0.24	123.25	48.77	0.03
ES102-01	ES102-01	1152	ULT 100Y	50.00	85.64	89.54		89.54	0.000016	0.31	162.56	53.39	0.03
ES102-01	ES102-01	1581	EX 10Y	20.00	85.73	88.35		88.35	0.000011	0.20	99.04	45.70	0.02
ES102-01	ES102-01	1581	EX 25Y	26.00	85.73	88.75		88.75	0.000011	0.22	118.02	48.13	0.02
ES102-01	ES102-01	1581	EX 100Y	41.00	85.73	89.53		89.53	0.000012	0.26	157.33	52.80	0.03
ES102-01	ES102-01	1581	ULT 10Y	20.00	85.73	88.37		88.37	0.000010	0.20	100.00	45.83	0.02
ES102-01	ES102-01	1581	ULT 25Y	30.00	85.73	88.77		88.78	0.000014	0.25	119.17	48.27	0.03
ES102-01	ES102-01	1581	ULT 100Y	50.00	85.73	89.55		89.55	0.000017	0.32	158.17	52.90	0.03
ES102-01	ES102-01	1904	EX 10Y	20.00	85.79	88.35		88.35	0.000012	0.21	96.46	45.36	0.03
ES102-01	ES102-01	1904	EX 25Y	26.00	85.79	88.75		88.76	0.000012	0.23	115.31	47.78	0.03
ES102-01	ES102-01	1904	EX 100Y	41.00	85.79	89.53		89.54	0.000013	0.27	154.36	52.46	0.03
ES102-01	ES102-01	1904	ULT 10Y	20.00	85.79	88.37		88.37	0.000011	0.21	97.42	45.48	0.02
ES102-01	ES102-01	1904	ULT 25Y	30.00	85.79	88.78		88.78	0.000015	0.26	116.50	47.93	0.03
ES102-01	ES102-01	1904	ULT 100Y	50.00	85.79	89.55		89.55	0.000018	0.32	155.29	52.56	0.03
ES102-01	ES102-01	2464	EX 10Y	20.00	85.90	88.36		88.36	0.000013	0.22	91.83	44.75	0.03
ES102-01	ES102-01	2464	EX 25Y	26.00	85.90	88.76		88.76	0.000013	0.24	110.42	47.17	0.03
ES102-01	ES102-01	2464	EX 100Y	41.00	85.90	89.54		89.54	0.000014	0.28	149.02	51.85	0.03
ES102-01	ES102-01	2464	ULT 10Y	20.00	85.90	88.38		88.38	0.000013	0.22	92.76	44.87	0.03
ES102-01	ES102-01	2464	ULT 25Y	30.00	85.90	88.79		88.79	0.000017	0.27	111.69	47.33	0.03
ES102-01	ES102-01	2464	ULT 100Y	50.00	85.90	89.56		89.56	0.000020	0.33	150.11	51.98	0.03
ES102-01	ES102-01	3180	EX 10Y	20.00	85.86	88.37		88.37	0.000013	0.21	94.04	45.04	0.03
ES102-01	ES102-01	3180	EX 25Y	26.00	85.86	88.77		88.77	0.000012	0.23	112.75	47.47	0.03
ES102-01	ES102-01	3180	EX 100Y	41.00	85.86	89.55		89.55	0.000013	0.27	151.60	52.15	0.03
ES102-01	ES102-01	3180	ULT 10Y	20.00	85.86	88.39		88.39	0.000012	0.21	94.97	45.16	0.03
ES102-01	ES102-01	3180	ULT 25Y	30.00	85.86	88.80		88.80	0.000016	0.26	114.15	47.64	0.03
ES102-01	ES102-01	3180	ULT 100Y	50.00	85.86	89.58		89.58	0.000019	0.33	152.92	52.30	0.03
ES102-01	ES102-01	3865	EX 10Y	20.00	84.65	88.37		88.37	0.000003	0.13	153.16	52.33	0.01
ES102-01	ES102-01	3865	EX 25Y	26.00	84.65	88.78		88.78	0.000004	0.15	174.84	54.76	0.01
ES102-01	ES102-01	3865	EX 100Y	41.00	84.65	89.56		89.56	0.000005	0.19	219.43	59.44	0.02
ES102-01	ES102-01	3865	ULT 10Y	20.00	84.65	88.39		88.39	0.000003	0.13	154.23	52.45	0.01
ES102-01	ES102-01	3865	ULT 25Y	30.00	84.65	88.81		88.81	0.000005	0.17	176.53	54.94	0.02
ES102-01	ES102-01	3865	ULT 100Y	50.00	84.65	89.58		89.59	0.000007	0.23	221.10	59.61	0.02
ES102-01	ES102-01	4243	EX 10Y	20.00	84.61	88.37		88.37	0.000003	0.13	155.30	52.57	0.01
ES102-01	ES102-01	4243	EX 25Y	26.00	84.61	88.78		88.78	0.000003	0.15	177.09	55.00	0.01
ES102-01	ES102-01	4243	EX 100Y	41.00	84.61	89.56		89.56	0.000004	0.18	221.89	59.68	0.02
ES102-01	ES102-01	4243	ULT 10Y	20.00	84.61	88.39		88.39	0.000003	0.13	156.37	52.69	0.01
ES102-01	ES102-01	4243	ULT 25Y	30.00	84.61	88.81		88.81	0.000004	0.17	178.81	55.18	0.02
ES102-01	ES102-01	4243	ULT 100Y	50.00	84.61	89.59		89.59	0.000006	0.22	223.61	59.86	0.02
ES102-01	ES102-01	4848	EX 10Y	20.00	84.55	88.37		88.37	0.000003	0.13	158.56	52.94	0.01
ES102-01	ES102-01	4848	EX 25Y	26.00	84.55	88.78		88.78	0.000003	0.14	180.51	55.37	0.01
ES102-01	ES102-01	4848	EX 100Y	41.00	84.55	89.56		89.56	0.000004	0.18	225.64	60.06	0.02
ES102-01	ES102-01	4848	ULT 10Y	20.00	84.55	88.39		88.39	0.000003	0.13	159.63	53.06	0.01
ES102-01	ES102-01	4848	ULT 25Y	30.00	84.55	88.81		88.81	0.000004	0.16	182.27	55.56	0.02
ES102-01	ES102-01	4848	ULT 100Y	50.00	84.55	89.59		89.59	0.000006	0.22	227.44	60.24	0.02
ES102-01	ES102-01	5391	EX 10Y	20.00	84.49	88.38		88.38	0.000003	0.12	161.32	53.25	0.01
ES102-01	ES102-01	5391	EX 25Y	26.00	84.49	88.78		88.78	0.000003	0.14	183.42	55.69	0.01
ES102-01	ES102-01	5391	EX 100Y	41.00	84.49	89.56		89.56	0.000004	0.18	228.84	60.39	0.02
ES102-01	ES102-01	5391	ULT 10Y	20.00	84.49	88.40		88.40	0.000003	0.12	162.40	53.38	0.01
ES102-01	ES102-01	5391	ULT 25Y	30.00	84.49	88.81		88.81	0.000004	0.16	185.22	55.88	0.02
ES102-01	ES102-01	5391	ULT 100Y	50.00	84.49	89.59		89.59	0.000006	0.22	230.71	60.57	0.02

ES100 Plan: ES100 PROPOSED



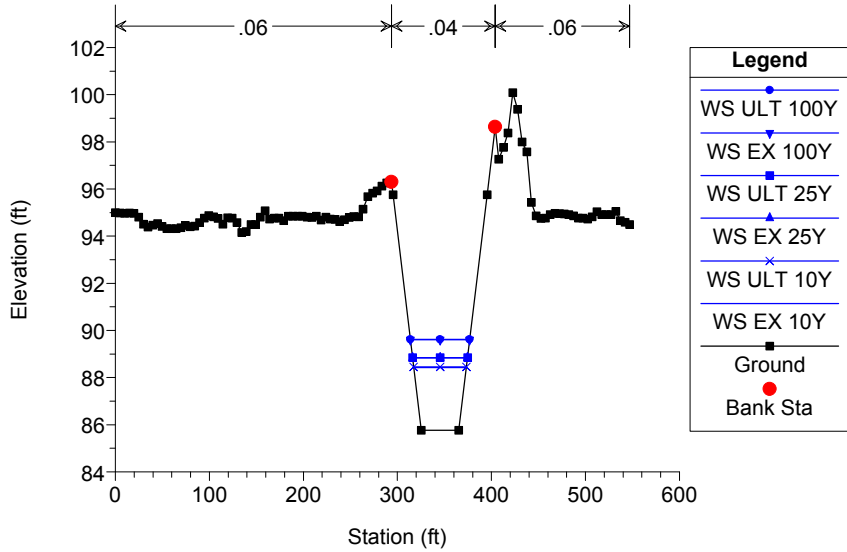
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ES102-01 ES102-01



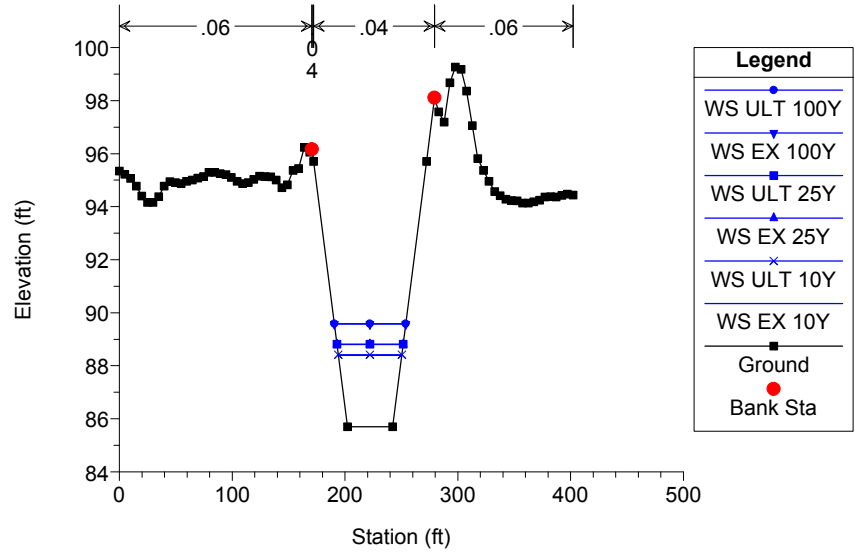
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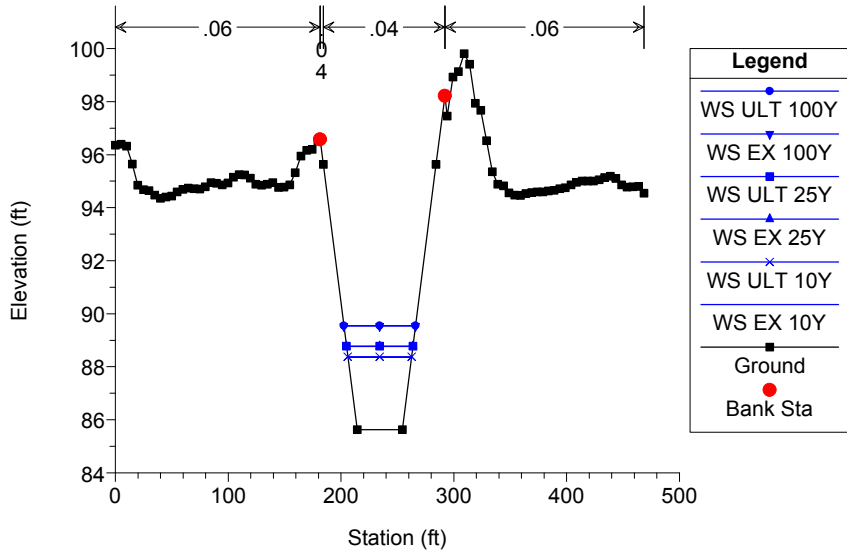
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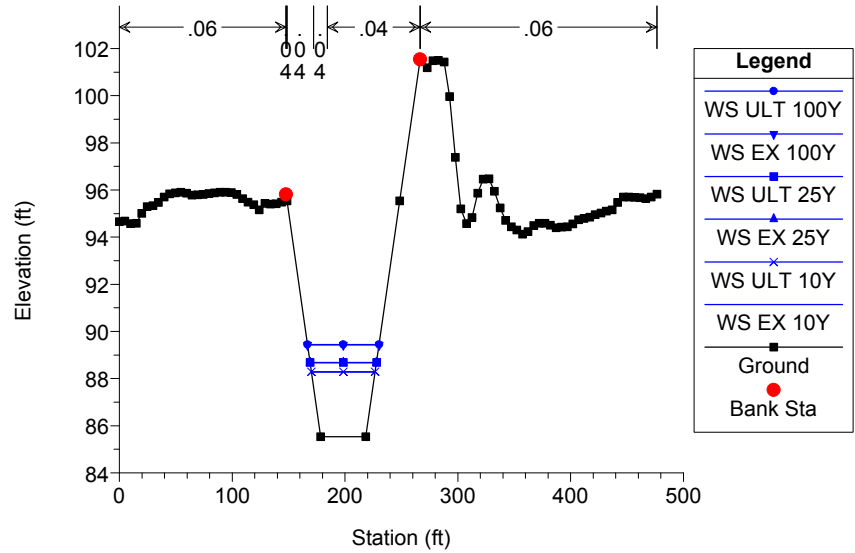
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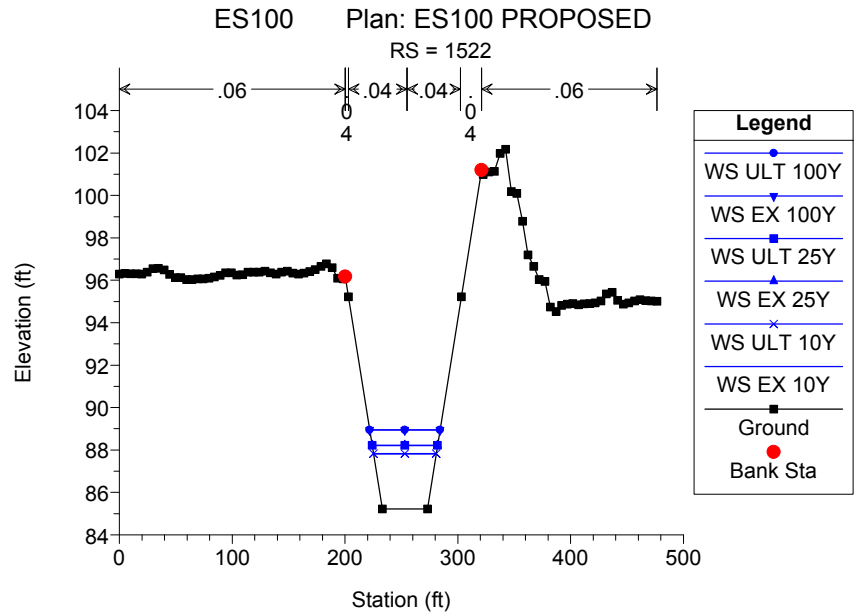
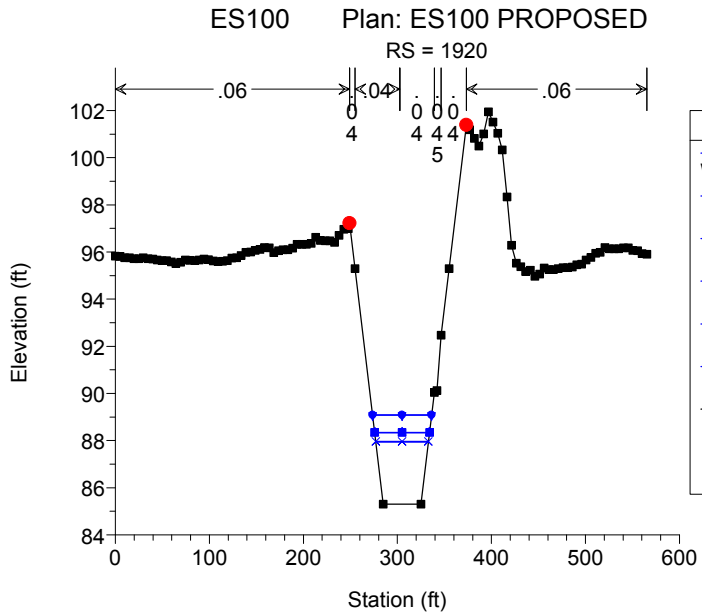
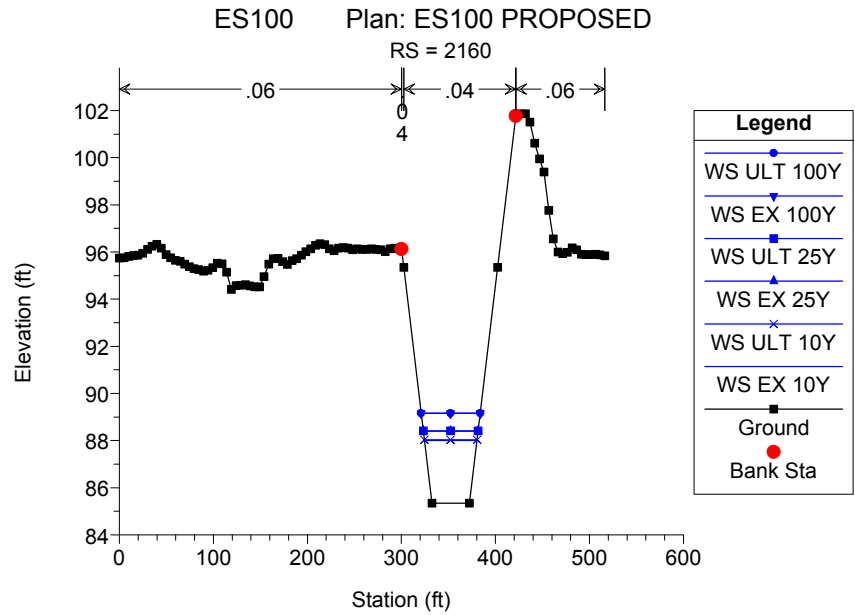
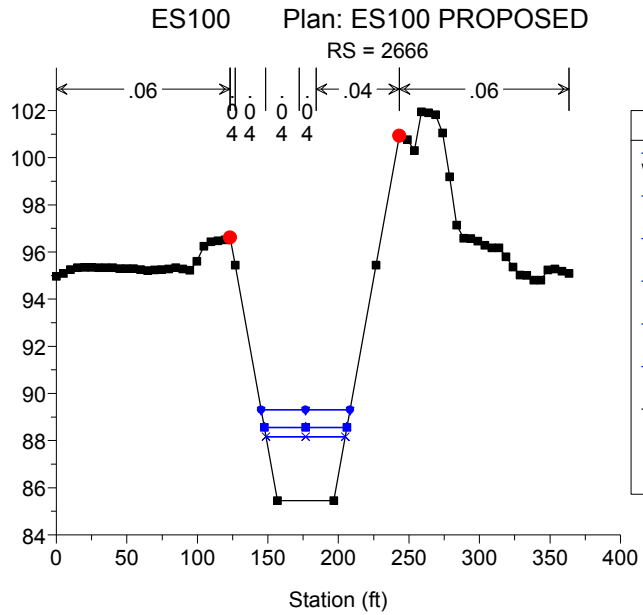
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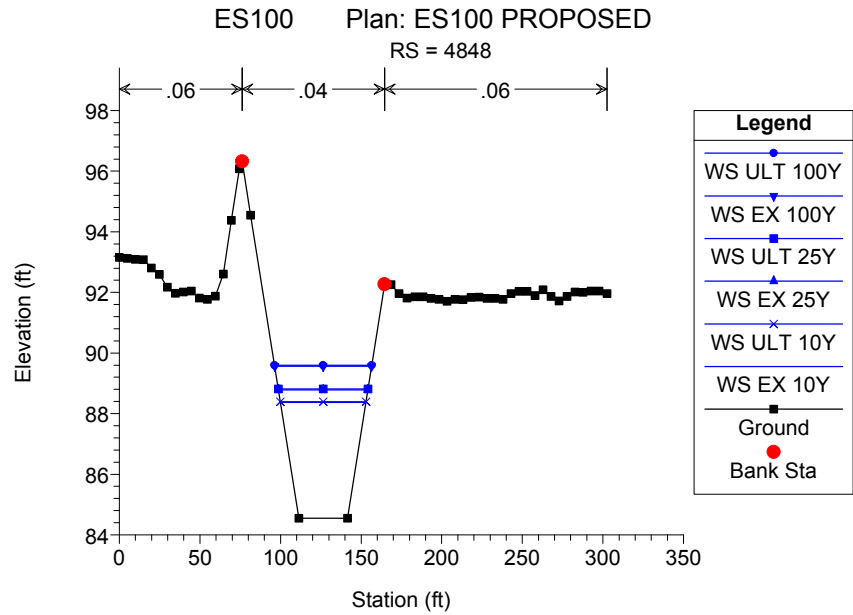
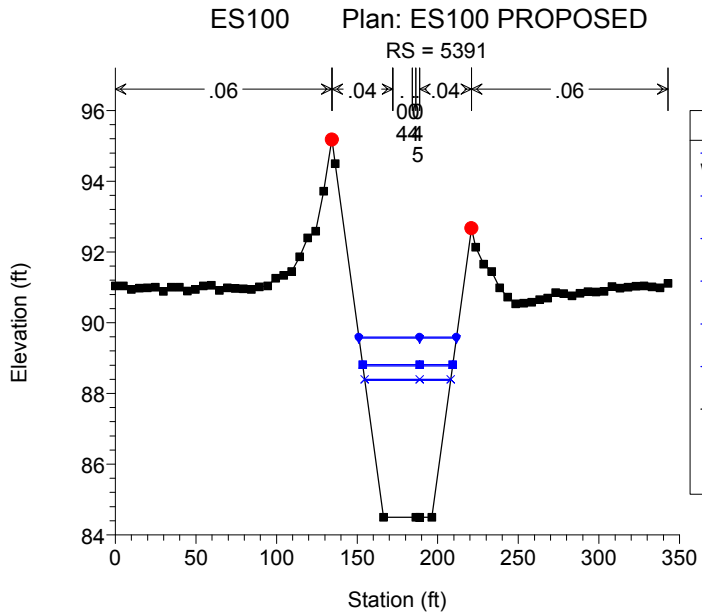
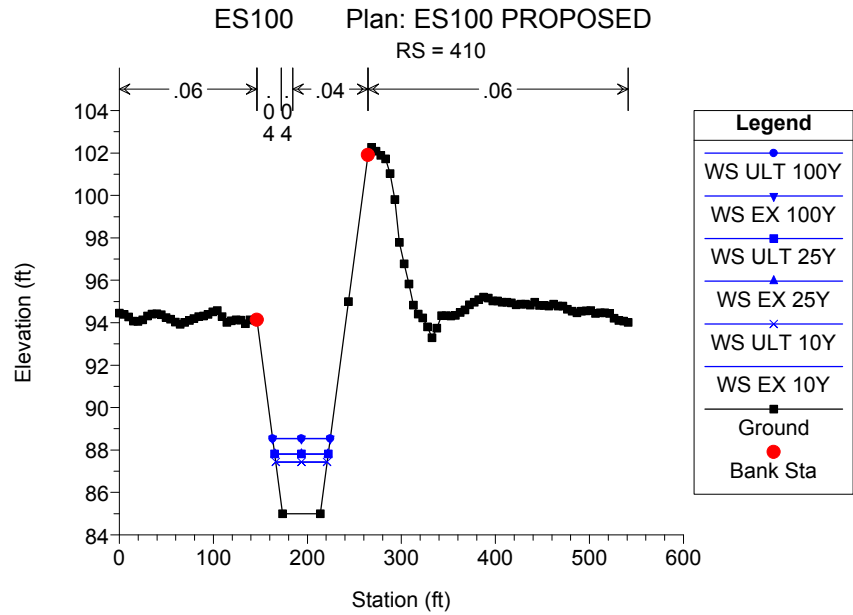
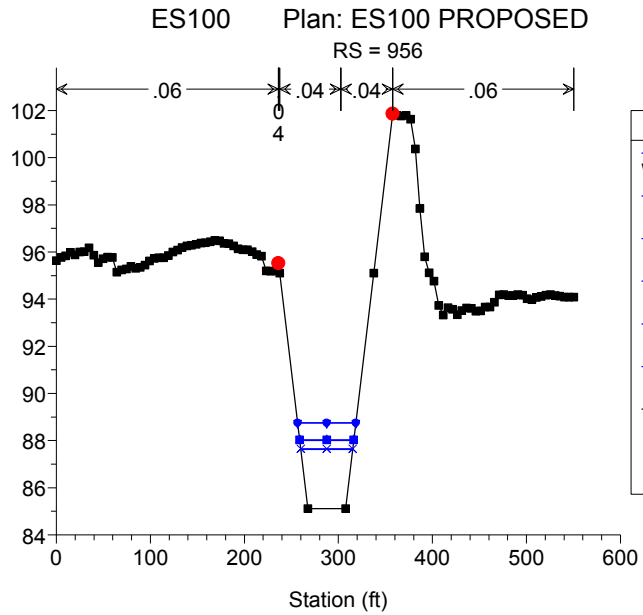


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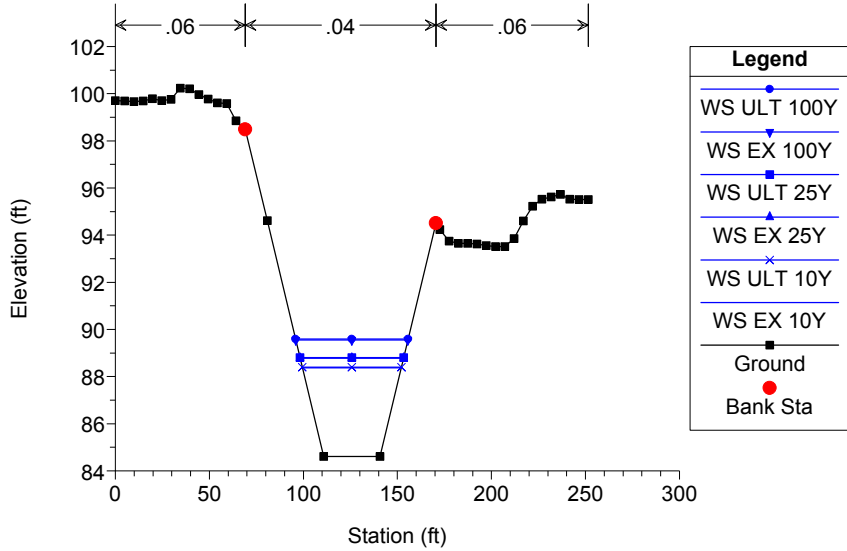






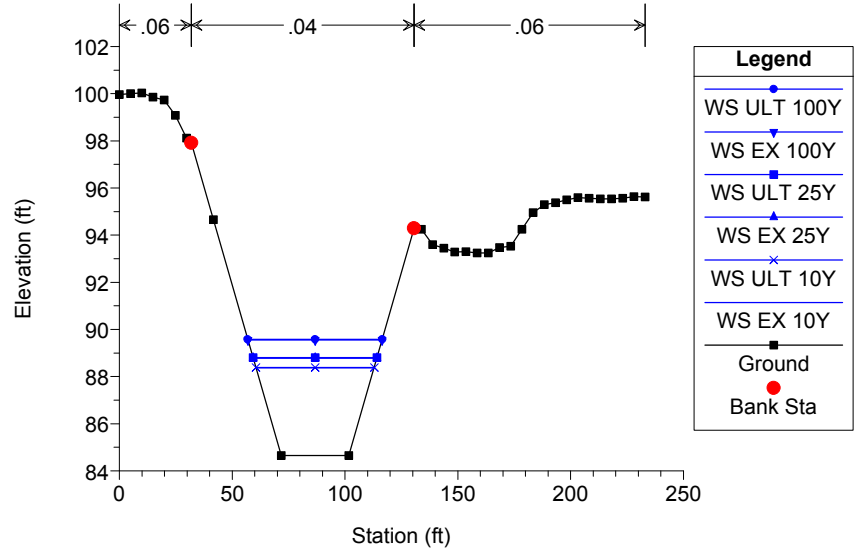
ES100 Plan: ES100 PROPOSED

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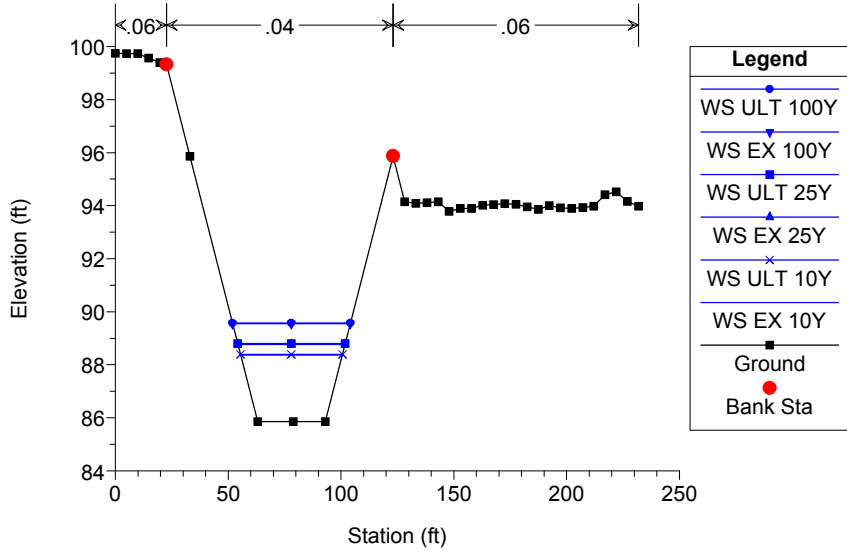
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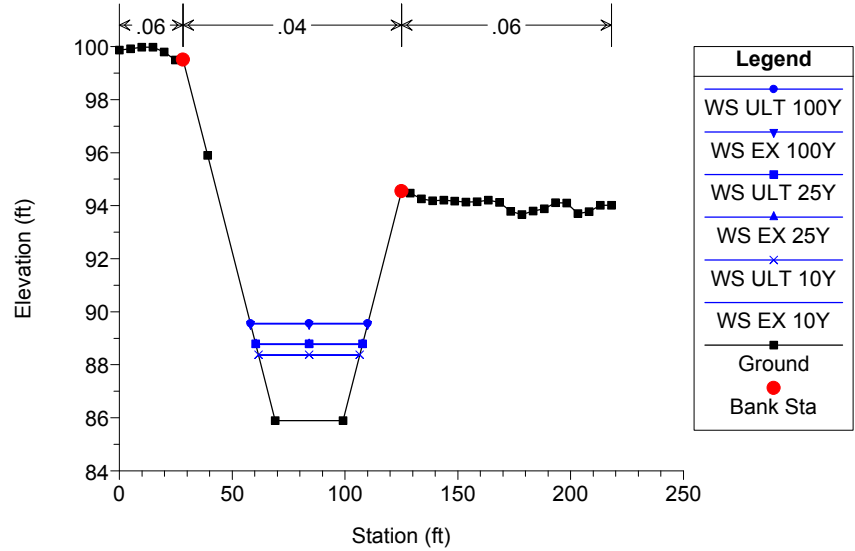
ES100 Plan: ES100 PROPOSED

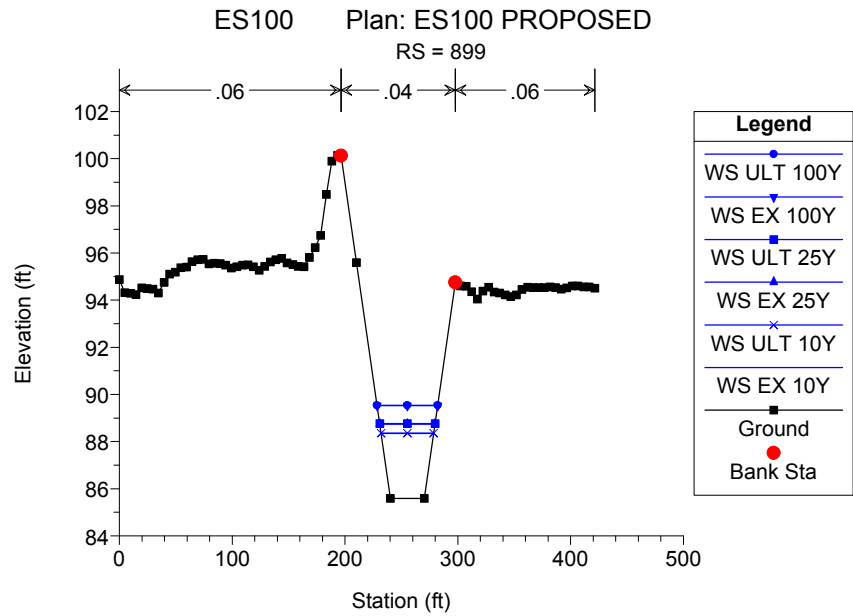
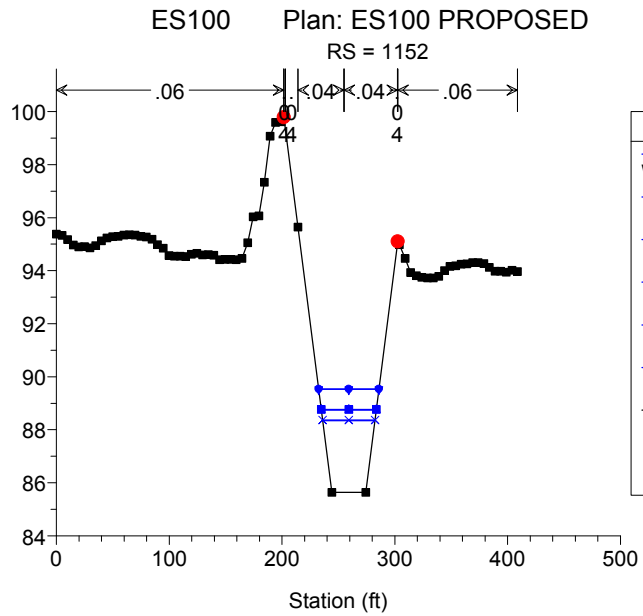
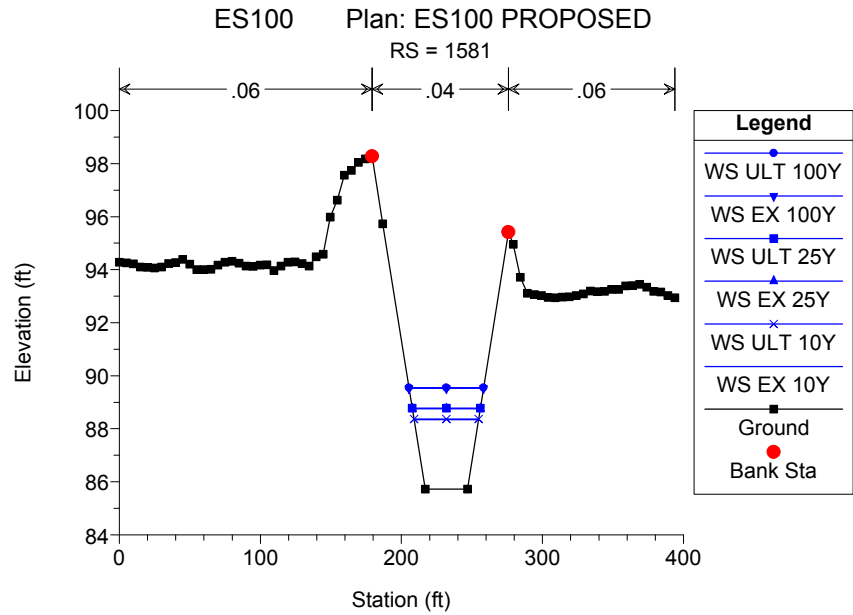
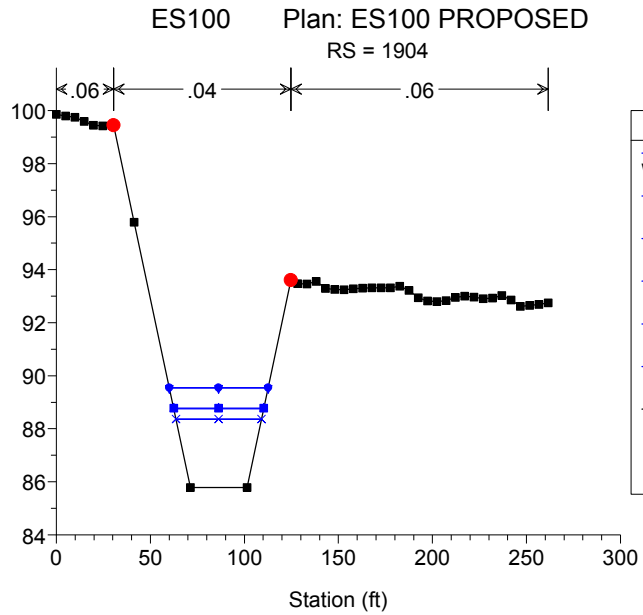
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ES100 Plan: ES100 PROPOSED

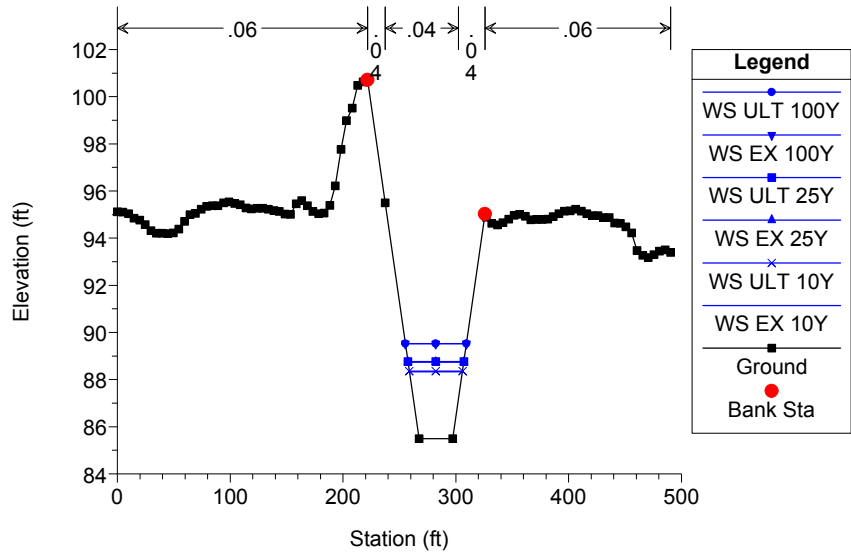
RS = 2464





ES100 Plan: ES100 PROPOSED

RS = 470



APPENDIX E

COST ESTIMATE & PRIORITIZATION



**CITY OF EDINBURG MASTER DRAINAGE PLAN
PROPOSED LATERAL SYSTEM IMPROVEMENTS
IMPROVEMENT COMPONENT COST ESTIMATE SUMMARY**

LATERAL SYSTEM	COST ESTIMATE	ESTIMATE W/ CONTINGENCY	PRIORITIZATION CRITERIA			PRIORITY WEIGHTED VALUE
			1	2	3	
NM-102	\$2,252,940	\$2,816,175	Y	Y	Y	6
NM-103	\$714,690	\$893,363	Y	Y	N	5
NM-104	\$192,800	\$241,000	Y	Y	Y	6
NM-105	\$316,053	\$395,066	Y	N	N	2
NM-106	\$252,623	\$315,779	N	N	N	0
NM-108	\$631,950	\$789,938	Y	Y	Y	6
NM-109	\$883,893	\$1,104,866	Y	Y	Y	6
NM-110	\$452,263	\$565,329	Y	N	Y	3
NM-111	\$258,228	\$322,785	N	Y	Y	4
NM-112	\$0	\$0	N	N	N	0
NM-113	\$143,313	\$179,141	Y	Y	N	5
NM-115	\$596,720	\$745,900	Y	N	N	2
NM-116	\$134,467	\$168,084	Y	N	N	2
ES-102	\$8,820,196	\$11,025,245	Y	Y	Y	6
ES-101	\$3,324,410	\$4,155,513	Y	Y	Y	6
SM-102	\$880,927	\$1,101,159	N	N	Y	1
SM-103	\$440,020	\$550,025	Y	Y	N	5
SM-104	\$913,504	\$1,141,880	Y	Y	Y	6
MC-100	\$1,742,893	\$2,178,616	Y	Y	N	5
MC-101	\$0	\$0	N	N	N	0

SUBTOTAL	\$22,951,890
25% CONTINGENCY	\$5,737,972
COE MDP TOTAL	\$28,689,862

**CITY OF EDINBURG MASTER DRAINAGE PLAN
 PROPOSED LATERAL SYSTEM IMPROVEMENTS
 IMPROVEMENT COMPONENT COST ESTIMATE SUMMARY**

LATERAL SYSTEM	COST ESTIMATE SUMMARY	
	RECOMMENDED ALT.	ALT. OPTION
NM-102	\$2,252,940	\$463,790
NM-103	\$714,690	\$910,518
NM-104	\$192,800	\$555,000
NM-105	\$316,053	
NM-106	\$252,623	
NM-108	\$631,950	
NM-109	\$883,893	
NM-110	\$452,263	
NM-111	\$258,228	
NM-112	\$0	
NM-113	\$143,313	
NM-115	\$596,720	
NM-116	\$134,467	
ES-102	\$8,820,196	\$8,878,551
ES-101	\$3,324,410	
SM-102	\$880,927	
SM-103	\$440,020	\$413,150
SM-104	\$913,504	
MC-100	\$1,742,893	
MC-101	\$0	

SUBTOTAL	\$22,951,890
25% CONTINGENCY	\$5,737,972
COE MDP TOTAL	\$28,689,862

CITY OF EDINBURG MASTER DRAINAGE PLAN - PROPOSED LATERAL SYSTEM IMPROVEMENTS
IMPROVEMENT COMPONENT COST ESTIMATE
NM-102 LATERAL SYSTEM

Improvement Description	Item Description	Unit	Unit Cost	Quantity	Item Cost
NM-102					
NEW BASIN (OPT 1)					
	EXCAVATION (DETENTION)	AC-FT	\$11,000	20	\$220,000
	RC PIPE (36 IN)	LF	\$160	150	\$24,000
	RIPRAP (CONCRETE)	CY	\$350	31	\$10,850
INLINE BASIN (OPT 2)					
	EXCAVATION (CHANNEL)	CY	\$7	292,000	\$2,044,000
CULVERT REPLACEMENT - ACCESS ROAD					
	CONC BOX CULV (10 FT X 6 FT)	LF	\$620	100	\$62,000
	WINGWALL (FW-0)(HW=7 FT)	EA	\$10,800	2	\$21,600
	EXCAVATION (ROAD)	CY	\$5	890	\$4,450
CULVERT REPLACEMENT - DENVER ROAD					
<i>ADDED PIPE</i>	RC PIPE (36 IN)	LF	\$150	93	\$13,950
	HEADWALL (CH-PW-O) (DIA= 36 IN)	EA	\$4,900	2	\$9,800
	CUT & RESTORE PAVEMENT	SY	\$60	67	\$4,000
UPSTREAM DITCH EXTENSION (NM-102-03)					
	EXCAVATION (CHANNEL)	CY	\$7	9,620	\$67,340
<i>BRENDA ST</i>	RC PIPE (36 IN)	LF	\$150	80	\$12,000
	HEADWALL (CH-PW-O) (DIA= 36 IN)	EA	\$4,900	2	\$9,800
	CUT & RESTORE PAVEMENT	SY	\$60	67	\$4,000
OPTION 1 SUBTOTAL					\$463,790
OPTION 2 SUBTOTAL					\$2,252,940

CITY OF EDINBURG MASTER DRAINAGE PLAN - PROPOSED LATERAL SYSTEM IMPROVEMENTS
IMPROVEMENT COMPONENT COST ESTIMATE
NM-103 & NM-104 LATERAL SYSTEMS

Improvement Description	Item Description	Unit	Unit Cost	Quantity	Item Cost
NM-103					
CULVERT REPLACEMENT - D/S ACCESS ROAD					
	CONC BOX CULV (10 FT X 6 FT)	LF	\$620	93	\$57,660
	WINGWALL (FW-0)(HW=7 FT)	EA	\$10,800	2	\$21,600
	CUT & RESTORE PAVEMENT	SY	\$60	67	\$4,000
CULVERT REPLACEMENT - MONTE CRISTO ST					
	CONC BOX CULV (10 FT X 6 FT)	LF	\$620	474	\$293,880
	WINGWALL (FW-S)(HW=7 FT)	EA	\$10,700	2	\$21,400
	CUT & RESTORE PAVEMENT	SY	\$60	1,100	\$66,000
CULVERT REPLACEMENT - ROGERS ROAD					
	CONC BOX CULV (8 FT X 6 FT)	LF	\$535	80	\$42,800
	WINGWALL (FW-0)(HW=7 FT)	EA	\$10,800	2	\$21,600
	CUT & RESTORE PAVEMENT	SY	\$60	80	\$4,800
CULVERT REPLACEMENT - UTILITY/ CANAL CROSSING					
	CONC BOX CULV (6 FT X 6 FT)	LF	\$400	72	\$28,800
	WINGWALL (FW-0)(HW=7 FT)	EA	\$10,800	2	\$21,600
	CUT & RESTORE PAVEMENT	SY	\$60	67	\$4,000
CULVERT REPLACEMENT - RUSSELL ROAD					
	RC PIPE (48 IN)	LF	\$300	72	\$21,600
	HEADWALL (CH-PW-O) (DIA= 48 IN)	EA	\$5,200	2	\$10,400
	CUT & RESTORE PAVEMENT	SY	\$60	67	\$4,000
NEW DITCH LATERAL - (OPTION 1)					
	EXCAVATION (CHANNEL)	CY	\$7	7,450	\$52,150
	RC PIPE (48 IN) - UNDER SUGAR RD	LF	\$300	80	\$24,000
	HEADWALL (CH-PW-O) (DIA= 48 IN)	EA	\$5,200	2	\$10,400
	CUT & RESTORE PAVEMENT	SY	\$60	67	\$4,000
NEW CULVERT CONNECTION TO STORMWATER BASIN - (OPTION 2)					
	RC PIPE (48 IN) - ALONG SUGAR RD	LF	\$300	850	\$255,000
	HEADWALL (CH-PW-O) (DIA= 48 IN)	EA	\$5,200	2	\$10,400
	CUT & RESTORE PAVEMENT	SY	\$60	133	\$8,000
	EXCAVATION (PIPE)	CY	\$5	2,596	\$12,978
NM-103 OPTION 1 SUBTOTAL					\$714,690
NM-103 OPTION 2 SUBTOTAL					\$910,518

Improvement Description	Item Description	Unit	Unit Cost	Quantity	Item Cost
NM-104					
STORMWATER BASIN NEW OUTFALL - (OPTION 1)					
	RC PIPE (48 IN) - UNDER CHAPIN ST	LF	\$300	560	\$168,000
	HEADWALL (CH-PW-O) (DIA= 48 IN)	EA	\$5,200	4	\$20,800
	CUT & RESTORE PAVEMENT	SY	\$60	67	\$4,000
ADDITIONAL STORMWATER BASIN - (OPTION 2)					
	EXCAVATION (DETENTION)	AC-FT	\$11,000	35	\$385,000
	RC PIPE (48 IN) - BASIN CONNECTION	LF	\$300	300	\$90,000
	RIPRAP (CONCRETE)	CY	\$350	220	\$77,000
	EXCAVATION (PIPE)	CY	\$5	600	\$3,000
NM-104 OPTION 1 SUBTOTAL					\$192,800
NM-104 OPTION 2 SUBTOTAL					\$555,000

CITY OF EDINBURG MASTER DRAINAGE PLAN - PROPOSED LATERAL SYSTEM IMPROVEMENTS
IMPROVEMENT COMPONENT COST ESTIMATE
NM-105 & NM-106 LATERAL SYSTEMS

Improvement Description	Item Description	Unit	Unit Cost	Quantity	Item Cost
NM-105					
CULVERT REPLACEMENT - MCCOLL RD					
	CONC BOX CULV (5 FT X 5 FT)	LF	\$295	124	\$36,580
	WINGWALL (FW-0)(HW=6 FT)	EA	\$7,500	2	\$15,000
	CUT & RESTORE PAVEMENT	SY	\$60	89	\$5,333
CULVERT REPLACEMENT - MONUMENT MACK RD					
	CONC BOX CULV (6 FT X 4 FT)	LF	\$300	90	\$27,000
	WINGWALL (FW-0)(HW=5 FT)	EA	\$5,000	2	\$10,000
	CUT & RESTORE PAVEMENT	SY	\$60	67	\$4,000
CULVERT REPLACEMENT - HOEHN RD					
	RC PIPE (48 IN)	LF	\$300	114	\$34,200
	HEADWALL (CH-PW-O) (DIA= 48 IN)	EA	\$5,200	2	\$10,400
	CUT & RESTORE PAVEMENT	SY	\$60	67	\$4,000
NEW DITCH LATERAL					
	EXCAVATION (CHANNEL)	CY	\$7	24,220	\$169,540
NM-105 SUBTOTAL					\$316,053

Improvement Description	Item Description	Unit	Unit Cost	Quantity	Item Cost
NM-106					
CULVERT REPLACEMENT - MCCOLL RD					
<i>ADDED PIPE</i>	RC PIPE (36 IN)	LF	\$150	108	\$16,200
	HEADWALL (CH-PW-O) (DIA= 36 IN)	EA	\$4,900	2	\$9,800
	CUT & RESTORE PAVEMENT	SY	\$60	89	\$5,333
CULVERT REPLACEMENT - RUSSELL ROAD					
<i>ADDED PIPE</i>	RC PIPE (36 IN)	LF	\$150	36	\$5,400
	HEADWALL (CH-PW-O) (DIA= 36 IN)	EA	\$4,900	2	\$9,800
	CUT & RESTORE PAVEMENT	SY	\$60	67	\$4,000
NEW DITCH LATERAL					
	EXCAVATION (CHANNEL)	CY	\$7	28,870	\$202,090
NM-106 SUBTOTAL					\$252,623

CITY OF EDINBURG MASTER DRAINAGE PLAN - PROPOSED LATERAL SYSTEM IMPROVEMENTS
IMPROVEMENT COMPONENT COST ESTIMATE
NM-108 & NM-109 LATERAL SYSTEMS

Improvement Description	Item Description	Unit	Unit Cost	Quantity	Item Cost
NM-108					
NEW DETENTION BASIN					
	EXCAVATION (DETENTION)	AC-FT	\$11,000	26	\$286,000
	RC PIPE (60 IN) - BASIN INFLOW	LF	\$350	400	\$140,000
	HEADWALL (CH-PW-O) (DIA= 60 IN)	EA	\$7,500	2	\$15,000
	RC PIPE (48 IN) - BASIN OUTFLOW	LF	\$300	400	\$120,000
	HEADWALL (CH-PW-O) (DIA= 48 IN)	EA	\$5,200	2	\$10,400
	RIPRAP (CONCRETE)	CY	\$350	173	\$60,550
NM-108 SUBTOTAL					\$631,950

Improvement Description	Item Description	Unit	Unit Cost	Quantity	Item Cost
NM-109					
CULVERT REPLACEMENT - JACKSON RD					
	RC PIPE (48 IN)	LF	\$300	940	\$282,000
	HEADWALL (CH-PW-O) (DIA= 48 IN)	EA	\$5,200	2	\$10,400
	CUT & RESTORE PAVEMENT	SY	\$60	1,822	\$109,333
NEW DETENTION BASIN					
	EXCAVATION (DETENTION)	AC-FT	\$11,000	26	\$286,000
	RC PIPE (48 IN) - BASIN CONNECTION	LF	\$300	300	\$90,000
	HEADWALL (CH-PW-O) (DIA= 48 IN)	EA	\$5,200	2	\$10,400
	RIPRAP (CONCRETE)	CY	\$350	150	\$52,500
	CUT & RESTORE PAVEMENT	SY	\$60	400	\$24,000
	EXCAVATION (PIPE)	CY	\$5	3,852	\$19,259
NM-109 SUBTOTAL					\$883,893

CITY OF EDINBURG MASTER DRAINAGE PLAN - PROPOSED LATERAL SYSTEM IMPROVEMENTS
IMPROVEMENT COMPONENT COST ESTIMATE
NM-110 & NM-112 LATERAL SYSTEMS

Improvement Description	Item Description	Unit	Unit Cost	Quantity	Item Cost
NM-110					
CULVERT REPLACEMENT - MCCOLL RD					
<i>EXTEND EXIST BOX</i>	CONC BOX CULV (8 FT X 4 FT)	LF	\$430	124	\$53,320
	WINGWALL (FW-0)(HW=6 FT)	EA	\$7,500	1	\$7,500
	CUT & RESTORE PAVEMENT	SY	\$60	133	\$8,000
CULVERT REPLACEMENT - UTILITY ACCESS					
	CONC BOX CULV (7 FT X 4 FT)	LF	\$405	90	\$36,450
	WINGWALL (FW-0)(HW=5 FT)	EA	\$5,000	2	\$10,000
	CUT & RESTORE PAVEMENT	SY	\$60	0	\$0
CULVERT REPLACEMENT - MONUMENT MACK RD					
	CONC BOX CULV (7 FT X 4 FT)	LF	\$405	90	\$36,450
	WINGWALL (FW-0)(HW=5 FT)	EA	\$5,000	2	\$10,000
	CUT & RESTORE PAVEMENT	SY	\$60	178	\$10,667
CULVERT REPLACEMENT - SAKER RD					
	RC PIPE (36 IN)	LF	\$150	152	\$22,800
	HEADWALL (CH-PW-O) (DIA= 36 IN)	EA	\$4,900	2	\$9,800
	CUT & RESTORE PAVEMENT	SY	\$60	58	\$3,467
NEW DITCH LATERAL					
	EXCAVATION (CHANNEL)	CY	\$7	20,610	\$144,270
DITCH EXTENSION					
	EXCAVATION (CHANNEL)	CY	\$7	14,220	\$99,540
NM-110 SUBTOTAL					\$452,263

Improvement Description	Item Description	Unit	Unit Cost	Quantity	Item Cost
NM-112					
--					--
NM-112 SUBTOTAL					\$0

CITY OF EDINBURG MASTER DRAINAGE PLAN - PROPOSED LATERAL SYSTEM IMPROVEMENTS
IMPROVEMENT COMPONENT COST ESTIMATE
NM-111 & NM-113 LATERAL SYSTEMS

Improvement Description	Item Description	Unit	Unit Cost	Quantity	Item Cost
NM-111					
DITCH EXTENSION					
	EXCAVATION (CHANNEL)	CY	\$7	2,840	\$19,880
CULVERT CONNECTOR - EISD PROPERTY					
	RC PIPE (60 IN)	LF	\$350	72	\$25,200
	HEADWALL (CH-PW-O) (DIA= 60 IN)	EA	\$7,500	2	\$15,000
	CUT & RESTORE PAVEMENT	SY	\$60	778	\$46,667
NEW DETENTION BASIN					
	EXCAVATION (DETENTION)	AC-FT	\$11,000	10	\$110,000
	RIPRAP (CONCRETE)	CY	\$350	119	\$41,481
NM-111 SUBTOTAL					\$258,228

Improvement Description	Item Description	Unit	Unit Cost	Quantity	Item Cost
NM-113					
CULVERT REPLACEMENT - JACKSON RD					
<i>ADDED BOX</i>	CONC BOX CULV (5 FT X 4 FT)	LF	\$260	280	\$72,800
	WINGWALL (FW-0)(HW=5 FT)	EA	\$5,000	2	\$10,000
	CUT & RESTORE PAVEMENT	SY	\$60	222	\$13,333
CULVERT REPLACEMENT - SUGAR RD					
	RC PIPE (42 IN)	LF	\$240	72	\$17,280
	HEADWALL (CH-PW-O) (DIA= 42 IN)	EA	\$5,000	2	\$10,000
	CUT & RESTORE PAVEMENT	SY	\$60	67	\$4,000
DESILT/ MAINTENANCE - CHANNEL					
	DITCH CLEANING & RESHAPING	LF	\$2	7,950	\$15,900
NM-113 SUBTOTAL					\$143,313

CITY OF EDINBURG MASTER DRAINAGE PLAN - PROPOSED LATERAL SYSTEM IMPROVEMENTS
IMPROVEMENT COMPONENT COST ESTIMATE
NM-115 & NM-116 LATERAL SYSTEMS

Improvement Description	Item Description	Unit	Unit Cost	Quantity	Item Cost
NM-115					
CULVERT REPLACEMENT - WISCONSIN					
<i>ADDED BOX</i>	CONC BOX CULV (7 FT X 8 FT)	LF	\$545	152	\$82,840
	WINGWALL (FW-0)(HW=9 FT)	EA	\$12,000	2	\$24,000
	CUT & RESTORE PAVEMENT	SY	\$60	267	\$16,000
CULVERT REPLACEMENT - ALBERTA					
<i>ADDED BOX</i>	CONC BOX CULV (8 FT X 9 FT)	LF	\$620	178	\$110,360
	WINGWALL (FW-0)(HW=10 FT)	EA	\$12,000	2	\$24,000
	CUT & RESTORE PAVEMENT	SY	\$60	80	\$4,800
CULVERT REPLACEMENT - UTILITY CROSSING					
<i>ADDED BOX</i>	CONC BOX CULV (8 FT X 7 FT)	LF	\$535	48	\$25,680
	WINGWALL (FW-0)(HW=8 FT)	EA	\$11,800	2	\$23,600
	CUT & RESTORE PAVEMENT	SY	\$60	80	\$4,800
CULVERT REPLACEMENT - DOVE					
<i>ADDED BOX</i>	CONC BOX CULV (7 FT X 6 FT)	LF	\$535	154	\$82,390
	WINGWALL (FW-0)(HW=7 FT)	EA	\$10,800	2	\$21,600
	CUT & RESTORE PAVEMENT	SY	\$60	160	\$9,600
CULVERT REPLACEMENT - UTILITY CROSSING					
<i>BOX REPLACEMENT</i>	CONC BOX CULV (10 FT X 8 FT)	LF	\$535	154	\$82,390
	WINGWALL (FW-0)(HW=9 FT)	EA	\$12,000	2	\$24,000
	CUT & RESTORE PAVEMENT	SY	\$60	0	\$0
CULVERT REPLACEMENT - UTILITY CROSSING					
<i>ADDED BOX</i>	CONC BOX CULV (6 FT X 4 FT)	LF	\$535	36	\$19,260
	WINGWALL (FW-0)(HW=5 FT)	EA	\$5,000	2	\$10,000
	CUT & RESTORE PAVEMENT	SY	\$60	0	\$0
CULVERT REPLACEMENT - UTILITY CROSSING					
<i>ADDED BOX</i>	CONC BOX CULV (6 FT X 4 FT)	LF	\$535	40	\$21,400
	WINGWALL (FW-0)(HW=5 FT)	EA	\$5,000	2	\$10,000
	CUT & RESTORE PAVEMENT	SY	\$60	0	\$0
NM-115 SUBTOTAL					\$596,720

Improvement Description	Item Description	Unit	Unit Cost	Quantity	Item Cost
NM-116					
CULVERT REPLACEMENT - WISCONSIN					
<i>CULVERT REPLACEMENT</i>	CONC BOX CULV (6 FT X 5 FT)	LF	\$340	320	\$108,800
	WINGWALL (FW-0)(HW=6 FT)	EA	\$7,500	2	\$15,000
	CUT & RESTORE PAVEMENT	SY	\$60	178	\$10,667
NM-116 SUBTOTAL					\$134,467

CITY OF EDINBURG MASTER DRAINAGE PLAN - PROPOSED LATERAL SYSTEM IMPROVEMENTS
IMPROVEMENT COMPONENT COST ESTIMATE
ES-102 LATERAL SYSTEM

Improvement Description	Item Description	Unit	Unit Cost	Quantity	Item Cost
ES-102 & ES-102-01					
CHANNELIZATION					
<i>ES-102-00</i>	EXCAVATION (CHANNEL)	CY	\$7	47,304	\$331,128
<i>ES-102-01</i>	EXCAVATION (CHANNEL)	CY	\$7	74,061	\$518,427
CULVERT REPLACEMENT - ACCESS RD					
<i>REPLACEMENT</i>	CONC BOX CULV (8 FT X 5 FT)	LF	\$525	94	\$49,350
	WINGWALL (FW-0)(HW=6 FT)	EA	\$7,500	2	\$15,000
	CUT & RESTORE PAVEMENT	SY	\$60	80	\$4,800
CULVERT REPLACEMENT - RAUL LONGORIA					
<i>REPLACEMENT</i>	CONC BOX CULV (8 FT X 5 FT)	LF	\$525	157	\$82,425
	WINGWALL (FW-0)(HW=6 FT)	EA	\$7,500	2	\$15,000
	CUT & RESTORE PAVEMENT	SY	\$60	267	\$16,000
CULVERT REPLACEMENT - DOOLITTLE					
<i>REPLACEMENT</i>	CONC BOX CULV (8 FT X 5 FT)	LF	\$525	420	\$220,500
	WINGWALL (FW-0)(HW=6 FT)	EA	\$7,500	2	\$15,000
	CUT & RESTORE PAVEMENT	SY	\$60	80	\$4,800
ES-100					
CULVERT REPLACEMENT - DOOLITTLE					
<i>BOX REPLACEMENT</i>	CONC BOX CULV (10 FT X 10 FT)	LF	\$845	84	\$70,980
	WINGWALL (FW-0)(HW=10 FT)	EA	\$12,000	2	\$24,000
	CUT & RESTORE PAVEMENT	SY	\$60	100	\$6,000
CULVERT REPLACEMENT - RAUL LONGORIA					
<i>BOX REPLACEMENT</i>	CONC BOX CULV (10 FT X 10 FT)	LF	\$845	147	\$124,215
	WINGWALL (FW-0)(HW=10 FT)	EA	\$12,000	2	\$24,000
	CUT & RESTORE PAVEMENT	SY	\$60	333	\$20,000
ES-102 & ES-102-01 BASIN OPTION 1					
NEW DETENTION BASIN					
	EXCAVATION (DETENTION)	AC-FT	\$11,000	500	\$5,500,000
	RIPRAP (CONCRETE)	CY	\$350	474	\$165,926
<i>BASIN OUTFALL</i>	RC PIPE (60 IN)	LF	\$350	3,020	\$1,057,000
	HEADWALL (CH-PW-O) (DIA= 60 IN)	EA	\$7,500	2	\$15,000
CHANNELIZATION					
<i>EDINBURG STUB</i>	EXCAVATION (CHANNEL)	CY	\$7	57,285	\$400,995
<i>SOUTH MAIN DRAIN</i>	EXCAVATION (CHANNEL)	CY	\$7	19,950	\$139,650
ES-102 & ES-102-01 BASIN OPTION 2					
NEW DETENTION BASIN					
	EXCAVATION (DETENTION)	AC-FT	\$11,000	500	\$5,500,000
	RIPRAP (CONCRETE)	CY	\$350	474	\$165,926
<i>BASIN OUTFALL</i>	RC PIPE (48 IN)	LF	\$300	3,020	\$906,000
	HEADWALL (CH-PW-O) (DIA= 48 IN)	EA	\$7,500	2	\$15,000
<i>PUMP STATION</i>	SUBMERSIBLE PUMP & CONTROLS	EA	\$750,000	1	\$750,000
ES-102 OPTION 1 SUBTOTAL					\$8,820,196
ES-102 OPTION 2 SUBTOTAL					\$8,878,551

CITY OF EDINBURG MASTER DRAINAGE PLAN - PROPOSED LATERAL SYSTEM IMPROVEMENTS
IMPROVEMENT COMPONENT COST ESTIMATE
ES-101 LATERAL SYSTEM

Improvement Description	Item Description	Unit	Unit Cost	Quantity	Item Cost
ES-101					
DESILT/ MAINTENANCE - CHANNEL					
	DITCH CLEANING & RESHAPING	LF	\$2	4,190	\$8,380
CULVERT CONNECTION (DIVERSION TO BASIN)					
	RC PIPE (60 IN)	LF	\$350	2,060	\$721,000
	HEADWALL (CH-PW-O) (DIA= 60 IN)	EA	\$7,500	2	\$15,000
<i>S 18TH AVE</i>	CUT & RESTORE PAVEMENT	SY	\$60	156	\$9,333
	EXCAVATION (PIPE)	CY	\$7	12,207	\$85,452
DETENTION BASIN					
	EXCAVATION (DETENTION)	AC-FT	\$11,000	90	\$990,000
	RIPRAP (CONCRETE)	CY	\$350	304	\$106,296
CULVERT CONNECTION (BASIN TO BASIN)					
	RC PIPE (48 IN)	LF	\$300	2,600	\$780,000
	HEADWALL (CH-PW-O) (DIA= 48 IN)	EA	\$5,200	2	\$10,400
<i>CANTON AVE</i>	CUT & RESTORE PAVEMENT	SY	\$60	133	\$8,000
	EXCAVATION (PIPE)	CY	\$7	15,407	\$107,852
DETENTION BASIN					
<i>EXIST DEPRESSED AREA</i>	EXCAVATION (DETENTION)	AC-FT	\$11,000	30	\$330,000
	RIPRAP (CONCRETE)	CY	\$350	304	\$106,296
<i>OUTFALL TO SMD</i>	RC PIPE (48 IN)	LF	\$300	120	\$36,000
	HEADWALL (CH-PW-O) (DIA= 48 IN)	EA	\$5,200	2	\$10,400
ES-101 SUBTOTAL					\$3,324,410

CITY OF EDINBURG MASTER DRAINAGE PLAN - PROPOSED LATERAL SYSTEM IMPROVEMENTS
IMPROVEMENT COMPONENT COST ESTIMATE
SM-102 LATERAL SYSTEM

Improvement Description	Item Description	Unit	Unit Cost	Quantity	Item Cost
SM-102					
DITCH EXTENSION & NEW LATERALS					
	EXCAVATION (CHANNEL)	CY	\$7	57,523	\$402,661
<i>TRENTON CROSSING</i>	RC PIPE (48 IN)	LF	\$300	690	\$207,000
	HEADWALL (CH-PW-O) (DIA= 48 IN)	EA	\$5,200	2	\$10,400
	CUT & RESTORE PAVEMENT	SY	\$60	222	\$13,333
	EXCAVATION (PIPE)	CY	\$7	3,733	\$26,133
<i>ALBERTA CROSSING</i>	RC PIPE (48 IN)	LF	\$300	690	\$207,000
	HEADWALL (CH-PW-O) (DIA= 48 IN)	EA	\$5,200	2	\$10,400
	CUT & RESTORE PAVEMENT	SY	\$60	67	\$4,000
SM-102 SUBTOTAL					\$880,927

**CITY OF EDINBURG MASTER DRAINAGE PLAN - PROPOSED LATERAL SYSTEM IMPROVEMENTS
IMPROVEMENT COMPONENT COST ESTIMATE**

SM-103 LATERAL SYSTEM

Improvement Description	Item Description	Unit	Unit Cost	Quantity	Item Cost
SM-103					
NEW DETENTION BASIN - (OPTION 1)					
	EXCAVATION (DETENTION)	AC-FT	\$11,000	20	\$220,000
	RC PIPE (48 IN) - BASIN CONNECTIONS	LF	\$300	350	\$105,000
	HEADWALL (CH-PW-O) (DIA= 48 IN)	EA	\$5,200	1	\$5,200
	RIPRAP (CONCRETE)	CY	\$350	237	\$82,950
NEW OUTFALL DITCH - (OPTION 2)					
<i>OUTFALL TO SMD</i>	EXCAVATION (CHANNEL)	CY	\$7	17,860	\$125,020
<i>CONNECT TO ES-101 SYS.</i>	RC PIPE (48 IN)	LF	\$300	1,050	\$315,000
SM-103 OPTION 1 SUBTOTAL					\$413,150
SM-103 OPTION 2 SUBTOTAL					\$440,020

CITY OF EDINBURG MASTER DRAINAGE PLAN - PROPOSED LATERAL SYSTEM IMPROVEMENTS
IMPROVEMENT COMPONENT COST ESTIMATE
SM-104 LATERAL SYSTEM

Improvement Description	Item Description	Unit	Unit Cost	Quantity	Item Cost
SM-104					
NEW DETENTION BASIN					
	EXCAVATION (DETENTION)	AC-FT	\$11,000	10	\$110,000
	RIPRAP (CONCRETE)	CY	\$350	111	\$38,889
<i>BASIN CONNECTION</i>	RC PIPE (48 IN)	LF	\$300	350	\$105,000
	HEADWALL (CH-PW-O) (DIA= 48 IN)	EA	\$5,200	2	\$10,400
NEW OUTFALL SYSTEM					
	EXCAVATION (CHANNEL)	CY	\$7	17,126	\$119,881
<i>CULVERT CONNECTION</i>	CONC BOX CULV (6 FT X 4 FT)	LF	\$300	1,060	\$318,000
	WINGWALL (FW-0)(HW=5 FT)	EA	\$5,000	2	\$10,000
	EXCAVATION (BOX)	CY	\$7	4,385	\$30,696
<i>DRIVEWAY</i>	CUT & RESTORE PAVEMENT	SY	\$60	44	\$2,667
<i>CANTON</i>	CUT & RESTORE PAVEMENT	SY	\$60	111	\$6,667
<i>RAUL LONGORIA</i>	CUT & RESTORE PAVEMENT	SY	\$60	222	\$13,333
	EXCAVATION (CHANNEL)	CY	\$7	11,081	\$77,570
<i>OUTFALL TO SMD</i>	RC PIPE (48 IN) - 2 PIPES	LF	\$300	200	\$60,000
	HEADWALL (CH-PW-O) (DIA= 48 IN)	EA	\$5,200	2	\$10,400
SM-104 SUBTOTAL					\$913,504

CITY OF EDINBURG MASTER DRAINAGE PLAN - PROPOSED LATERAL SYSTEM IMPROVEMENTS
IMPROVEMENT COMPONENT COST ESTIMATE
MC-100 & MC-101 LATERAL SYSTEMS

Improvement Description	Item Description	Unit	Unit Cost	Quantity	Item Cost
MC-100					
NEW LATERAL DITCH & CONNECTION					
	EXCAVATION (CHANNEL)	CY	\$7	39,087	\$273,612
	CONC BOX CULV (5 FT X 4 FT)	LF	\$260	5,435	\$1,413,100
	WINGWALL (FW-0)(HW=5 FT)	EA	\$5,000	2	\$10,000
	EXCAVATION (BOX)	CY	\$7	4,026	\$28,181
<i>ROGERS RD</i>	CUT & RESTORE PAVEMENT	SY	\$60	67	\$4,000
<i>ADAMS LN</i>	CUT & RESTORE PAVEMENT	SY	\$60	67	\$4,000
<i>MINNIE LN</i>	CUT & RESTORE PAVEMENT	SY	\$60	67	\$4,000
<i>DOOLITTLE</i>	CUT & RESTORE PAVEMENT	SY	\$60	100	\$6,000
MC-100 SUBTOTAL					\$1,742,893

Improvement Description	Item Description	Unit	Unit Cost	Quantity	Item Cost
MC-101					
--					--
MC-101 SUBTOTAL					\$0

COE MDP - IMPROVEMENT COMPONENT COST ESTIMATE
UNIT COST ITEMIZATION

Item	Unit	Cost
PIPE CULVERTS		
RC PIPE (24 IN)	LF	\$80
RC PIPE (30 IN)	LF	\$120
RC PIPE (36 IN)	LF	\$150
RC PIPE (42 IN)	LF	\$240
RC PIPE (48 IN)	LF	\$300
RC PIPE (54 IN)	LF	\$325
RC PIPE (60 IN)	LF	\$350
RC PIPE (72 IN)	LF	\$400
BOX CULVERT		
CONC BOX CULV (5 FT X 4 FT)	LF	\$260
CONC BOX CULV (5 FT X 5 FT)	LF	\$295
CONC BOX CULV (6 FT X 4 FT)	LF	\$300
CONC BOX CULV (6 FT X 5 FT)	LF	\$340
CONC BOX CULV (6 FT X 6 FT)	LF	\$400
CONC BOX CULV (7 FT X 4 FT)	LF	\$405
CONC BOX CULV (7 FT X 7 FT)	LF	\$525
CONC BOX CULV (8 FT X 4 FT)	LF	\$430
CONC BOX CULV (8 FT X 5 FT)	LF	\$525
CONC BOX CULV (8 FT X 6 FT)	LF	\$535
CONC BOX CULV (8 FT X 7 FT)	LF	\$545
CONC BOX CULV (8 FT X 8 FT)	LF	\$560
CONC BOX CULV (10 FT X 6 FT)	LF	\$620
CONC BOX CULV (10 FT X 8 FT)	LF	\$730
CONC BOX CULV (10 FT X 10 FT)	LF	\$845
WINGWALLS		
WINGWALL (FW-0)(HW=5 FT)	EA	\$5,000
WINGWALL (FW-0)(HW=6 FT)	EA	\$7,500
WINGWALL (FW-0)(HW=7 FT)	EA	\$10,800
WINGWALL (FW-S)(HW=7 FT)	EA	\$10,700
WINGWALL (FW-0)(HW=8 FT)	EA	\$11,800
WINGWALL (FW-0)(HW=9 FT)	EA	\$12,000
WINGWALL (FW-0)(HW=10 FT)	EA	\$12,000
HEADWALLS		
HEADWALL (CH-PW-O) (DIA= 36 IN)	EA	\$4,900
HEADWALL (CH-PW-O) (DIA= 42 IN)	EA	\$5,000
HEADWALL (CH-PW-O) (DIA= 48 IN)	EA	\$5,200
HEADWALL (CH-PW-O) (DIA= 60 IN)	EA	\$7,500
CONCRETE SLOPE PAVING		
RIPRAP (CONC)	CY	\$350
ROAD CULVERT REPLACEMENT		
CUT & RESTORE PAVEMENT	SY	\$60
TRENCH PROTECTION	LF	\$2
EXCAVATION (ROAD)	CY	\$5
EXCAVATION		
EXCAVATION (DETENTION)	AC-FT	\$11,000
EXCAVATION (CHANNEL)	CY	\$7

C&R PAVT COST IS REPRESENTATIVE
OF PAVT, EXCAVATION, TRENCH
PROTECTION

= \$7 /CY

APPENDIX E
BENEFIT-COST ANALYSIS

INDIVIDUAL PROJECT ANALYSIS DETAILS
&
FEMA BCA TOOL DETAIL OUTPUT REPORT

BENEFIT-COST ANALYSIS SUMMARY

City of Edinburg Master Drainage Plan
Benefit-Cost Analysis Summary

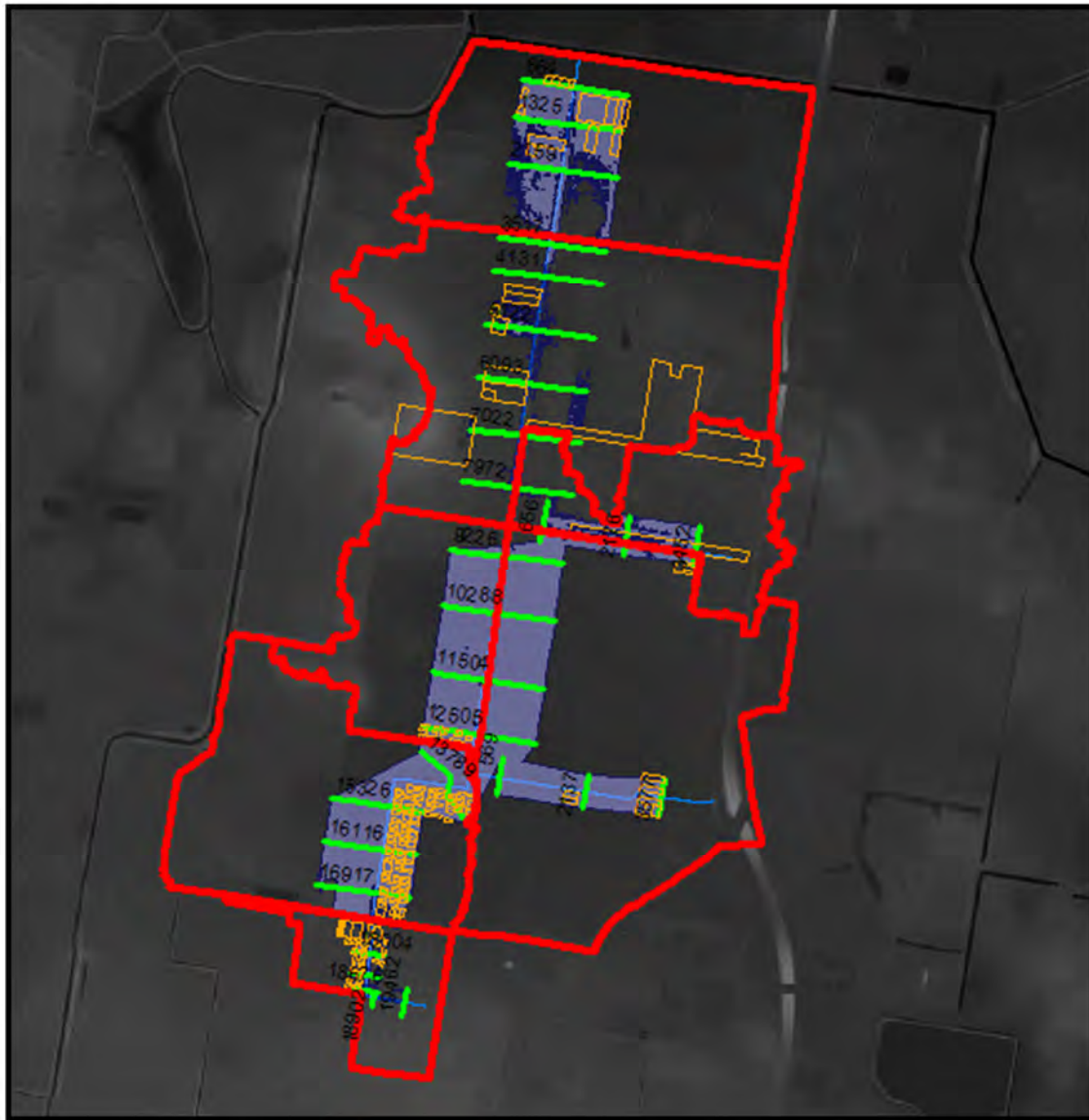
A benefit-cost analysis was performed for each individual drainage system and the entire project using FEMA Benefit-Cost Analysis (BCA) Tool (v5.0). The BCR values for the project systems ranged from 0.89 to 8.10 with a resulting overall Benefit-Cost Ratio (BCR) for the entire Master Drainage Plan project computed as 2.99. The economic benefits are defined as the expected flood loss reduction due to the flood water surface elevation reduction from the proposed drainage improvements based on 10-, 50-, 100-, and 500-year storm events. The U.S. Army Corps of Engineers' generic depth-damage curves were utilized for this analysis.

Since this is a planning level of project, representative structures were used in the model with the cost per square foot applied to the total number of structures multiplied by the average structure square footage. Due to the level of commercial property within the ES100 lateral system drainage area, the benefit analysis for this system utilized residential and non-residential representative structure values to determine the benefit ratio.

PROJECT NAME: COE_MDP01										PROJECT BCR: 2.99
Project Structures Summary										
Name	Struct	Benefit	Costs	BCR	Address	City	State	County	Zip	
ES100NR	Building	\$2,814.9	\$2,743,057	1.03		Edinburg	Texas	Hidalgo		
ES100R	Building	\$34,420.	\$9,401,549	3.66		Edinburg	Texas	Hidalgo		
NM102	Building	\$2,587.6	\$2,252,940	1.15		Edinburg	Texas	Hidalgo		
NM103	Building	\$1,888.7	\$714,690	2.64		Edinburg	Texas	Hidalgo		
NM105	Building	\$372.30	\$316,053	1.18		Edinburg	Texas	Hidalgo		
NM106	Building	\$1,069.4	\$252,623	4.23		Edinburg	Texas	Hidalgo		
NM108	Building	\$5,103.5	\$631,950	8.08		Edinburg	Texas	Hidalgo		
NM109	Building	\$787.07	\$883,893	0.89		Edinburg	Texas	Hidalgo		
NM110	Building	\$2,962.0	\$452,263	6.55		Edinburg	Texas	Hidalgo		
NM111	Building	\$387.07	\$258,228	1.50		Edinburg	Texas	Hidalgo		
NM113	Building	\$1,160.9	\$143,313	8.10		Edinburg	Texas	Hidalgo		
NM115	Building	\$2,033.9	\$596,720	3.41		Edinburg	Texas	Hidalgo		
NM116	Building	\$538.21	\$134,467	4.00		Edinburg	Texas	Hidalgo		

21 Jan 2015	Project: COE_MDP01			
Total Benefits: \$56,126,434	Total Costs: \$18,781,746	BCR:	2.99	
Project Number:	Disaster #:	Program:	Agency:	
State:	Point of Contact:	Analyst:		

BENEFIT-COST ANALYSIS SUMMARY



Number of developed parcels = 209 (500-yr Floodplain)
 Average Improvement Value = \$46,313
 Average sqft (living area) = 1000 sqft.
 Average of Min LiDAR Elevation at properties = 85.22 ft.
 Average FFE = 85.72 ft.
 BCA flood profile based on average WSEL for all cross sections.

NM102, Edinburg, Texas, , Hidalgo

Structure Type: Building
 Benefits: \$2,587,637

Historic Building: No
 Costs: \$2,252,940

Contact:
 BCR: 1.15

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	1.15	\$2,587,637	\$2,252,940

NM-103 Benefit Cost Analysis Assumptions



Number of developed parcels = 320 (500yr Floodplain)
 Average Improvement Value = \$95,384
 Average sqft (living area) = 1500 sqft.
 Average of Min LiDAR Elevation at properties = 91.10 ft.
 Average FFE = 91.60 ft.
 BCA flood profile based on average WSEL for all cross sections.

NM103, Edinburg, Texas, , Hidalgo

Structure Type: Building

Historic Building: No

Contact:

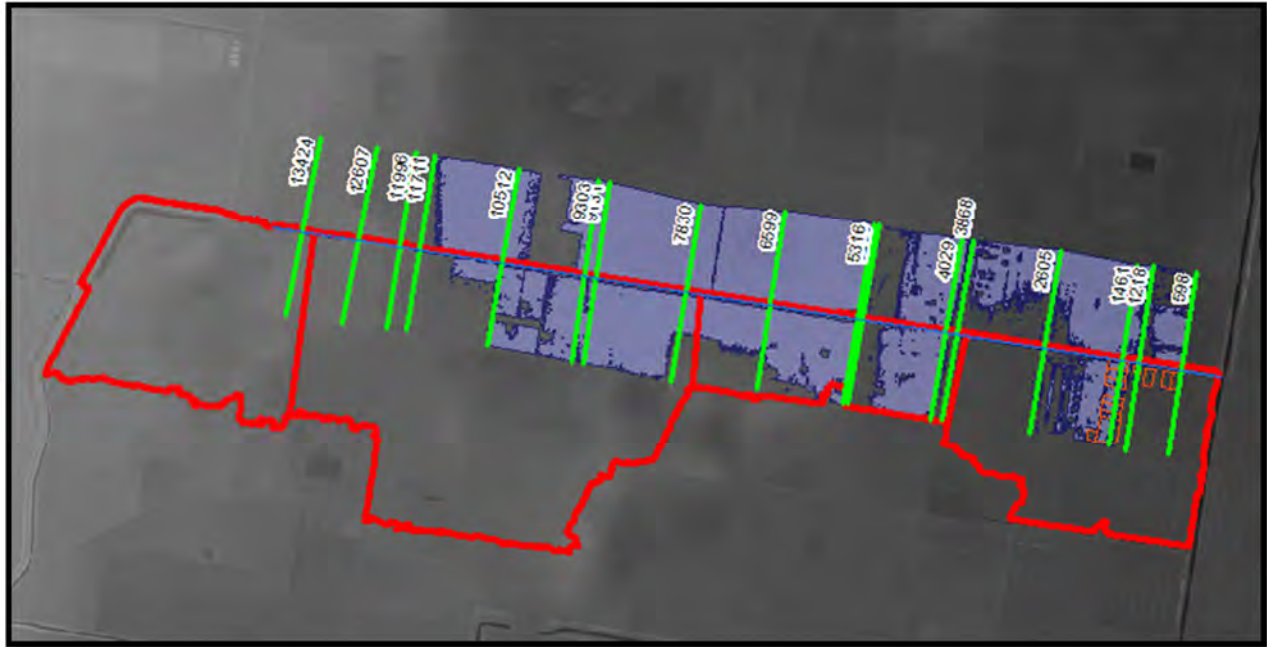
Benefits: \$1,888,765

Costs: \$714,690

BCR: 2.64

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	2.64	\$1,888,765	\$714,690

NM-105 Benefit Cost Analysis Assumptions



Number of developed parcels = 12 (500yr Floodplain)
 Average Improvement Value = \$52,504
 Average sqft (living area) = 1500 sqft.
 Average of Min LiDAR Elevation at properties = 91.19 ft.
 Average FFE = 91.69 ft.
 BCA flood profile based on average WSEL for cross section at Sta 1461.

NM105, Edinburg, Texas, , Hidalgo

Structure Type: Building

Historic Building: No

Contact:

Benefits: \$372,305

Costs: \$316,053

BCR: 1.18

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	1.18	\$372,305	\$316,053

NM-106 Benefit Cost Analysis Assumptions



Number of parcels = 232 (500yr Floodplain)
 Average Improvement Value = \$96,000 (HCAD Online)
 Average sqft (living area) = 1500 sqft.
 Average of Min LiDAR Elevation at properties = 94.15 ft.
 Average FFE = 94.65 ft.
 BCA flood profile based on average WSEL for cross section Sta 3830 – Sta 1391.

NM106, Edinburg, Texas, , Hidalgo

Structure Type: Building

Historic Building: No

Contact:

Benefits: \$1,069,435

Costs: \$252,623

BCR: 4.23

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	4.23	\$1,069,435	\$252,623

NM-108 Benefit Cost Analysis Assumptions



Number of parcels = 64 (500yr Floodplain)
 Average Improvement Value = \$60,000 (HCAD Online)
 Average sqft (living area) = 2000 sqft.
 Average of Min LiDAR Elevation at properties = 94.97 ft.
 Average FFE = 94.97 ft.
 BCA flood profile based on average WSEL for all cross sections.

NM108, Edinburg, Texas, , Hidalgo

Structure Type: Building

Historic Building: No

Contact:

Benefits: \$5,103,509

Costs: \$631,950

BCR: 8.08

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	8.08	\$5,103,509	\$631,950

NM-109 Benefit Cost Analysis Assumptions



Number of parcels = 63 (500yr Floodplain)

Average Improvement Value = \$200,000 (HCAD Online)

Average sqft (living area) = 16,000 sqft. (Apartment Buildings)

Average of Min LiDAR Elevation at properties = 95.88 ft.

Average FFE = 95.88 ft.

BCA flood profile based on average WSEL for cross section Sta 2536 – Sta 1516.

NM109, Edinburg, Texas, , Hidalgo

Structure Type: Building
Benefits: \$787,070

Historic Building: No
Costs: \$883,893

Contact:
BCR: 0.89

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	0.89	\$787,070	\$883,893

NM-110 Benefit Cost Analysis Assumptions



Number of parcels = 221 (500yr Floodplain)
 Average Improvement Value = \$148,572
 Average sqft (living area) = 2,500 sqft.
 Average of Min LiDAR Elevation at properties = 97.80 ft.
 Average FFE = 98.30 ft.
 BCA flood profile based on average WSEL for all cross sections.

NM110, Edinburg, Texas, , Hidalgo

Structure Type: Building

Historic Building: No

Contact:

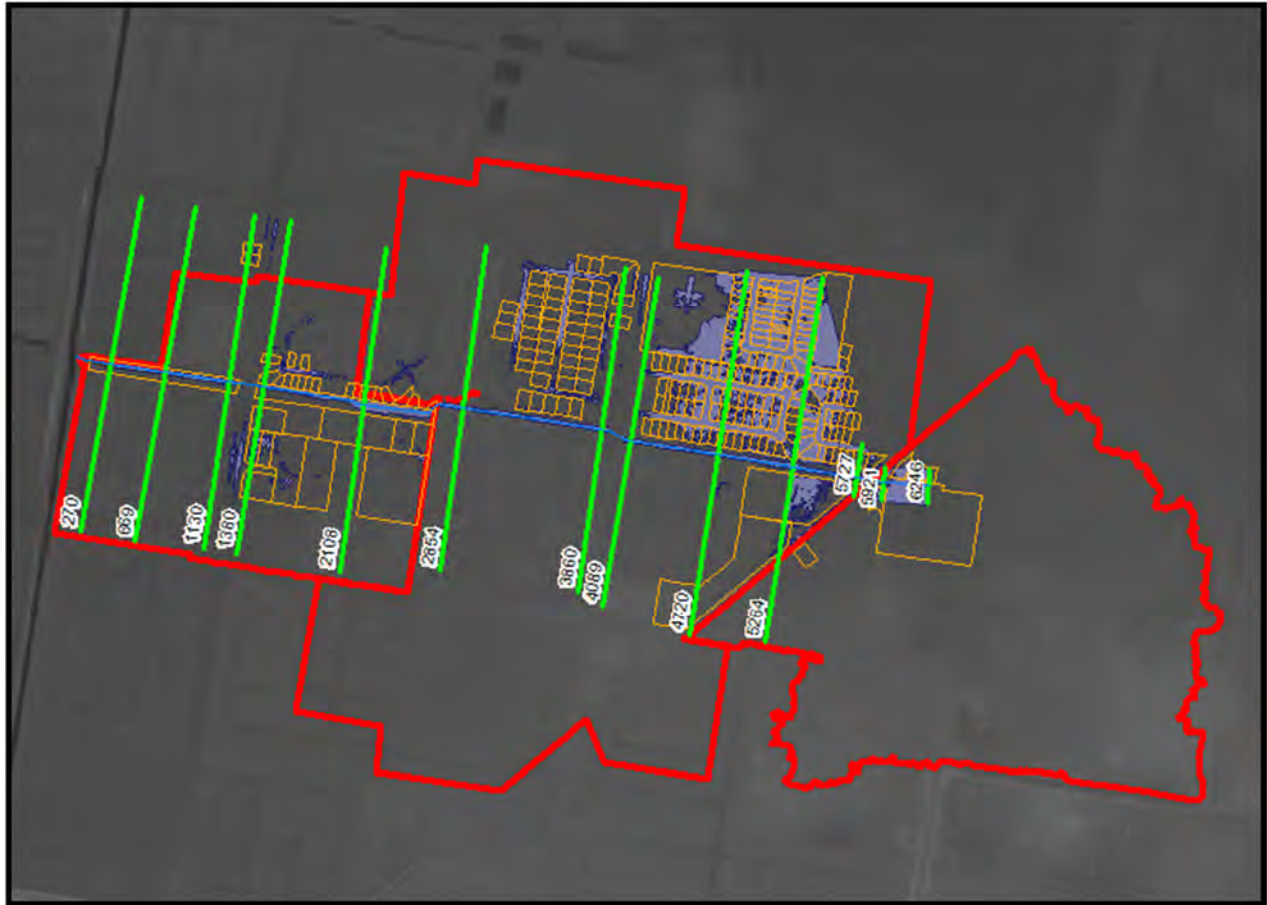
Benefits: \$2,962,055

Costs: \$452,263

BCR: 6.55

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	6.55	\$2,962,055	\$452,263

NM-111 Benefit Cost Analysis Assumptions



Number of parcels = 251 (500yr Floodplain)

Average Improvement Value = \$90,000 (HCAD Online)

Average sqft (living area) = 2,000 sqft.

Average of Min LiDAR Elevation at properties = 96.41 ft.

Average FFE = 96.91 ft.

BCA flood profile based on average WSEL for cross section Sta 6246 – Sta 1130.

NM111, Edinburg, Texas, , Hidalgo

Structure Type: Building

Historic Building: No

Contact:

Benefits: \$387,074

Costs: \$258,228

BCR: 1.50

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	1.50	\$387,074	\$258,228

NM-113 Benefit Cost Analysis Assumptions



Number of parcels = 289 (500yr Floodplain)
 Average Improvement Value = \$120,000 (HCAD Online)
 Average sqft (living area) = 2,750 sqft.
 Average of Min LiDAR Elevation at properties = 98.93 ft.
 Average FFE = 99.93 ft.
 BCA flood profile based on average WSEL for all cross sections.

NM113, Edinburg, Texas, Hidalgo

Structure Type: Building

Historic Building: No

Contact:

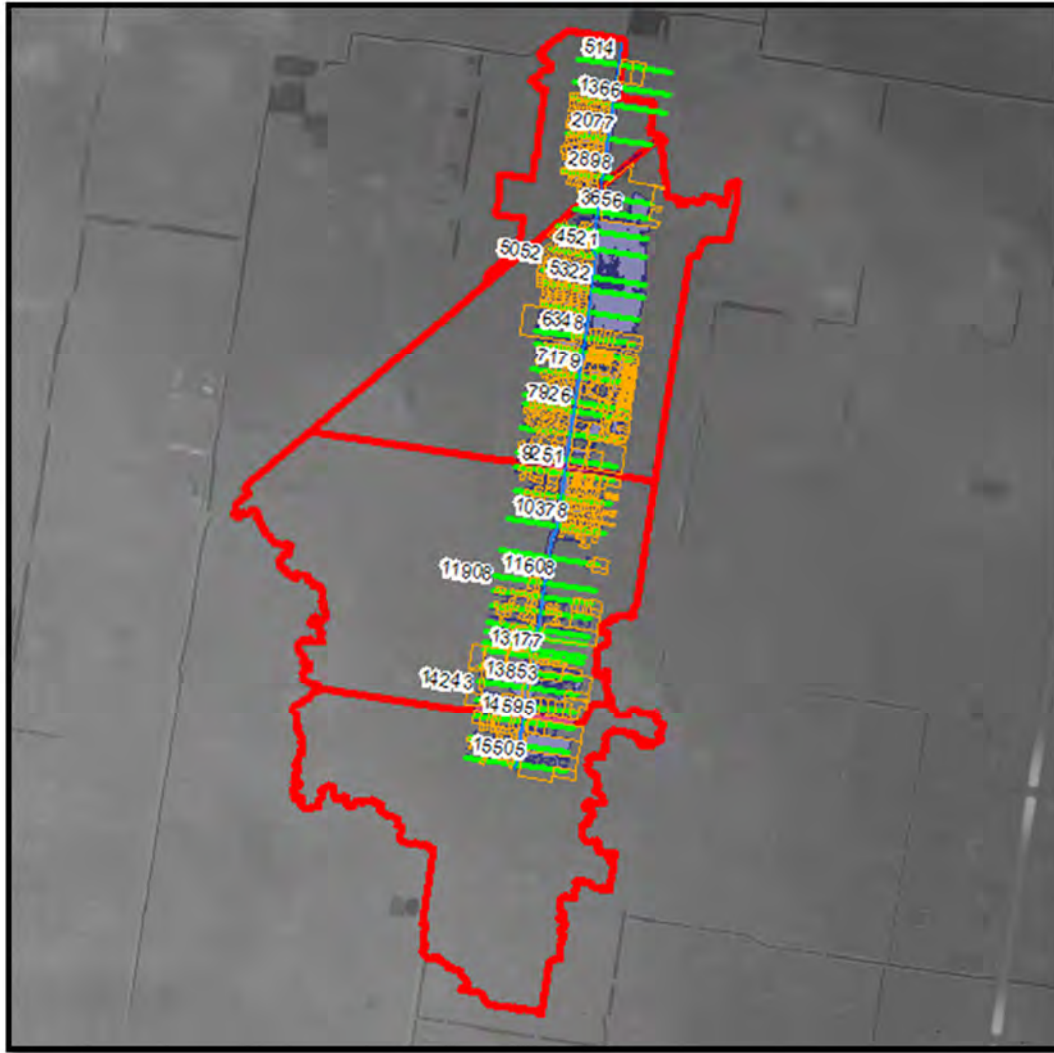
Benefits: \$1,160,902

Costs: \$143,313

BCR: 8.10

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	8.10	\$1,160,902	\$143,313

NM-115 Benefit Cost Analysis Assumptions



- Number of parcels = 718 (500yr Floodplain)
- Average Improvement Value = \$165,000 (HCAD Online)
- Average sqft (living area) = 3,000 sqft.
- Average of Min LiDAR Elevation at properties = 108.50 ft.
- Average FFE = 109.00 ft.
- BCA flood profile based on average WSEL for all cross sections.

NM115, Edinburg, Texas, , Hidalgo

Structure Type: Building

Historic Building: No

Contact:

Benefits: \$2,033,922

Costs: \$596,720

BCR: 3.41

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	3.41	\$2,033,922	\$596,720

NM-116 Benefit Cost Analysis Assumptions



Number of parcels = 117 (500yr Floodplain)
 Average Improvement Value = \$200,000 (HCAD Online)
 Average sqft (living area) = 3,000 sqft.
 Average of Min LiDAR Elevation at properties = 105.80 ft.
 Average FFE = 106.30 ft.
 BCA flood profile based on average WSEL for all cross sections.

NM116, Edinburg, Texas, , Hidalgo

Structure Type: Building
 Benefits: \$538,217

Historic Building: No
 Costs: \$134,467

Contact:
 BCR: 4.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	4.00	\$538,217	\$134,467

ES-100 (Residential) Benefit Cost Analysis Assumptions



- Number of parcels = 2039 (500yr Floodplain)
- Number of parcels = 5429 (Watershed)
- Average Improvement Value = \$50,000 (HCAD Online)
- Average sqft (living area) = 2,000 sqft.
- Average of Min LiDAR Elevation at properties = 91.32 ft.
- Average FFE = 91.82 ft.
- BCA flood profile based on average WSEL for all cross sections.

ES100R, Edinburg, Texas, , Hidalgo

Structure Type: Building Historic Building: No Contact:
 Benefits: \$34,420,582 Costs: \$9,401,549 BCR: 3.66

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	3.66	\$34,420,582	\$9,401,549

ES-100 (Non-Residential/Commercial) Benefit Cost Analysis Assumptions



Number of parcels = 396 (Watershed)
 Average Improvement Value = \$200,000 (HCAD Online)
 Average sqft (living area) = 2,000 sqft.
 Average of Min LiDAR Elevation at properties = 94.77 ft.
 Average FFE = 94.77 ft.
 BCA flood profile based on average WSEL for all cross sections.

ES100NR, Edinburg, Texas, , Hidalgo

Structure Type: Building Historic Building: No Contact:
 Benefits: \$2,814,961 Costs: \$2,743,057 BCR: 1.03

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	1.03	\$2,814,961	\$2,743,057

21 Jan 2015

Project: **COE_MDP01**

Pg 1 of 121

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Project Summary:

Project Number:

Disaster #:

Program:

Agency:

Analyst:

Point of Contact:

Phone Number:

Address:

Email:

Comments:

Structure Summary For:

ES100NR, Edinburg, Texas, , Hidalgo

Structure Type: Building

Historic Building: No

Contact:

Benefits: \$2,814,961

Costs: \$2,743,057

BCR: 1.03

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	1.03	\$2,814,961	\$2,743,057

ES100R, Edinburg, Texas, , Hidalgo

Structure Type: Building

Historic Building: No

Contact:

Benefits: \$34,420,582

Costs: \$9,401,549

BCR: 3.66

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	3.66	\$34,420,582	\$9,401,549

21 Jan 2015

Project: **COE_MDP01**

Pg 2 of 121

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

NM102, Edinburg, Texas, , Hidalgo

Structure Type: Building

Historic Building: No

Contact:

Benefits: \$2,587,637

Costs: \$2,252,940

BCR: 1.15

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	1.15	\$2,587,637	\$2,252,940

NM103, Edinburg, Texas, , Hidalgo

Structure Type: Building

Historic Building: No

Contact:

Benefits: \$1,888,765

Costs: \$714,690

BCR: 2.64

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	2.64	\$1,888,765	\$714,690

NM105, Edinburg, Texas, , Hidalgo

Structure Type: Building

Historic Building: No

Contact:

Benefits: \$372,305

Costs: \$316,053

BCR: 1.18

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	1.18	\$372,305	\$316,053

NM106, Edinburg, Texas, , Hidalgo

Structure Type: Building

Historic Building: No

Contact:

Benefits: \$1,069,435

Costs: \$252,623

BCR: 4.23

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	4.23	\$1,069,435	\$252,623

21 Jan 2015

Project: **COE_MDP01**

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Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

NM108, Edinburg, Texas, , Hidalgo

Structure Type: Building

Historic Building: No

Contact:

Benefits: \$5,103,509

Costs: \$631,950

BCR: 8.08

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	8.08	\$5,103,509	\$631,950

NM109, Edinburg, Texas, , Hidalgo

Structure Type: Building

Historic Building: No

Contact:

Benefits: \$787,070

Costs: \$883,893

BCR: 0.89

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	0.89	\$787,070	\$883,893

NM110, Edinburg, Texas, , Hidalgo

Structure Type: Building

Historic Building: No

Contact:

Benefits: \$2,962,055

Costs: \$452,263

BCR: 6.55

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	6.55	\$2,962,055	\$452,263

NM111, Edinburg, Texas, , Hidalgo

Structure Type: Building

Historic Building: No

Contact:

Benefits: \$387,074

Costs: \$258,228

BCR: 1.50

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	1.50	\$387,074	\$258,228

21 Jan 2015

Project: **COE_MDP01**

Pg 4 of 121

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

NM113, Edinburg, Texas, , Hidalgo

Structure Type: Building

Historic Building: No

Contact:

Benefits: \$1,160,902

Costs: \$143,313

BCR: 8.10

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	8.10	\$1,160,902	\$143,313

NM115, Edinburg, Texas, , Hidalgo

Structure Type: Building

Historic Building: No

Contact:

Benefits: \$2,033,922

Costs: \$596,720

BCR: 3.41

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	3.41	\$2,033,922	\$596,720

NM116, Edinburg, Texas, , Hidalgo

Structure Type: Building

Historic Building: No

Contact:

Benefits: \$538,217

Costs: \$134,467

BCR: 4.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	4.00	\$538,217	\$134,467

21 Jan 2015

Project: **COE_MDP01**

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Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Structure and Mitigation Details For: ES100NR, Edinburg, Texas, , Hidalgo

Benefits: \$2,814,961

Costs: \$2,743,057

BCR: 1.03

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:

Longitude:

Size of Building: 792,000

BRV (\$/sf): \$100.00

Total BRV: \$79,200,000

Residential: Yes

Building Type: One-Story

Obstruction: N/A

Foundation Type: Slab

Basement: No

Building Primary Use:

Structure Type:

Historic Building: No

Structure Elevation: 94.77

First Floor Being Raised:

Demolition Threshold: 50.00%

Source of Flood Data:

Project in SFHA: Yes

Community ID Number:

Effective FIS Date:

FIRM Panel Number:

FIRM Effective Date:

Project Useful Life: 30

H&H Study Title:

H&H Effective Date:

Flood Zone:

Loss of Rent: \$0

Building Contents: \$79,200,000
(Default)

Value of Crawlspace Contents: \$0

Ground Surface Elevation:

Flood Zone Determination:

Breaking wave height: 0.00

Utilities that are not elevated: No

Height FFE above grade: 94.77

One Time Displacement Costs:

NFIP: No

Displacement Costs: \$77 (Default)

ICC: No

Current federal lodging per diem: \$77

Population affected : 0

Current federal meals per diem: \$46

Cost per person to eat meals at home: \$7

Street Maintenance Details

Street maintenance budget (\$)

Miles of street (miles)

Length of road (miles)

21 Jan 2015

Project: **COE_MDP01**

Pg 6 of 121

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Total Reduced Street Maintenance Costs \$0.00

Volunteer Costs

Number of Volunteers Required:

Number of Hours Volunteered/Person:

Cost of Volunteers Time (\$/Hour/Person):

Number of Days Lodging/Volunteer:

Per-Person Cost of Lodging for a Volunteer:

Cost of Volunteers:

Social Benefits

Mental Stress and Anxiety

Lost Productivity

Number of Person:

Number of Worker:

Treatment Costs per person: \$2,443.00

Productivity Loss per person: \$8,736.00

Total Mental Stress and Anxiety Cost: \$0.00

Total Lost Productivity Cost: \$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft): 84.7

Flood Profile Number:

Flood Source Name:

Elevation At Which Barrier Will Be Overtopped: 94.77

FEMA Elevation Certificate Diagram Description:

Other Elevation Source:

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	91.50	108.0	90.60	108.0
50	2.00%	94.69	180.0	93.47	180.0
100	1.00%	95.61	192.0	94.31	192.0
500	0.20%	100.10	2,500.0	98.80	2,500.0

21 Jan 2015

Project: **COE_MDP01**

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Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Depth-Damage Functions Using USACE Generic

Building Flood Depth (ft)	Before Mitigation Values:			After Mitigation Values:		
	Before Mitigation (pct)	Before Mitigation User Entered (pct)	Before Mitigation (\$)	After Mitigation (pct)	After Mitigation User Entered (pct)	After Mitigation (\$)
-2.0	0.0%	0.0%	\$0	0.0%	0.0%	\$0
-1.0	2.5%	0.0%	\$1,980,000	0.0%	0.0%	\$0
0.0	13.4%	0.0%	\$10,612,800	13.4%	0.0%	\$10,612,800
1.0	23.3%	0.0%	\$18,453,600	23.3%	0.0%	\$18,453,600
2.0	32.1%	0.0%	\$25,423,200	32.1%	0.0%	\$25,423,200
3.0	40.1%	0.0%	\$31,759,200	40.1%	0.0%	\$31,759,200
4.0	47.1%	0.0%	\$37,303,200	47.1%	0.0%	\$37,303,200
5.0	53.2%	0.0%	\$79,200,000	53.2%	0.0%	\$79,200,000
6.0	58.6%	0.0%	\$79,200,000	58.6%	0.0%	\$79,200,000
7.0	63.2%	0.0%	\$79,200,000	63.2%	0.0%	\$79,200,000
8.0	67.2%	0.0%	\$79,200,000	67.2%	0.0%	\$79,200,000
9.0	70.5%	0.0%	\$79,200,000	70.5%	0.0%	\$79,200,000
10.0	73.2%	0.0%	\$79,200,000	73.2%	0.0%	\$79,200,000
11.0	75.4%	0.0%	\$79,200,000	75.4%	0.0%	\$79,200,000
12.0	77.2%	0.0%	\$79,200,000	77.2%	0.0%	\$79,200,000
13.0	78.5%	0.0%	\$79,200,000	78.5%	0.0%	\$79,200,000
14.0	79.5%	0.0%	\$79,200,000	79.5%	0.0%	\$79,200,000
15.0	80.2%	0.0%	\$79,200,000	80.2%	0.0%	\$79,200,000
16.0	80.7%	0.0%	\$79,200,000	80.7%	0.0%	\$79,200,000

21 Jan 2015

Project: **COE_MDP01**

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Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Depth-Damage Functions Using USACE Generic

Contents Flood Depth (ft)	Before Mitigation Values:			After Mitigation Values:		
	Before Mitigation (pct)	Before Mitigation User Entered (pct)	Before Mitigation (\$)	After Mitigation (pct)	After Mitigation User Entered (pct)	After Mitigation (\$)
-2.0	0.0%	0.0%	\$0	0.0%	0.0%	\$0
-1.0	2.4%	0.0%	\$1,900,800	0.0%	0.0%	\$0
0.0	8.1%	0.0%	\$6,415,200	8.1%	0.0%	\$6,415,200
1.0	13.3%	0.0%	\$10,533,600	13.3%	0.0%	\$10,533,600
2.0	17.9%	0.0%	\$14,176,800	17.9%	0.0%	\$14,176,800
3.0	22.0%	0.0%	\$17,424,000	22.0%	0.0%	\$17,424,000
4.0	25.7%	0.0%	\$20,354,400	25.7%	0.0%	\$20,354,400
5.0	28.8%	0.0%	\$22,809,600	28.8%	0.0%	\$22,809,600
6.0	31.5%	0.0%	\$24,948,000	31.5%	0.0%	\$24,948,000
7.0	33.8%	0.0%	\$26,769,600	33.8%	0.0%	\$26,769,600
8.0	35.7%	0.0%	\$28,274,400	35.7%	0.0%	\$28,274,400
9.0	37.2%	0.0%	\$29,462,400	37.2%	0.0%	\$29,462,400
10.0	38.4%	0.0%	\$30,412,800	38.4%	0.0%	\$30,412,800
11.0	39.2%	0.0%	\$31,046,400	39.2%	0.0%	\$31,046,400
12.0	39.7%	0.0%	\$31,442,400	39.7%	0.0%	\$31,442,400
13.0	40.0%	0.0%	\$31,680,000	40.0%	0.0%	\$31,680,000
14.0	40.0%	0.0%	\$31,680,000	40.0%	0.0%	\$31,680,000
15.0	40.0%	0.0%	\$31,680,000	40.0%	0.0%	\$31,680,000
16.0	40.0%	0.0%	\$31,680,000	40.0%	0.0%	\$31,680,000

21 Jan 2015

Project: **COE_MDP01**

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Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Depth-Damage Functions Using USACE Generic

Displacement Flood Depth (ft)	Before Mitigation Values:			After Mitigation Values:		
	Before Mitigation (Days)	Before Mitigation User Entered (Days)	Before Mitigation (\$)	After Mitigation (Days)	After Mitigation User Entered (Days)	After Mitigation (\$)
-2.0	0.0		\$0	0.0		\$0
-1.0	0.0		\$0	0.0		\$0
0.0	0.0		\$0	0.0		\$0
1.0	45.0		\$35,640,000	45.0		\$35,640,000
2.0	90.0		\$79,200,000	90.0		\$79,200,000
3.0	135.0		\$79,200,000	135.0		\$79,200,000
4.0	180.0		\$79,200,000	180.0		\$79,200,000
5.0	225.0		\$79,200,000	225.0		\$79,200,000
6.0	270.0		\$79,200,000	270.0		\$79,200,000
7.0	315.0		\$79,200,000	315.0		\$79,200,000
8.0	360.0		\$79,200,000	360.0		\$79,200,000
9.0	405.0		\$79,200,000	405.0		\$79,200,000
10.0	450.0		\$79,200,000	450.0		\$79,200,000
11.0	495.0		\$79,200,000	495.0		\$79,200,000
12.0	540.0		\$79,200,000	540.0		\$79,200,000
13.0	585.0		\$79,200,000	585.0		\$79,200,000
14.0	630.0		\$79,200,000	630.0		\$79,200,000
15.0	675.0		\$79,200,000	675.0		\$79,200,000
16.0	720.0		\$79,200,000	720.0		\$79,200,000

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Depth-Damage Functions Using USACE Generic

Loss of Function Flood Depth (ft)	Before Mitigation Values:			After Mitigation Values:		
	Before Mitigation (Days)	Before Mitigation User Entered (Days)	Before Mitigation (\$)	After Mitigation (Days)	After Mitigation User Entered (Days)	After Mitigation (\$)
-2.0	0.0		\$0	0.0		\$0
-1.0	0.0		\$0	0.0		\$0
0.0	0.0		\$0	0.0		\$0
1.0	45.0		\$35,640,000	45.0		\$35,640,000
2.0	90.0		\$79,200,000	90.0		\$79,200,000
3.0	135.0		\$79,200,000	135.0		\$79,200,000
4.0	180.0		\$79,200,000	180.0		\$79,200,000
5.0	225.0		\$79,200,000	225.0		\$79,200,000
6.0	270.0		\$79,200,000	270.0		\$79,200,000
7.0	315.0		\$79,200,000	315.0		\$79,200,000
8.0	360.0		\$79,200,000	360.0		\$79,200,000
9.0	405.0		\$79,200,000	405.0		\$79,200,000
10.0	450.0		\$79,200,000	450.0		\$79,200,000
11.0	495.0		\$79,200,000	495.0		\$79,200,000
12.0	540.0		\$79,200,000	540.0		\$79,200,000
13.0	585.0		\$79,200,000	585.0		\$79,200,000
14.0	630.0		\$79,200,000	630.0		\$79,200,000
15.0	675.0		\$79,200,000	675.0		\$79,200,000
16.0	720.0		\$79,200,000	720.0		\$79,200,000

21 Jan 2015

Project: **COE_MDP01**

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Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation

Expected Annual Damages After Mitigation

Expected Avoided Damages After Mitigation (Benefits)

Annual: \$744,011
Present Value: \$9,232,462

Annual: \$517,163
Present Value: \$6,417,501

Annual: \$226,848
Present Value: \$2,814,961

Mitigation Benefits: \$2,814,961

Mitigation Costs: \$2,743,057

Benefits Minus Costs: \$71,904

Benefit-Cost Ratio: 1.03

21 Jan 2015

Project: **COE_MDP01**

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Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	\$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	\$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	\$2,743,057	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

21 Jan 2015

Project: **COE_MDP01**

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Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Justification/Attachments

Field	Description	Attachments
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21 Jan 2015

Project: **COE_MDP01**

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Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Structure and Mitigation Details For: ES100R, Edinburg, Texas, , Hidalgo

Benefits: \$34,420,582

Costs: \$9,401,549

BCR: 3.66

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:

Longitude:

Size of Building: 10,858,000

BRV (\$/sf): \$30.00

Total BRV: \$325,740,000

Residential: Yes

Building Type: One-Story

Obstruction: N/A

Foundation Type: Slab

Basement: No

Building Primary Use:

Structure Type:

Historic Building: No

Structure Elevation: 91.82

First Floor Being Raised:

Demolition Threshold: 50.00%

Source of Flood Data:

Project in SFHA: Yes

Community ID Number:

Effective FIS Date:

FIRM Panel Number:

FIRM Effective Date:

Project Useful Life: 30

H&H Study Title:

H&H Effective Date:

Flood Zone:

Loss of Rent: \$0

Building Contents: \$325,740,000
(Default)

Value of Crawlspace Contents: \$0

Ground Surface Elevation:

Flood Zone Determination:

Breaking wave height: 0.00

Utilities that are not elevated: No

Height FFE above grade: 91.82

One Time Displacement Costs:

NFIP: No

Displacement Costs: \$318,161
(Default)

ICC: No

Current federal lodging per diem: \$77

Population affected : 8,156

Current federal meals per diem: \$46

Cost per person to eat meals at home: \$7

Street Maintenance Details

Street maintenance budget (\$)

Miles of street (miles)

Length of road (miles)

21 Jan 2015

Project: **COE_MDP01**

Pg 15 of 121

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Total Reduced Street Maintenance Costs \$0.00

Volunteer Costs

Number of Volunteers Required:

Number of Hours Volunteered/Person:

Cost of Volunteers Time (\$/Hour/Person):

Number of Days Lodging/Volunteer:

Per-Person Cost of Lodging for a Volunteer:

Cost of Volunteers:

Social Benefits

Mental Stress and Anxiety

Lost Productivity

Number of Person:

Number of Worker:

Treatment Costs per person: \$2,443.00

Productivity Loss per person: \$8,736.00

Total Mental Stress and Anxiety Cost: \$0.00

Total Lost Productivity Cost: \$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft): 84.7

Flood Profile Number:

Flood Source Name:

Elevation At Which Barrier Will Be Overtopped: 91.32

FEMA Elevation Certificate Diagram Description:

Other Elevation Source:

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	91.50	108.0	90.60	108.0
50	2.00%	94.69	180.0	93.47	180.0
100	1.00%	95.61	192.0	94.31	192.0
500	0.20%	100.10	2,500.0	98.80	2,500.0

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Depth-Damage Functions Using USACE Generic

Building Flood Depth (ft)	Before Mitigation Values:			After Mitigation Values:		
	Before Mitigation (pct)	Before Mitigation User Entered (pct)	Before Mitigation (\$)	After Mitigation (pct)	After Mitigation User Entered (pct)	After Mitigation (\$)
-2.0	0.0%	0.0%	\$0	0.0%	0.0%	\$0
-1.0	2.5%	0.0%	\$8,143,500	0.0%	0.0%	\$0
0.0	13.4%	0.0%	\$43,649,160	13.4%	0.0%	\$43,649,160
1.0	23.3%	0.0%	\$75,897,420	23.3%	0.0%	\$75,897,420
2.0	32.1%	0.0%	\$104,562,540	32.1%	0.0%	\$104,562,540
3.0	40.1%	0.0%	\$130,621,740	40.1%	0.0%	\$130,621,740
4.0	47.1%	0.0%	\$153,423,540	47.1%	0.0%	\$153,423,540
5.0	53.2%	0.0%	\$325,740,000	53.2%	0.0%	\$325,740,000
6.0	58.6%	0.0%	\$325,740,000	58.6%	0.0%	\$325,740,000
7.0	63.2%	0.0%	\$325,740,000	63.2%	0.0%	\$325,740,000
8.0	67.2%	0.0%	\$325,740,000	67.2%	0.0%	\$325,740,000
9.0	70.5%	0.0%	\$325,740,000	70.5%	0.0%	\$325,740,000
10.0	73.2%	0.0%	\$325,740,000	73.2%	0.0%	\$325,740,000
11.0	75.4%	0.0%	\$325,740,000	75.4%	0.0%	\$325,740,000
12.0	77.2%	0.0%	\$325,740,000	77.2%	0.0%	\$325,740,000
13.0	78.5%	0.0%	\$325,740,000	78.5%	0.0%	\$325,740,000
14.0	79.5%	0.0%	\$325,740,000	79.5%	0.0%	\$325,740,000
15.0	80.2%	0.0%	\$325,740,000	80.2%	0.0%	\$325,740,000
16.0	80.7%	0.0%	\$325,740,000	80.7%	0.0%	\$325,740,000

21 Jan 2015

Project: **COE_MDP01**

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Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Depth-Damage Functions Using USACE Generic

Contents Flood Depth (ft)	Before Mitigation Values:			After Mitigation Values:		
	Before Mitigation (pct)	Before Mitigation User Entered (pct)	Before Mitigation (\$)	After Mitigation (pct)	After Mitigation User Entered (pct)	After Mitigation (\$)
-2.0	0.0%	0.0%	\$0	0.0%	0.0%	\$0
-1.0	2.4%	0.0%	\$7,817,760	0.0%	0.0%	\$0
0.0	8.1%	0.0%	\$26,384,940	8.1%	0.0%	\$26,384,940
1.0	13.3%	0.0%	\$43,323,420	13.3%	0.0%	\$43,323,420
2.0	17.9%	0.0%	\$58,307,460	17.9%	0.0%	\$58,307,460
3.0	22.0%	0.0%	\$71,662,800	22.0%	0.0%	\$71,662,800
4.0	25.7%	0.0%	\$83,715,180	25.7%	0.0%	\$83,715,180
5.0	28.8%	0.0%	\$93,813,120	28.8%	0.0%	\$93,813,120
6.0	31.5%	0.0%	\$102,608,100	31.5%	0.0%	\$102,608,100
7.0	33.8%	0.0%	\$110,100,120	33.8%	0.0%	\$110,100,120
8.0	35.7%	0.0%	\$116,289,180	35.7%	0.0%	\$116,289,180
9.0	37.2%	0.0%	\$121,175,280	37.2%	0.0%	\$121,175,280
10.0	38.4%	0.0%	\$125,084,160	38.4%	0.0%	\$125,084,160
11.0	39.2%	0.0%	\$127,690,080	39.2%	0.0%	\$127,690,080
12.0	39.7%	0.0%	\$129,318,780	39.7%	0.0%	\$129,318,780
13.0	40.0%	0.0%	\$130,296,000	40.0%	0.0%	\$130,296,000
14.0	40.0%	0.0%	\$130,296,000	40.0%	0.0%	\$130,296,000
15.0	40.0%	0.0%	\$130,296,000	40.0%	0.0%	\$130,296,000
16.0	40.0%	0.0%	\$130,296,000	40.0%	0.0%	\$130,296,000

21 Jan 2015

Project: **COE_MDP01**

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Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Depth-Damage Functions Using USACE Generic

Displacement Flood Depth (ft)	Before Mitigation Values:			After Mitigation Values:		
	Before Mitigation (Days)	Before Mitigation User Entered (Days)	Before Mitigation (\$)	After Mitigation (Days)	After Mitigation User Entered (Days)	After Mitigation (\$)
-2.0	0.0		\$0	0.0		\$0
-1.0	0.0		\$0	0.0		\$0
0.0	0.0		\$0	0.0		\$0
1.0	45.0		\$146,583,000	45.0		\$146,583,000
2.0	90.0		\$325,740,000	90.0		\$325,740,000
3.0	135.0		\$325,740,000	135.0		\$325,740,000
4.0	180.0		\$325,740,000	180.0		\$325,740,000
5.0	225.0		\$325,740,000	225.0		\$325,740,000
6.0	270.0		\$325,740,000	270.0		\$325,740,000
7.0	315.0		\$325,740,000	315.0		\$325,740,000
8.0	360.0		\$325,740,000	360.0		\$325,740,000
9.0	405.0		\$325,740,000	405.0		\$325,740,000
10.0	450.0		\$325,740,000	450.0		\$325,740,000
11.0	495.0		\$325,740,000	495.0		\$325,740,000
12.0	540.0		\$325,740,000	540.0		\$325,740,000
13.0	585.0		\$325,740,000	585.0		\$325,740,000
14.0	630.0		\$325,740,000	630.0		\$325,740,000
15.0	675.0		\$325,740,000	675.0		\$325,740,000
16.0	720.0		\$325,740,000	720.0		\$325,740,000

Depth-Damage Functions Using USACE Generic

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Loss of Function Flood Depth (ft)	Before Mitigation Values:			After Mitigation Values:		
	Before Mitigation (Days)	Before Mitigation User Entered (Days)	Before Mitigation (\$)	After Mitigation (Days)	After Mitigation User Entered (Days)	After Mitigation (\$)
-2.0	0.0		\$0	0.0		\$0
-1.0	0.0		\$0	0.0		\$0
0.0	0.0		\$0	0.0		\$0
1.0	45.0		\$146,583,000	45.0		\$146,583,000
2.0	90.0		\$325,740,000	90.0		\$325,740,000
3.0	135.0		\$325,740,000	135.0		\$325,740,000
4.0	180.0		\$325,740,000	180.0		\$325,740,000
5.0	225.0		\$325,740,000	225.0		\$325,740,000
6.0	270.0		\$325,740,000	270.0		\$325,740,000
7.0	315.0		\$325,740,000	315.0		\$325,740,000
8.0	360.0		\$325,740,000	360.0		\$325,740,000
9.0	405.0		\$325,740,000	405.0		\$325,740,000
10.0	450.0		\$325,740,000	450.0		\$325,740,000
11.0	495.0		\$325,740,000	495.0		\$325,740,000
12.0	540.0		\$325,740,000	540.0		\$325,740,000
13.0	585.0		\$325,740,000	585.0		\$325,740,000
14.0	630.0		\$325,740,000	630.0		\$325,740,000
15.0	675.0		\$325,740,000	675.0		\$325,740,000
16.0	720.0		\$325,740,000	720.0		\$325,740,000

21 Jan 2015

Project: **COE_MDP01**

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Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation

Expected Annual Damages After Mitigation

Expected Avoided Damages After Mitigation (Benefits)

Annual: \$7,727,224
Present Value: \$95,887,442

Annual: \$4,953,393
Present Value: \$61,466,860

Annual: \$2,773,831
Present Value: \$34,420,582

Mitigation Benefits: \$34,420,582

Mitigation Costs: \$9,401,549

Benefits Minus Costs: \$25,019,033

Benefit-Cost Ratio: 3.66

21 Jan 2015

Project: **COE_MDP01**

Pg 21 of 121

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	\$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	\$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	\$9,401,549	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

21 Jan 2015

Project: **COE_MDP01**

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Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Justification/Attachments

Field	Description	Attachments
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21 Jan 2015

Project: **COE_MDP01**

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Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Structure and Mitigation Details For: NM102, Edinburg, Texas, , Hidalgo

Benefits: \$2,587,637

Costs: \$2,252,940

BCR: 1.15

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:

Longitude:

Size of Building: 209,000

BRV (\$/sf): \$46.30

Total BRV: \$9,676,700

Residential: Yes

Building Type: One-Story

Obstruction: N/A

Foundation Type: Slab

Basement: No

Building Primary Use:

Structure Type:

Historic Building: No

Structure Elevation: 85.72

First Floor Being Raised:

Demolition Threshold: 50.00%

Source of Flood Data:

Project in SFHA: Yes

Community ID Number:

Effective FIS Date:

FIRM Panel Number:

FIRM Effective Date:

Project Useful Life: 30

H&H Study Title:

H&H Effective Date:

Flood Zone:

Loss of Rent: \$0

Building Contents: \$9,676,700
(Default)

Value of Crawlspace Contents: \$0

Ground Surface Elevation:

Flood Zone Determination:

Breaking wave height: 0.00

Utilities that are not elevated: No

Height FFE above grade: 85.72

One Time Displacement Costs:

NFIP: No

Displacement Costs: \$32,681
(Default)

ICC: No

Current federal lodging per diem: \$77

Population affected : 836

Current federal meals per diem: \$46

Cost per person to eat meals at home: \$7

Street Maintenance Details

Street maintenance budget (\$)

Miles of street (miles)

Length of road (miles)

21 Jan 2015

Project: **COE_MDP01**

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Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Total Reduced Street Maintenance Costs \$0.00

Volunteer Costs

Number of Volunteers Required:

Number of Hours Volunteered/Person:

Cost of Volunteers Time (\$/Hour/Person):

Number of Days Lodging/Volunteer:

Per-Person Cost of Lodging for a Volunteer:

Cost of Volunteers:

Social Benefits

Mental Stress and Anxiety

Lost Productivity

Number of Person:

Number of Worker:

Treatment Costs per person: \$2,443.00

Productivity Loss per person: \$8,736.00

Total Mental Stress and Anxiety Cost: \$0.00

Total Lost Productivity Cost: \$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft): 79.1

Flood Profile Number:

Flood Source Name:

Elevation At Which Barrier Will Be Overtopped: 85.22

FEMA Elevation Certificate Diagram Description:

Other Elevation Source:

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	84.75	98.0	82.48	98.0
50	2.00%	86.17	165.0	84.01	165.0
100	1.00%	86.64	203.0	84.56	203.0
500	0.20%	87.68	324.0	85.57	324.0

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Depth-Damage Functions Using USACE Generic

Building Flood Depth (ft)	Before Mitigation Values:			After Mitigation Values:		
	Before Mitigation (pct)	Before Mitigation User Entered (pct)	Before Mitigation (\$)	After Mitigation (pct)	After Mitigation User Entered (pct)	After Mitigation (\$)
-2.0	0.0%	0.0%	\$0	0.0%	0.0%	\$0
-1.0	2.5%	0.0%	\$241,918	0.0%	0.0%	\$0
0.0	13.4%	0.0%	\$1,296,678	13.4%	0.0%	\$1,296,678
1.0	23.3%	0.0%	\$2,254,671	23.3%	0.0%	\$2,254,671
2.0	32.1%	0.0%	\$3,106,221	32.1%	0.0%	\$3,106,221
3.0	40.1%	0.0%	\$3,880,357	40.1%	0.0%	\$3,880,357
4.0	47.1%	0.0%	\$4,557,726	47.1%	0.0%	\$4,557,726
5.0	53.2%	0.0%	\$9,676,700	53.2%	0.0%	\$9,676,700
6.0	58.6%	0.0%	\$9,676,700	58.6%	0.0%	\$9,676,700
7.0	63.2%	0.0%	\$9,676,700	63.2%	0.0%	\$9,676,700
8.0	67.2%	0.0%	\$9,676,700	67.2%	0.0%	\$9,676,700
9.0	70.5%	0.0%	\$9,676,700	70.5%	0.0%	\$9,676,700
10.0	73.2%	0.0%	\$9,676,700	73.2%	0.0%	\$9,676,700
11.0	75.4%	0.0%	\$9,676,700	75.4%	0.0%	\$9,676,700
12.0	77.2%	0.0%	\$9,676,700	77.2%	0.0%	\$9,676,700
13.0	78.5%	0.0%	\$9,676,700	78.5%	0.0%	\$9,676,700
14.0	79.5%	0.0%	\$9,676,700	79.5%	0.0%	\$9,676,700
15.0	80.2%	0.0%	\$9,676,700	80.2%	0.0%	\$9,676,700
16.0	80.7%	0.0%	\$9,676,700	80.7%	0.0%	\$9,676,700

21 Jan 2015

Project: **COE_MDP01**

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Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Depth-Damage Functions Using USACE Generic

Contents Flood Depth (ft)	Before Mitigation Values:			After Mitigation Values:		
	Before Mitigation (pct)	Before Mitigation User Entered (pct)	Before Mitigation (\$)	After Mitigation (pct)	After Mitigation User Entered (pct)	After Mitigation (\$)
-2.0	0.0%	0.0%	\$0	0.0%	0.0%	\$0
-1.0	2.4%	0.0%	\$232,241	0.0%	0.0%	\$0
0.0	8.1%	0.0%	\$783,813	8.1%	0.0%	\$783,813
1.0	13.3%	0.0%	\$1,287,001	13.3%	0.0%	\$1,287,001
2.0	17.9%	0.0%	\$1,732,129	17.9%	0.0%	\$1,732,129
3.0	22.0%	0.0%	\$2,128,874	22.0%	0.0%	\$2,128,874
4.0	25.7%	0.0%	\$2,486,912	25.7%	0.0%	\$2,486,912
5.0	28.8%	0.0%	\$2,786,890	28.8%	0.0%	\$2,786,890
6.0	31.5%	0.0%	\$3,048,161	31.5%	0.0%	\$3,048,161
7.0	33.8%	0.0%	\$3,270,725	33.8%	0.0%	\$3,270,725
8.0	35.7%	0.0%	\$3,454,582	35.7%	0.0%	\$3,454,582
9.0	37.2%	0.0%	\$3,599,732	37.2%	0.0%	\$3,599,732
10.0	38.4%	0.0%	\$3,715,853	38.4%	0.0%	\$3,715,853
11.0	39.2%	0.0%	\$3,793,266	39.2%	0.0%	\$3,793,266
12.0	39.7%	0.0%	\$3,841,650	39.7%	0.0%	\$3,841,650
13.0	40.0%	0.0%	\$3,870,680	40.0%	0.0%	\$3,870,680
14.0	40.0%	0.0%	\$3,870,680	40.0%	0.0%	\$3,870,680
15.0	40.0%	0.0%	\$3,870,680	40.0%	0.0%	\$3,870,680
16.0	40.0%	0.0%	\$3,870,680	40.0%	0.0%	\$3,870,680

21 Jan 2015

Project: **COE_MDP01**

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Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Depth-Damage Functions Using USACE Generic

Displacement Flood Depth (ft)	Before Mitigation Values:			After Mitigation Values:		
	Before Mitigation (Days)	Before Mitigation User Entered (Days)	Before Mitigation (\$)	After Mitigation (Days)	After Mitigation User Entered (Days)	After Mitigation (\$)
-2.0	0.0		\$0	0.0		\$0
-1.0	0.0		\$0	0.0		\$0
0.0	0.0		\$0	0.0		\$0
1.0	45.0		\$4,354,515	45.0		\$4,354,515
2.0	90.0		\$9,676,700	90.0		\$9,676,700
3.0	135.0		\$9,676,700	135.0		\$9,676,700
4.0	180.0		\$9,676,700	180.0		\$9,676,700
5.0	225.0		\$9,676,700	225.0		\$9,676,700
6.0	270.0		\$9,676,700	270.0		\$9,676,700
7.0	315.0		\$9,676,700	315.0		\$9,676,700
8.0	360.0		\$9,676,700	360.0		\$9,676,700
9.0	405.0		\$9,676,700	405.0		\$9,676,700
10.0	450.0		\$9,676,700	450.0		\$9,676,700
11.0	495.0		\$9,676,700	495.0		\$9,676,700
12.0	540.0		\$9,676,700	540.0		\$9,676,700
13.0	585.0		\$9,676,700	585.0		\$9,676,700
14.0	630.0		\$9,676,700	630.0		\$9,676,700
15.0	675.0		\$9,676,700	675.0		\$9,676,700
16.0	720.0		\$9,676,700	720.0		\$9,676,700

21 Jan 2015

Project: **COE_MDP01**

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Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Depth-Damage Functions Using USACE Generic

Loss of Function Flood Depth (ft)	Before Mitigation Values:			After Mitigation Values:		
	Before Mitigation (Days)	Before Mitigation User Entered (Days)	Before Mitigation (\$)	After Mitigation (Days)	After Mitigation User Entered (Days)	After Mitigation (\$)
-2.0	0.0		\$0	0.0		\$0
-1.0	0.0		\$0	0.0		\$0
0.0	0.0		\$0	0.0		\$0
1.0	45.0		\$4,354,515	45.0		\$4,354,515
2.0	90.0		\$9,676,700	90.0		\$9,676,700
3.0	135.0		\$9,676,700	135.0		\$9,676,700
4.0	180.0		\$9,676,700	180.0		\$9,676,700
5.0	225.0		\$9,676,700	225.0		\$9,676,700
6.0	270.0		\$9,676,700	270.0		\$9,676,700
7.0	315.0		\$9,676,700	315.0		\$9,676,700
8.0	360.0		\$9,676,700	360.0		\$9,676,700
9.0	405.0		\$9,676,700	405.0		\$9,676,700
10.0	450.0		\$9,676,700	450.0		\$9,676,700
11.0	495.0		\$9,676,700	495.0		\$9,676,700
12.0	540.0		\$9,676,700	540.0		\$9,676,700
13.0	585.0		\$9,676,700	585.0		\$9,676,700
14.0	630.0		\$9,676,700	630.0		\$9,676,700
15.0	675.0		\$9,676,700	675.0		\$9,676,700
16.0	720.0		\$9,676,700	720.0		\$9,676,700

21 Jan 2015

Project: **COE_MDP01**

Pg 29 of 121

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation

Expected Annual Damages After Mitigation

Expected Avoided Damages After Mitigation (Benefits)

Annual: \$243,401
Present Value: \$3,020,368

Annual: \$34,872
Present Value: \$432,731

Annual: \$208,529
Present Value: \$2,587,637

Mitigation Benefits: \$2,587,637

Mitigation Costs: \$2,252,940

Benefits Minus Costs: \$334,697

Benefit-Cost Ratio: 1.15

21 Jan 2015

Project: **COE_MDP01**

Pg 30 of 121

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	\$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	\$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	\$2,252,940	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

21 Jan 2015

Project: **COE_MDP01**

Pg 31 of 121

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Justification/Attachments

Field	Description	Attachments
First Floor Elevation	LIDAR Elevation	

21 Jan 2015

Project: **COE_MDP01**

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Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Structure and Mitigation Details For: NM103, Edinburg, Texas, , Hidalgo

Benefits: \$1,888,765

Costs: \$714,690

BCR: 2.64

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:

Longitude:

Size of Building: 480,000

BRV (\$/sf): \$63.59

Total BRV: \$30,523,200

Residential: Yes

Building Type: Two or More Stories

Obstruction: N/A

Foundation Type: Slab

Basement: No

Building Primary Use:

Structure Type:

Historic Building: No

Structure Elevation: 91.60

First Floor Being Raised:

Demolition Threshold: 50.00%

Source of Flood Data:

Project in SFHA: Yes

Community ID Number:

Effective FIS Date:

FIRM Panel Number:

FIRM Effective Date:

Project Useful Life: 30

H&H Study Title:

H&H Effective Date:

Flood Zone:

Loss of Rent: \$0

Building Contents: \$30,523,200
(Default)

Value of Crawlspace Contents: \$0

Ground Surface Elevation:

Flood Zone Determination:

Breaking wave height: 0.00

Utilities that are not elevated: No

Height FFE above grade: 91.60

One Time Displacement Costs:

NFIP: No

Displacement Costs: \$49,997
(Default)

ICC: No

Current federal lodging per diem: \$77

Population affected : 1,280

Current federal meals per diem: \$46

Cost per person to eat meals at home: \$7

Street Maintenance Details

Street maintenance budget (\$)

Miles of street (miles)

Length of road (miles)

21 Jan 2015

Project: **COE_MDP01**

Pg 33 of 121

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Total Reduced Street Maintenance Costs \$0.00

Volunteer Costs

Number of Volunteers Required:

Number of Hours Volunteered/Person:

Cost of Volunteers Time (\$/Hour/Person):

Number of Days Lodging/Volunteer:

Per-Person Cost of Lodging for a Volunteer:

Cost of Volunteers:

Social Benefits

Mental Stress and Anxiety

Lost Productivity

Number of Person:

Number of Worker:

Treatment Costs per person: \$2,443.00

Productivity Loss per person: \$8,736.00

Total Mental Stress and Anxiety Cost: \$0.00

Total Lost Productivity Cost: \$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft): 81.9

Flood Profile Number:

Flood Source Name:

Elevation At Which Barrier Will Be Overtopped: 91.10

FEMA Elevation Certificate Diagram Description:

Other Elevation Source:

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	89.76	97.0	85.26	97.0
50	2.00%	90.93	163.0	86.96	163.0
100	1.00%	91.22	201.0	88.03	201.0
500	0.20%	91.80	320.0	91.01	320.0

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Depth-Damage Functions Using USACE Generic

Building Flood Depth (ft)	Before Mitigation Values:			After Mitigation Values:		
	Before Mitigation (pct)	Before Mitigation User Entered (pct)	Before Mitigation (\$)	After Mitigation (pct)	After Mitigation User Entered (pct)	After Mitigation (\$)
-2.0	0.0%	0.0%	\$0	0.0%	0.0%	\$0
-1.0	3.0%	0.0%	\$915,696	0.0%	0.0%	\$0
0.0	9.3%	0.0%	\$2,838,658	9.3%	0.0%	\$2,838,658
1.0	15.2%	0.0%	\$4,639,526	15.2%	0.0%	\$4,639,526
2.0	20.9%	0.0%	\$6,379,349	20.9%	0.0%	\$6,379,349
3.0	26.3%	0.0%	\$8,027,602	26.3%	0.0%	\$8,027,602
4.0	31.4%	0.0%	\$9,584,285	31.4%	0.0%	\$9,584,285
5.0	36.2%	0.0%	\$11,049,398	36.2%	0.0%	\$11,049,398
6.0	40.7%	0.0%	\$12,422,942	40.7%	0.0%	\$12,422,942
7.0	44.9%	0.0%	\$13,704,917	44.9%	0.0%	\$13,704,917
8.0	48.8%	0.0%	\$14,895,322	48.8%	0.0%	\$14,895,322
9.0	52.4%	0.0%	\$30,523,200	52.4%	0.0%	\$30,523,200
10.0	55.7%	0.0%	\$30,523,200	55.7%	0.0%	\$30,523,200
11.0	58.7%	0.0%	\$30,523,200	58.7%	0.0%	\$30,523,200
12.0	61.4%	0.0%	\$30,523,200	61.4%	0.0%	\$30,523,200
13.0	63.8%	0.0%	\$30,523,200	63.8%	0.0%	\$30,523,200
14.0	65.9%	0.0%	\$30,523,200	65.9%	0.0%	\$30,523,200
15.0	67.7%	0.0%	\$30,523,200	67.7%	0.0%	\$30,523,200
16.0	69.2%	0.0%	\$30,523,200	69.2%	0.0%	\$30,523,200

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Depth-Damage Functions Using USACE Generic

Contents Flood Depth (ft)	Before Mitigation Values:			After Mitigation Values:		
	Before Mitigation (pct)	Before Mitigation User Entered (pct)	Before Mitigation (\$)	After Mitigation (pct)	After Mitigation User Entered (pct)	After Mitigation (\$)
-2.0	0.0%	0.0%	\$0	0.0%	0.0%	\$0
-1.0	1.0%	0.0%	\$305,232	0.0%	0.0%	\$0
0.0	5.0%	0.0%	\$1,526,160	5.0%	0.0%	\$1,526,160
1.0	8.7%	0.0%	\$2,655,518	8.7%	0.0%	\$2,655,518
2.0	12.2%	0.0%	\$3,723,830	12.2%	0.0%	\$3,723,830
3.0	15.5%	0.0%	\$4,731,096	15.5%	0.0%	\$4,731,096
4.0	18.5%	0.0%	\$5,646,792	18.5%	0.0%	\$5,646,792
5.0	21.3%	0.0%	\$6,501,442	21.3%	0.0%	\$6,501,442
6.0	23.9%	0.0%	\$7,295,045	23.9%	0.0%	\$7,295,045
7.0	26.3%	0.0%	\$8,027,602	26.3%	0.0%	\$8,027,602
8.0	28.4%	0.0%	\$8,668,589	28.4%	0.0%	\$8,668,589
9.0	30.3%	0.0%	\$9,248,530	30.3%	0.0%	\$9,248,530
10.0	32.0%	0.0%	\$9,767,424	32.0%	0.0%	\$9,767,424
11.0	33.4%	0.0%	\$10,194,749	33.4%	0.0%	\$10,194,749
12.0	34.7%	0.0%	\$10,591,550	34.7%	0.0%	\$10,591,550
13.0	35.6%	0.0%	\$10,866,259	35.6%	0.0%	\$10,866,259
14.0	36.4%	0.0%	\$11,110,445	36.4%	0.0%	\$11,110,445
15.0	36.9%	0.0%	\$11,263,061	36.9%	0.0%	\$11,263,061
16.0	37.2%	0.0%	\$11,354,630	37.2%	0.0%	\$11,354,630

21 Jan 2015

Project: **COE_MDP01**

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Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Depth-Damage Functions Using USACE Generic

Displacement Flood Depth (ft)	Before Mitigation Values:			After Mitigation Values:		
	Before Mitigation (Days)	Before Mitigation User Entered (Days)	Before Mitigation (\$)	After Mitigation (Days)	After Mitigation User Entered (Days)	After Mitigation (\$)
-2.0	0.0		\$0	0.0		\$0
-1.0	0.0		\$0	0.0		\$0
0.0	0.0		\$0	0.0		\$0
1.0	45.0		\$13,735,440	45.0		\$13,735,440
2.0	90.0		\$30,523,200	90.0		\$30,523,200
3.0	135.0		\$30,523,200	135.0		\$30,523,200
4.0	180.0		\$30,523,200	180.0		\$30,523,200
5.0	225.0		\$30,523,200	225.0		\$30,523,200
6.0	270.0		\$30,523,200	270.0		\$30,523,200
7.0	315.0		\$30,523,200	315.0		\$30,523,200
8.0	360.0		\$30,523,200	360.0		\$30,523,200
9.0	405.0		\$30,523,200	405.0		\$30,523,200
10.0	450.0		\$30,523,200	450.0		\$30,523,200
11.0	495.0		\$30,523,200	495.0		\$30,523,200
12.0	540.0		\$30,523,200	540.0		\$30,523,200
13.0	585.0		\$30,523,200	585.0		\$30,523,200
14.0	630.0		\$30,523,200	630.0		\$30,523,200
15.0	675.0		\$30,523,200	675.0		\$30,523,200
16.0	720.0		\$30,523,200	720.0		\$30,523,200

21 Jan 2015

Project: **COE_MDP01**

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Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Depth-Damage Functions Using USACE Generic

Loss of Function Flood Depth (ft)	Before Mitigation Values:			After Mitigation Values:		
	Before Mitigation (Days)	Before Mitigation User Entered (Days)	Before Mitigation (\$)	After Mitigation (Days)	After Mitigation User Entered (Days)	After Mitigation (\$)
-2.0	0.0		\$0	0.0		\$0
-1.0	0.0		\$0	0.0		\$0
0.0	0.0		\$0	0.0		\$0
1.0	45.0		\$13,735,440	45.0		\$13,735,440
2.0	90.0		\$30,523,200	90.0		\$30,523,200
3.0	135.0		\$30,523,200	135.0		\$30,523,200
4.0	180.0		\$30,523,200	180.0		\$30,523,200
5.0	225.0		\$30,523,200	225.0		\$30,523,200
6.0	270.0		\$30,523,200	270.0		\$30,523,200
7.0	315.0		\$30,523,200	315.0		\$30,523,200
8.0	360.0		\$30,523,200	360.0		\$30,523,200
9.0	405.0		\$30,523,200	405.0		\$30,523,200
10.0	450.0		\$30,523,200	450.0		\$30,523,200
11.0	495.0		\$30,523,200	495.0		\$30,523,200
12.0	540.0		\$30,523,200	540.0		\$30,523,200
13.0	585.0		\$30,523,200	585.0		\$30,523,200
14.0	630.0		\$30,523,200	630.0		\$30,523,200
15.0	675.0		\$30,523,200	675.0		\$30,523,200
16.0	720.0		\$30,523,200	720.0		\$30,523,200

21 Jan 2015

Project: **COE_MDP01**

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Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation

Expected Annual Damages After Mitigation

Expected Avoided Damages After Mitigation (Benefits)

Annual: \$219,246
Present Value: \$2,720,628

Annual: \$67,037
Present Value: \$831,863

Annual: \$152,209
Present Value: \$1,888,765

Mitigation Benefits: \$1,888,765

Mitigation Costs: \$714,690

Benefits Minus Costs: \$1,174,075

Benefit-Cost Ratio: 2.64

21 Jan 2015

Project: **COE_MDP01**

Pg 39 of 121

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	\$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	\$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	\$714,690	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

21 Jan 2015

Project: **COE_MDP01**

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Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Justification/Attachments

Field	Description	Attachments
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21 Jan 2015

Project: **COE_MDP01**

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Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Structure and Mitigation Details For: NM105, Edinburg, Texas, , Hidalgo

Benefits: \$372,305

Costs: \$316,053

BCR: 1.18

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:

Longitude:

Size of Building: 18,000

BRV (\$/sf): \$35.00

Total BRV: \$630,000

Residential: Yes

Building Type: One-Story

Obstruction: N/A

Foundation Type: Slab

Basement: No

Building Primary Use:

Structure Type:

Historic Building: No

Structure Elevation: 91.19

First Floor Being Raised:

Demolition Threshold: 50.00%

Source of Flood Data:

Project in SFHA: Yes

Community ID Number:

Effective FIS Date:

FIRM Panel Number:

FIRM Effective Date:

Project Useful Life: 30

H&H Study Title:

H&H Effective Date:

Flood Zone:

Loss of Rent: \$0

Building Contents: \$630,000
(Default)

Value of Crawlspace Contents: \$0

Ground Surface Elevation:

Flood Zone Determination:

Breaking wave height: 0.00

Utilities that are not elevated: No

Height FFE above grade: 91.19

One Time Displacement Costs:

NFIP: No

Displacement Costs: \$1,013
(Default)

ICC: No

Current federal lodging per diem: \$77

Population affected : 24

Current federal meals per diem: \$46

Cost per person to eat meals at home: \$7

Street Maintenance Details

Street maintenance budget (\$)

Miles of street (miles)

Length of road (miles)

21 Jan 2015

Project: **COE_MDP01**

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Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Total Reduced Street Maintenance Costs \$0.00

Volunteer Costs

Number of Volunteers Required:

Number of Hours Volunteered/Person:

Cost of Volunteers Time (\$/Hour/Person):

Number of Days Lodging/Volunteer:

Per-Person Cost of Lodging for a Volunteer:

Cost of Volunteers:

Social Benefits

Mental Stress and Anxiety

Lost Productivity

Number of Person:

Number of Worker:

Treatment Costs per person: \$2,443.00

Productivity Loss per person: \$8,736.00

Total Mental Stress and Anxiety Cost: \$0.00

Total Lost Productivity Cost: \$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft): 83.8

Flood Profile Number:

Flood Source Name:

Elevation At Which Barrier Will Be Overtopped: 91.19

FEMA Elevation Certificate Diagram Description:

Other Elevation Source:

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	90.62	62.0	88.12	62.0
50	2.00%	92.83	104.0	89.59	104.0
100	1.00%	93.12	128.0	90.41	128.0
500	0.20%	93.39	204.0	92.72	204.0

21 Jan 2015

Project: **COE_MDP01**

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Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Depth-Damage Functions Using USACE Generic

Building Flood Depth (ft)	Before Mitigation Values:			After Mitigation Values:		
	Before Mitigation (pct)	Before Mitigation User Entered (pct)	Before Mitigation (\$)	After Mitigation (pct)	After Mitigation User Entered (pct)	After Mitigation (\$)
-2.0	0.0%	0.0%	\$0	0.0%	0.0%	\$0
-1.0	2.5%	0.0%	\$15,750	0.0%	0.0%	\$0
0.0	13.4%	0.0%	\$84,420	13.4%	0.0%	\$84,420
1.0	23.3%	0.0%	\$146,790	23.3%	0.0%	\$146,790
2.0	32.1%	0.0%	\$202,230	32.1%	0.0%	\$202,230
3.0	40.1%	0.0%	\$252,630	40.1%	0.0%	\$252,630
4.0	47.1%	0.0%	\$296,730	47.1%	0.0%	\$296,730
5.0	53.2%	0.0%	\$630,000	53.2%	0.0%	\$630,000
6.0	58.6%	0.0%	\$630,000	58.6%	0.0%	\$630,000
7.0	63.2%	0.0%	\$630,000	63.2%	0.0%	\$630,000
8.0	67.2%	0.0%	\$630,000	67.2%	0.0%	\$630,000
9.0	70.5%	0.0%	\$630,000	70.5%	0.0%	\$630,000
10.0	73.2%	0.0%	\$630,000	73.2%	0.0%	\$630,000
11.0	75.4%	0.0%	\$630,000	75.4%	0.0%	\$630,000
12.0	77.2%	0.0%	\$630,000	77.2%	0.0%	\$630,000
13.0	78.5%	0.0%	\$630,000	78.5%	0.0%	\$630,000
14.0	79.5%	0.0%	\$630,000	79.5%	0.0%	\$630,000
15.0	80.2%	0.0%	\$630,000	80.2%	0.0%	\$630,000
16.0	80.7%	0.0%	\$630,000	80.7%	0.0%	\$630,000

21 Jan 2015

Project: **COE_MDP01**

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Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Depth-Damage Functions Using USACE Generic

Contents Flood Depth (ft)	Before Mitigation Values:			After Mitigation Values:		
	Before Mitigation (pct)	Before Mitigation User Entered (pct)	Before Mitigation (\$)	After Mitigation (pct)	After Mitigation User Entered (pct)	After Mitigation (\$)
-2.0	0.0%	0.0%	\$0	0.0%	0.0%	\$0
-1.0	2.4%	0.0%	\$15,120	0.0%	0.0%	\$0
0.0	8.1%	0.0%	\$51,030	8.1%	0.0%	\$51,030
1.0	13.3%	0.0%	\$83,790	13.3%	0.0%	\$83,790
2.0	17.9%	0.0%	\$112,770	17.9%	0.0%	\$112,770
3.0	22.0%	0.0%	\$138,600	22.0%	0.0%	\$138,600
4.0	25.7%	0.0%	\$161,910	25.7%	0.0%	\$161,910
5.0	28.8%	0.0%	\$181,440	28.8%	0.0%	\$181,440
6.0	31.5%	0.0%	\$198,450	31.5%	0.0%	\$198,450
7.0	33.8%	0.0%	\$212,940	33.8%	0.0%	\$212,940
8.0	35.7%	0.0%	\$224,910	35.7%	0.0%	\$224,910
9.0	37.2%	0.0%	\$234,360	37.2%	0.0%	\$234,360
10.0	38.4%	0.0%	\$241,920	38.4%	0.0%	\$241,920
11.0	39.2%	0.0%	\$246,960	39.2%	0.0%	\$246,960
12.0	39.7%	0.0%	\$250,110	39.7%	0.0%	\$250,110
13.0	40.0%	0.0%	\$252,000	40.0%	0.0%	\$252,000
14.0	40.0%	0.0%	\$252,000	40.0%	0.0%	\$252,000
15.0	40.0%	0.0%	\$252,000	40.0%	0.0%	\$252,000
16.0	40.0%	0.0%	\$252,000	40.0%	0.0%	\$252,000

21 Jan 2015

Project: **COE_MDP01**

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Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Depth-Damage Functions Using USACE Generic

Displacement Flood Depth (ft)	Before Mitigation Values:			After Mitigation Values:		
	Before Mitigation (Days)	Before Mitigation User Entered (Days)	Before Mitigation (\$)	After Mitigation (Days)	After Mitigation User Entered (Days)	After Mitigation (\$)
-2.0	0.0		\$0	0.0		\$0
-1.0	0.0		\$0	0.0		\$0
0.0	0.0		\$0	0.0		\$0
1.0	45.0		\$283,500	45.0		\$283,500
2.0	90.0		\$630,000	90.0		\$630,000
3.0	135.0		\$630,000	135.0		\$630,000
4.0	180.0		\$630,000	180.0		\$630,000
5.0	225.0		\$630,000	225.0		\$630,000
6.0	270.0		\$630,000	270.0		\$630,000
7.0	315.0		\$630,000	315.0		\$630,000
8.0	360.0		\$630,000	360.0		\$630,000
9.0	405.0		\$630,000	405.0		\$630,000
10.0	450.0		\$630,000	450.0		\$630,000
11.0	495.0		\$630,000	495.0		\$630,000
12.0	540.0		\$630,000	540.0		\$630,000
13.0	585.0		\$630,000	585.0		\$630,000
14.0	630.0		\$630,000	630.0		\$630,000
15.0	675.0		\$630,000	675.0		\$630,000
16.0	720.0		\$630,000	720.0		\$630,000

21 Jan 2015

Project: **COE_MDP01**

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Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Depth-Damage Functions Using USACE Generic

Loss of Function Flood Depth (ft)	Before Mitigation Values:			After Mitigation Values:		
	Before Mitigation (Days)	Before Mitigation User Entered (Days)	Before Mitigation (\$)	After Mitigation (Days)	After Mitigation User Entered (Days)	After Mitigation (\$)
-2.0	0.0		\$0	0.0		\$0
-1.0	0.0		\$0	0.0		\$0
0.0	0.0		\$0	0.0		\$0
1.0	45.0		\$283,500	45.0		\$283,500
2.0	90.0		\$630,000	90.0		\$630,000
3.0	135.0		\$630,000	135.0		\$630,000
4.0	180.0		\$630,000	180.0		\$630,000
5.0	225.0		\$630,000	225.0		\$630,000
6.0	270.0		\$630,000	270.0		\$630,000
7.0	315.0		\$630,000	315.0		\$630,000
8.0	360.0		\$630,000	360.0		\$630,000
9.0	405.0		\$630,000	405.0		\$630,000
10.0	450.0		\$630,000	450.0		\$630,000
11.0	495.0		\$630,000	495.0		\$630,000
12.0	540.0		\$630,000	540.0		\$630,000
13.0	585.0		\$630,000	585.0		\$630,000
14.0	630.0		\$630,000	630.0		\$630,000
15.0	675.0		\$630,000	675.0		\$630,000
16.0	720.0		\$630,000	720.0		\$630,000

21 Jan 2015

Project: **COE_MDP01**

Pg 47 of 121

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation

Expected Annual Damages After Mitigation

Expected Avoided Damages After Mitigation (Benefits)

Annual: \$33,108

Present Value: \$410,844

Annual: \$3,106

Present Value: \$38,539

Annual: \$30,002

Present Value: \$372,305

Mitigation Benefits: \$372,305

Benefits Minus Costs: \$56,252

Mitigation Costs: \$316,053

Benefit-Cost Ratio: 1.18

21 Jan 2015

Project: **COE_MDP01**

Pg 48 of 121

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	\$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	\$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	\$316,053	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

21 Jan 2015

Project: **COE_MDP01**

Pg 49 of 121

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Justification/Attachments

Field	Description	Attachments
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21 Jan 2015

Project: **COE_MDP01**

Pg 50 of 121

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Structure and Mitigation Details For: NM106, Edinburg, Texas, , Hidalgo

Benefits: \$1,069,435

Costs: \$252,623

BCR: 4.23

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:

Longitude:

Size of Building: 348,000

BRV (\$/sf): \$64.00

Total BRV: \$22,272,000

Residential: Yes

Building Type: One-Story

Obstruction: N/A

Foundation Type: Slab

Basement: No

Building Primary Use:

Structure Type:

Historic Building: No

Structure Elevation: 94.65

First Floor Being Raised:

Demolition Threshold: 50.00%

Source of Flood Data:

Project in SFHA: Yes

Community ID Number:

Effective FIS Date:

FIRM Panel Number:

FIRM Effective Date:

Project Useful Life: 30

H&H Study Title:

H&H Effective Date:

Flood Zone:

Loss of Rent: \$0

Building Contents: \$22,272,000
(Default)

Value of Crawlspace Contents: \$0

Ground Surface Elevation:

Flood Zone Determination:

Breaking wave height: 0.00

Utilities that are not elevated: No

Height FFE above grade: 94.65

One Time Displacement Costs:

NFIP: No

Displacement Costs: \$36,269
(Default)

ICC: No

Current federal lodging per diem: \$77

Population affected : 928

Current federal meals per diem: \$46

Cost per person to eat meals at home: \$7

Street Maintenance Details

Street maintenance budget (\$)

Miles of street (miles)

Length of road (miles)

21 Jan 2015

Project: **COE_MDP01**

Pg 51 of 121

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Total Reduced Street Maintenance Costs \$0.00

Volunteer Costs

Number of Volunteers Required:

Number of Hours Volunteered/Person:

Cost of Volunteers Time (\$/Hour/Person):

Number of Days Lodging/Volunteer:

Per-Person Cost of Lodging for a Volunteer:

Cost of Volunteers:

Social Benefits

Mental Stress and Anxiety

Lost Productivity

Number of Person:

Number of Worker:

Treatment Costs per person: \$2,443.00

Productivity Loss per person: \$8,736.00

Total Mental Stress and Anxiety Cost: \$0.00

Total Lost Productivity Cost: \$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft): 86.4

Flood Profile Number:

Flood Source Name:

Elevation At Which Barrier Will Be Overtopped: 94.15

FEMA Elevation Certificate Diagram Description:

Other Elevation Source:

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	89.83	37.0	89.40	37.0
50	2.00%	92.50	62.0	90.36	62.0
100	1.00%	94.60	77.0	91.02	77.0
500	0.20%	95.44	122.0	93.61	122.0

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Depth-Damage Functions Using USACE Generic

Building Flood Depth (ft)	Before Mitigation Values:			After Mitigation Values:		
	Before Mitigation (pct)	Before Mitigation User Entered (pct)	Before Mitigation (\$)	After Mitigation (pct)	After Mitigation User Entered (pct)	After Mitigation (\$)
-2.0	0.0%	0.0%	\$0	0.0%	0.0%	\$0
-1.0	2.5%	0.0%	\$556,800	0.0%	0.0%	\$0
0.0	13.4%	0.0%	\$2,984,448	13.4%	0.0%	\$2,984,448
1.0	23.3%	0.0%	\$5,189,376	23.3%	0.0%	\$5,189,376
2.0	32.1%	0.0%	\$7,149,312	32.1%	0.0%	\$7,149,312
3.0	40.1%	0.0%	\$8,931,072	40.1%	0.0%	\$8,931,072
4.0	47.1%	0.0%	\$10,490,112	47.1%	0.0%	\$10,490,112
5.0	53.2%	0.0%	\$22,272,000	53.2%	0.0%	\$22,272,000
6.0	58.6%	0.0%	\$22,272,000	58.6%	0.0%	\$22,272,000
7.0	63.2%	0.0%	\$22,272,000	63.2%	0.0%	\$22,272,000
8.0	67.2%	0.0%	\$22,272,000	67.2%	0.0%	\$22,272,000
9.0	70.5%	0.0%	\$22,272,000	70.5%	0.0%	\$22,272,000
10.0	73.2%	0.0%	\$22,272,000	73.2%	0.0%	\$22,272,000
11.0	75.4%	0.0%	\$22,272,000	75.4%	0.0%	\$22,272,000
12.0	77.2%	0.0%	\$22,272,000	77.2%	0.0%	\$22,272,000
13.0	78.5%	0.0%	\$22,272,000	78.5%	0.0%	\$22,272,000
14.0	79.5%	0.0%	\$22,272,000	79.5%	0.0%	\$22,272,000
15.0	80.2%	0.0%	\$22,272,000	80.2%	0.0%	\$22,272,000
16.0	80.7%	0.0%	\$22,272,000	80.7%	0.0%	\$22,272,000

21 Jan 2015

Project: **COE_MDP01**

Pg 53 of 121

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Depth-Damage Functions Using USACE Generic

Contents Flood Depth (ft)	Before Mitigation Values:			After Mitigation Values:		
	Before Mitigation (pct)	Before Mitigation User Entered (pct)	Before Mitigation (\$)	After Mitigation (pct)	After Mitigation User Entered (pct)	After Mitigation (\$)
-2.0	0.0%	0.0%	\$0	0.0%	0.0%	\$0
-1.0	2.4%	0.0%	\$534,528	0.0%	0.0%	\$0
0.0	8.1%	0.0%	\$1,804,032	8.1%	0.0%	\$1,804,032
1.0	13.3%	0.0%	\$2,962,176	13.3%	0.0%	\$2,962,176
2.0	17.9%	0.0%	\$3,986,688	17.9%	0.0%	\$3,986,688
3.0	22.0%	0.0%	\$4,899,840	22.0%	0.0%	\$4,899,840
4.0	25.7%	0.0%	\$5,723,904	25.7%	0.0%	\$5,723,904
5.0	28.8%	0.0%	\$6,414,336	28.8%	0.0%	\$6,414,336
6.0	31.5%	0.0%	\$7,015,680	31.5%	0.0%	\$7,015,680
7.0	33.8%	0.0%	\$7,527,936	33.8%	0.0%	\$7,527,936
8.0	35.7%	0.0%	\$7,951,104	35.7%	0.0%	\$7,951,104
9.0	37.2%	0.0%	\$8,285,184	37.2%	0.0%	\$8,285,184
10.0	38.4%	0.0%	\$8,552,448	38.4%	0.0%	\$8,552,448
11.0	39.2%	0.0%	\$8,730,624	39.2%	0.0%	\$8,730,624
12.0	39.7%	0.0%	\$8,841,984	39.7%	0.0%	\$8,841,984
13.0	40.0%	0.0%	\$8,908,800	40.0%	0.0%	\$8,908,800
14.0	40.0%	0.0%	\$8,908,800	40.0%	0.0%	\$8,908,800
15.0	40.0%	0.0%	\$8,908,800	40.0%	0.0%	\$8,908,800
16.0	40.0%	0.0%	\$8,908,800	40.0%	0.0%	\$8,908,800

21 Jan 2015

Project: **COE_MDP01**

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Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Depth-Damage Functions Using USACE Generic

Displacement Flood Depth (ft)	Before Mitigation Values:			After Mitigation Values:		
	Before Mitigation (Days)	Before Mitigation User Entered (Days)	Before Mitigation (\$)	After Mitigation (Days)	After Mitigation User Entered (Days)	After Mitigation (\$)
-2.0	0.0		\$0	0.0		\$0
-1.0	0.0		\$0	0.0		\$0
0.0	0.0		\$0	0.0		\$0
1.0	45.0		\$10,022,400	45.0		\$10,022,400
2.0	90.0		\$22,272,000	90.0		\$22,272,000
3.0	135.0		\$22,272,000	135.0		\$22,272,000
4.0	180.0		\$22,272,000	180.0		\$22,272,000
5.0	225.0		\$22,272,000	225.0		\$22,272,000
6.0	270.0		\$22,272,000	270.0		\$22,272,000
7.0	315.0		\$22,272,000	315.0		\$22,272,000
8.0	360.0		\$22,272,000	360.0		\$22,272,000
9.0	405.0		\$22,272,000	405.0		\$22,272,000
10.0	450.0		\$22,272,000	450.0		\$22,272,000
11.0	495.0		\$22,272,000	495.0		\$22,272,000
12.0	540.0		\$22,272,000	540.0		\$22,272,000
13.0	585.0		\$22,272,000	585.0		\$22,272,000
14.0	630.0		\$22,272,000	630.0		\$22,272,000
15.0	675.0		\$22,272,000	675.0		\$22,272,000
16.0	720.0		\$22,272,000	720.0		\$22,272,000

21 Jan 2015

Project: **COE_MDP01**

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Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Depth-Damage Functions Using USACE Generic

Loss of Function Flood Depth (ft)	Before Mitigation Values:			After Mitigation Values:		
	Before Mitigation (Days)	Before Mitigation User Entered (Days)	Before Mitigation (\$)	After Mitigation (Days)	After Mitigation User Entered (Days)	After Mitigation (\$)
-2.0	0.0		\$0	0.0		\$0
-1.0	0.0		\$0	0.0		\$0
0.0	0.0		\$0	0.0		\$0
1.0	45.0		\$10,022,400	45.0		\$10,022,400
2.0	90.0		\$22,272,000	90.0		\$22,272,000
3.0	135.0		\$22,272,000	135.0		\$22,272,000
4.0	180.0		\$22,272,000	180.0		\$22,272,000
5.0	225.0		\$22,272,000	225.0		\$22,272,000
6.0	270.0		\$22,272,000	270.0		\$22,272,000
7.0	315.0		\$22,272,000	315.0		\$22,272,000
8.0	360.0		\$22,272,000	360.0		\$22,272,000
9.0	405.0		\$22,272,000	405.0		\$22,272,000
10.0	450.0		\$22,272,000	450.0		\$22,272,000
11.0	495.0		\$22,272,000	495.0		\$22,272,000
12.0	540.0		\$22,272,000	540.0		\$22,272,000
13.0	585.0		\$22,272,000	585.0		\$22,272,000
14.0	630.0		\$22,272,000	630.0		\$22,272,000
15.0	675.0		\$22,272,000	675.0		\$22,272,000
16.0	720.0		\$22,272,000	720.0		\$22,272,000

21 Jan 2015

Project: **COE_MDP01**

Pg 56 of 121

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation

Expected Annual Damages After Mitigation

Expected Avoided Damages After Mitigation (Benefits)

Annual: \$106,852
Present Value: \$1,325,932

Annual: \$20,670
Present Value: \$256,497

Annual: \$86,182
Present Value: \$1,069,435

Mitigation Benefits: \$1,069,435

Mitigation Costs: \$252,623

Benefits Minus Costs: \$816,812

Benefit-Cost Ratio: 4.23

21 Jan 2015

Project: **COE_MDP01**

Pg 57 of 121

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	\$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	\$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	\$252,623	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

21 Jan 2015

Project: **COE_MDP01**

Pg 58 of 121

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Justification/Attachments

Field	Description	Attachments
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21 Jan 2015

Project: **COE_MDP01**

Pg 59 of 121

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Structure and Mitigation Details For: NM108, Edinburg, Texas, , Hidalgo

Benefits: \$5,103,509

Costs: \$631,950

BCR: 8.08

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:

Longitude:

Size of Building: 128,000

BRV (\$/sf): \$30.00

Total BRV: \$3,840,000

Residential: Yes

Building Type: Two or More Stories

Obstruction: N/A

Foundation Type: Slab

Basement: No

Building Primary Use:

Structure Type:

Historic Building: No

Structure Elevation: 93.47

First Floor Being Raised:

Demolition Threshold: 50.00%

Source of Flood Data:

Project in SFHA: Yes

Community ID Number:

Effective FIS Date:

FIRM Panel Number:

FIRM Effective Date:

Project Useful Life: 30

H&H Study Title:

H&H Effective Date:

Flood Zone:

Loss of Rent: \$0

Building Contents: \$3,840,000
(Default)

Value of Crawlspace Contents: \$0

Ground Surface Elevation:

Flood Zone Determination:

Breaking wave height: 0.00

Utilities that are not elevated: No

Height FFE above grade: 93.47

One Time Displacement Costs:

NFIP: No

Displacement Costs: \$10,061
(Default)

ICC: No

Current federal lodging per diem: \$77

Population affected : 256

Current federal meals per diem: \$46

Cost per person to eat meals at home: \$7

Street Maintenance Details

Street maintenance budget (\$)

Miles of street (miles)

Length of road (miles)

21 Jan 2015

Project: **COE_MDP01**

Pg 60 of 121

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Total Reduced Street Maintenance Costs \$0.00

Volunteer Costs

Number of Volunteers Required:

Number of Hours Volunteered/Person:

Cost of Volunteers Time (\$/Hour/Person):

Number of Days Lodging/Volunteer:

Per-Person Cost of Lodging for a Volunteer:

Cost of Volunteers:

Social Benefits

Mental Stress and Anxiety

Lost Productivity

Number of Person:

Number of Worker:

Treatment Costs per person: \$2,443.00

Productivity Loss per person: \$8,736.00

Total Mental Stress and Anxiety Cost: \$0.00

Total Lost Productivity Cost: \$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft): 87.5

Flood Profile Number:

Flood Source Name:

Elevation At Which Barrier Will Be Overtopped: 93.47

FEMA Elevation Certificate Diagram Description:

Other Elevation Source:

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	93.31	26.0	90.22	26.0
50	2.00%	93.35	44.0	90.61	44.0
100	1.00%	93.40	52.0	90.82	52.0
500	0.20%	93.42	81.0	91.41	81.0

21 Jan 2015

Project: **COE_MDP01**

Pg 61 of 121

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Depth-Damage Functions Using USACE Generic

Building Flood Depth (ft)	Before Mitigation Values:			After Mitigation Values:		
	Before Mitigation (pct)	Before Mitigation User Entered (pct)	Before Mitigation (\$)	After Mitigation (pct)	After Mitigation User Entered (pct)	After Mitigation (\$)
-2.0	0.0%	0.0%	\$0	0.0%	0.0%	\$0
-1.0	3.0%	0.0%	\$115,200	0.0%	0.0%	\$0
0.0	9.3%	0.0%	\$357,120	9.3%	0.0%	\$357,120
1.0	15.2%	0.0%	\$583,680	15.2%	0.0%	\$583,680
2.0	20.9%	0.0%	\$802,560	20.9%	0.0%	\$802,560
3.0	26.3%	0.0%	\$1,009,920	26.3%	0.0%	\$1,009,920
4.0	31.4%	0.0%	\$1,205,760	31.4%	0.0%	\$1,205,760
5.0	36.2%	0.0%	\$1,390,080	36.2%	0.0%	\$1,390,080
6.0	40.7%	0.0%	\$1,562,880	40.7%	0.0%	\$1,562,880
7.0	44.9%	0.0%	\$1,724,160	44.9%	0.0%	\$1,724,160
8.0	48.8%	0.0%	\$1,873,920	48.8%	0.0%	\$1,873,920
9.0	52.4%	0.0%	\$3,840,000	52.4%	0.0%	\$3,840,000
10.0	55.7%	0.0%	\$3,840,000	55.7%	0.0%	\$3,840,000
11.0	58.7%	0.0%	\$3,840,000	58.7%	0.0%	\$3,840,000
12.0	61.4%	0.0%	\$3,840,000	61.4%	0.0%	\$3,840,000
13.0	63.8%	0.0%	\$3,840,000	63.8%	0.0%	\$3,840,000
14.0	65.9%	0.0%	\$3,840,000	65.9%	0.0%	\$3,840,000
15.0	67.7%	0.0%	\$3,840,000	67.7%	0.0%	\$3,840,000
16.0	69.2%	0.0%	\$3,840,000	69.2%	0.0%	\$3,840,000

21 Jan 2015

Project: **COE_MDP01**

Pg 62 of 121

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Depth-Damage Functions Using USACE Generic

Contents Flood Depth (ft)	Before Mitigation Values:			After Mitigation Values:		
	Before Mitigation (pct)	Before Mitigation User Entered (pct)	Before Mitigation (\$)	After Mitigation (pct)	After Mitigation User Entered (pct)	After Mitigation (\$)
-2.0	0.0%	0.0%	\$0	0.0%	0.0%	\$0
-1.0	1.0%	0.0%	\$38,400	0.0%	0.0%	\$0
0.0	5.0%	0.0%	\$192,000	5.0%	0.0%	\$192,000
1.0	8.7%	0.0%	\$334,080	8.7%	0.0%	\$334,080
2.0	12.2%	0.0%	\$468,480	12.2%	0.0%	\$468,480
3.0	15.5%	0.0%	\$595,200	15.5%	0.0%	\$595,200
4.0	18.5%	0.0%	\$710,400	18.5%	0.0%	\$710,400
5.0	21.3%	0.0%	\$817,920	21.3%	0.0%	\$817,920
6.0	23.9%	0.0%	\$917,760	23.9%	0.0%	\$917,760
7.0	26.3%	0.0%	\$1,009,920	26.3%	0.0%	\$1,009,920
8.0	28.4%	0.0%	\$1,090,560	28.4%	0.0%	\$1,090,560
9.0	30.3%	0.0%	\$1,163,520	30.3%	0.0%	\$1,163,520
10.0	32.0%	0.0%	\$1,228,800	32.0%	0.0%	\$1,228,800
11.0	33.4%	0.0%	\$1,282,560	33.4%	0.0%	\$1,282,560
12.0	34.7%	0.0%	\$1,332,480	34.7%	0.0%	\$1,332,480
13.0	35.6%	0.0%	\$1,367,040	35.6%	0.0%	\$1,367,040
14.0	36.4%	0.0%	\$1,397,760	36.4%	0.0%	\$1,397,760
15.0	36.9%	0.0%	\$1,416,960	36.9%	0.0%	\$1,416,960
16.0	37.2%	0.0%	\$1,428,480	37.2%	0.0%	\$1,428,480

21 Jan 2015

Project: **COE_MDP01**

Pg 63 of 121

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Depth-Damage Functions Using USACE Generic

Displacement Flood Depth (ft)	Before Mitigation Values:			After Mitigation Values:		
	Before Mitigation (Days)	Before Mitigation User Entered (Days)	Before Mitigation (\$)	After Mitigation (Days)	After Mitigation User Entered (Days)	After Mitigation (\$)
-2.0	0.0		\$0	0.0		\$0
-1.0	0.0		\$0	0.0		\$0
0.0	0.0		\$0	0.0		\$0
1.0	45.0		\$1,728,000	45.0		\$1,728,000
2.0	90.0		\$3,840,000	90.0		\$3,840,000
3.0	135.0		\$3,840,000	135.0		\$3,840,000
4.0	180.0		\$3,840,000	180.0		\$3,840,000
5.0	225.0		\$3,840,000	225.0		\$3,840,000
6.0	270.0		\$3,840,000	270.0		\$3,840,000
7.0	315.0		\$3,840,000	315.0		\$3,840,000
8.0	360.0		\$3,840,000	360.0		\$3,840,000
9.0	405.0		\$3,840,000	405.0		\$3,840,000
10.0	450.0		\$3,840,000	450.0		\$3,840,000
11.0	495.0		\$3,840,000	495.0		\$3,840,000
12.0	540.0		\$3,840,000	540.0		\$3,840,000
13.0	585.0		\$3,840,000	585.0		\$3,840,000
14.0	630.0		\$3,840,000	630.0		\$3,840,000
15.0	675.0		\$3,840,000	675.0		\$3,840,000
16.0	720.0		\$3,840,000	720.0		\$3,840,000

21 Jan 2015

Project: **COE_MDP01**

Pg 64 of 121

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Depth-Damage Functions Using USACE Generic

Loss of Function Flood Depth (ft)	Before Mitigation Values:			After Mitigation Values:		
	Before Mitigation (Days)	Before Mitigation User Entered (Days)	Before Mitigation (\$)	After Mitigation (Days)	After Mitigation User Entered (Days)	After Mitigation (\$)
-2.0	0.0		\$0	0.0		\$0
-1.0	0.0		\$0	0.0		\$0
0.0	0.0		\$0	0.0		\$0
1.0	45.0		\$1,728,000	45.0		\$1,728,000
2.0	90.0		\$3,840,000	90.0		\$3,840,000
3.0	135.0		\$3,840,000	135.0		\$3,840,000
4.0	180.0		\$3,840,000	180.0		\$3,840,000
5.0	225.0		\$3,840,000	225.0		\$3,840,000
6.0	270.0		\$3,840,000	270.0		\$3,840,000
7.0	315.0		\$3,840,000	315.0		\$3,840,000
8.0	360.0		\$3,840,000	360.0		\$3,840,000
9.0	405.0		\$3,840,000	405.0		\$3,840,000
10.0	450.0		\$3,840,000	450.0		\$3,840,000
11.0	495.0		\$3,840,000	495.0		\$3,840,000
12.0	540.0		\$3,840,000	540.0		\$3,840,000
13.0	585.0		\$3,840,000	585.0		\$3,840,000
14.0	630.0		\$3,840,000	630.0		\$3,840,000
15.0	675.0		\$3,840,000	675.0		\$3,840,000
16.0	720.0		\$3,840,000	720.0		\$3,840,000

21 Jan 2015

Project: **COE_MDP01**

Pg 65 of 121

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation

Expected Annual Damages After Mitigation

Expected Avoided Damages After Mitigation (Benefits)

Annual:	\$411,276
Present Value:	\$5,103,541

Annual:	\$3
Present Value:	\$32

Annual:	\$411,273
Present Value:	\$5,103,509

Mitigation Benefits: \$5,103,509

Mitigation Costs: \$631,950

Benefits Minus Costs: \$4,471,559

Benefit-Cost Ratio: 8.08

21 Jan 2015

Project: **COE_MDP01**

Pg 66 of 121

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	\$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	\$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	\$631,950	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

21 Jan 2015

Project: **COE_MDP01**

Pg 67 of 121

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Justification/Attachments

Field	Description	Attachments
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21 Jan 2015

Project: **COE_MDP01**

Pg 68 of 121

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Structure and Mitigation Details For: NM109, Edinburg, Texas, , Hidalgo

Benefits: \$787,070

Costs: \$883,893

BCR: .89

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:

Longitude:

Size of Building: 1,008,000

BRV (\$/sf): \$12.50

Total BRV: \$12,600,000

Residential: No

Building Type:

Obstruction: N/A

Foundation Type: Slab

Basement:

Building Primary Use:

Structure Type: Engineered

Historic Building: No

Structure Elevation: 95.88

First Floor Being Raised:

Demolition Threshold: 50.00%

Source of Flood Data:

Project in SFHA: Yes

Community ID Number:

Effective FIS Date:

FIRM Panel Number:

FIRM Effective Date:

Project Useful Life: 30

H&H Study Title:

H&H Effective Date:

Flood Zone:

Loss of Rent: \$0

Building Contents: \$1,260,000
(Default)

Value of Crawlspace Contents: \$0

Ground Surface Elevation:

Flood Zone Determination:

Breaking wave height: 0.00

Utilities that are not elevated: No

Height FFE above grade: 95.88

One Time Displacement Costs:

NFIP: No

Displacement Costs: \$77

ICC: No

Street Maintenance Details

Street maintenance budget (\$)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs \$0.00

Volunteer Costs

Number of Volunteers Required:

Number of Hours Volunteered/Person:

21 Jan 2015

Project: **COE_MDP01**

Pg 69 of 121

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Cost of Volunteers Time (\$/Hour/Person):

Number of Days Lodging/Volunteer:

Per-Person Cost of Lodging for a Volunteer:

Cost of Volunteers:

Social Benefits

Mental Stress and Anxiety

Lost Productivity

Number of Person:

Number of Worker:

Treatment Costs per person: \$2,443.00

Productivity Loss per person: \$8,736.00

Total Mental Stress and Anxiety Cost: \$0.00

Total Lost Productivity Cost: \$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft): 91.4

Flood Profile Number:

Flood Source Name:

Elevation At Which Barrier Will Be Overtopped: 95.88

FEMA Elevation Certificate Diagram Description:

Other Elevation Source:

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	93.42	24.0	93.24	24.0
50	2.00%	95.32	40.0	93.87	40.0
100	1.00%	96.89	49.0	94.21	49.0
500	0.20%	97.28	78.0	95.77	78.0

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Depth-Damage Functions Using USACE - New Orleans: College, structure, fresh water, short duration

Building Flood Depth (ft)	Before Mitigation Values:			After Mitigation Values:		
	Before Mitigation (pct)	Before Mitigation User Entered (pct)	Before Mitigation (\$)	After Mitigation (pct)	After Mitigation User Entered (pct)	After Mitigation (\$)
-2.0	0.0%	0.0%	\$0	0.0%	0.0%	\$0
-1.0	0.0%	0.0%	\$0	0.0%	0.0%	\$0
0.0	0.0%	0.0%	\$0	0.0%	0.0%	\$0
1.0	65.0%	0.0%	\$12,600,000	65.0%	0.0%	\$12,600,000
2.0	65.0%	0.0%	\$12,600,000	65.0%	0.0%	\$12,600,000
3.0	90.0%	0.0%	\$12,600,000	90.0%	0.0%	\$12,600,000
4.0	100.0%	0.0%	\$12,600,000	100.0%	0.0%	\$12,600,000
5.0	100.0%	0.0%	\$12,600,000	100.0%	0.0%	\$12,600,000
6.0	100.0%	0.0%	\$12,600,000	100.0%	0.0%	\$12,600,000
7.0	100.0%	0.0%	\$12,600,000	100.0%	0.0%	\$12,600,000
8.0	100.0%	0.0%	\$12,600,000	100.0%	0.0%	\$12,600,000
9.0	100.0%	0.0%	\$12,600,000	100.0%	0.0%	\$12,600,000
10.0	100.0%	0.0%	\$12,600,000	100.0%	0.0%	\$12,600,000
11.0	100.0%	0.0%	\$12,600,000	100.0%	0.0%	\$12,600,000
12.0	100.0%	0.0%	\$12,600,000	100.0%	0.0%	\$12,600,000
13.0	100.0%	0.0%	\$12,600,000	100.0%	0.0%	\$12,600,000
14.0	100.0%	0.0%	\$12,600,000	100.0%	0.0%	\$12,600,000
15.0	100.0%	0.0%	\$12,600,000	100.0%	0.0%	\$12,600,000
16.0	100.0%	0.0%	\$12,600,000	100.0%	0.0%	\$12,600,000

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Depth-Damage Functions Using USACE - New Orleans: College, structure, fresh water, short duration

Contents Flood Depth (ft)	Before Mitigation Values:			After Mitigation Values:		
	Before Mitigation (pct)	Before Mitigation User Entered (pct)	Before Mitigation (\$)	After Mitigation (pct)	After Mitigation User Entered (pct)	After Mitigation (\$)
-2.0	0.0%	0.0%	\$0	0.0%	0.0%	\$0
-1.0	0.0%	0.0%	\$0	0.0%	0.0%	\$0
0.0	0.0%	0.0%	\$0	0.0%	0.0%	\$0
1.0	5.0%	0.0%	\$630,000	5.0%	0.0%	\$630,000
2.0	18.0%	0.0%	\$2,268,000	18.0%	0.0%	\$2,268,000
3.0	50.0%	0.0%	\$12,600,000	50.0%	0.0%	\$12,600,000
4.0	50.0%	0.0%	\$12,600,000	50.0%	0.0%	\$12,600,000
5.0	52.0%	0.0%	\$12,600,000	52.0%	0.0%	\$12,600,000
6.0	58.0%	0.0%	\$12,600,000	58.0%	0.0%	\$12,600,000
7.0	58.0%	0.0%	\$12,600,000	58.0%	0.0%	\$12,600,000
8.0	58.0%	0.0%	\$12,600,000	58.0%	0.0%	\$12,600,000
9.0	58.0%	0.0%	\$12,600,000	58.0%	0.0%	\$12,600,000
10.0	58.0%	0.0%	\$12,600,000	58.0%	0.0%	\$12,600,000
11.0	59.0%	0.0%	\$12,600,000	59.0%	0.0%	\$12,600,000
12.0	69.0%	0.0%	\$12,600,000	69.0%	0.0%	\$12,600,000
13.0	70.0%	0.0%	\$12,600,000	70.0%	0.0%	\$12,600,000
14.0	70.0%	0.0%	\$12,600,000	70.0%	0.0%	\$12,600,000
15.0	79.0%	0.0%	\$12,600,000	79.0%	0.0%	\$12,600,000
16.0	79.0%	0.0%	\$12,600,000	79.0%	0.0%	\$12,600,000

21 Jan 2015

Project: **COE_MDP01**

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Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Depth-Damage Functions Using USACE - New Orleans: College, structure, fresh water, short duration

Displacement Flood Depth (ft)	Before Mitigation Values:			After Mitigation Values:		
	Before Mitigation (Days)	Before Mitigation User Entered (Days)	Before Mitigation (\$)	After Mitigation (Days)	After Mitigation User Entered (Days)	After Mitigation (\$)
-2.0	0.0		\$0	0.0		\$0
-1.0	0.0		\$0	0.0		\$0
0.0	0.0		\$0	0.0		\$0
1.0	45.0		\$5,670,000	45.0		\$5,670,000
2.0	90.0		\$12,600,000	90.0		\$12,600,000
3.0	135.0		\$12,600,000	135.0		\$12,600,000
4.0	180.0		\$12,600,000	180.0		\$12,600,000
5.0	225.0		\$12,600,000	225.0		\$12,600,000
6.0	270.0		\$12,600,000	270.0		\$12,600,000
7.0	315.0		\$12,600,000	315.0		\$12,600,000
8.0	360.0		\$12,600,000	360.0		\$12,600,000
9.0	405.0		\$12,600,000	405.0		\$12,600,000
10.0	450.0		\$12,600,000	450.0		\$12,600,000
11.0	495.0		\$12,600,000	495.0		\$12,600,000
12.0	540.0		\$12,600,000	540.0		\$12,600,000
13.0	585.0		\$12,600,000	585.0		\$12,600,000
14.0	630.0		\$12,600,000	630.0		\$12,600,000
15.0	675.0		\$12,600,000	675.0		\$12,600,000
16.0	720.0		\$12,600,000	720.0		\$12,600,000

21 Jan 2015

Project: **COE_MDP01**

Pg 73 of 121

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Depth-Damage Functions Using USACE - New Orleans: College, structure, fresh water, short duration

Loss of Function Flood Depth (ft)	Before Mitigation Values:			After Mitigation Values:		
	Before Mitigation (Days)	Before Mitigation User Entered (Days)	Before Mitigation (\$)	After Mitigation (Days)	After Mitigation User Entered (Days)	After Mitigation (\$)
-2.0	0.0		\$0	0.0		\$0
-1.0	0.0		\$0	0.0		\$0
0.0	0.0		\$0	0.0		\$0
1.0	45.0		\$5,670,000	45.0		\$5,670,000
2.0	90.0		\$12,600,000	90.0		\$12,600,000
3.0	135.0		\$12,600,000	135.0		\$12,600,000
4.0	180.0		\$12,600,000	180.0		\$12,600,000
5.0	225.0		\$12,600,000	225.0		\$12,600,000
6.0	270.0		\$12,600,000	270.0		\$12,600,000
7.0	315.0		\$12,600,000	315.0		\$12,600,000
8.0	360.0		\$12,600,000	360.0		\$12,600,000
9.0	405.0		\$12,600,000	405.0		\$12,600,000
10.0	450.0		\$12,600,000	450.0		\$12,600,000
11.0	495.0		\$12,600,000	495.0		\$12,600,000
12.0	540.0		\$12,600,000	540.0		\$12,600,000
13.0	585.0		\$12,600,000	585.0		\$12,600,000
14.0	630.0		\$12,600,000	630.0		\$12,600,000
15.0	675.0		\$12,600,000	675.0		\$12,600,000
16.0	720.0		\$12,600,000	720.0		\$12,600,000

21 Jan 2015

Project: **COE_MDP01**

Pg 74 of 121

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation

Expected Annual Damages After Mitigation

Expected Avoided Damages After Mitigation (Benefits)

Annual: \$87,379
Present Value: \$1,084,293

Annual: \$23,952
Present Value: \$297,223

Annual: \$63,427
Present Value: \$787,070

Mitigation Benefits: \$787,070

Mitigation Costs: \$883,893

Benefits Minus Costs: (\$96,823)

Benefit-Cost Ratio: 0.89

21 Jan 2015

Project: **COE_MDP01**

Pg 75 of 121

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	\$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	\$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	\$883,893	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

21 Jan 2015

Project: **COE_MDP01**

Pg 76 of 121

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Justification/Attachments

Field	Description	Attachments
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21 Jan 2015

Project: **COE_MDP01**

Pg 77 of 121

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Structure and Mitigation Details For: NM110, Edinburg, Texas, , Hidalgo

Benefits: \$2,962,055

Costs: \$452,263

BCR: 6.55

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:

Longitude:

Size of Building: 552,500

BRV (\$/sf): \$59.40

Total BRV: \$32,818,500

Residential: Yes

Building Type: One-Story

Obstruction: N/A

Foundation Type: Slab

Basement: No

Building Primary Use:

Structure Type:

Historic Building: No

Structure Elevation: 98.30

First Floor Being Raised:

Demolition Threshold: 50.00%

Source of Flood Data:

Project in SFHA: Yes

Community ID Number:

Effective FIS Date:

FIRM Panel Number:

FIRM Effective Date:

Project Useful Life: 30

H&H Study Title:

H&H Effective Date:

Flood Zone:

Loss of Rent: \$0

Building Contents: \$32,818,500
(Default)

Value of Crawlspace Contents: \$0

Ground Surface Elevation:

Flood Zone Determination:

Breaking wave height: 0.00

Utilities that are not elevated: No

Height FFE above grade: 98.30

One Time Displacement Costs:

NFIP: No

Displacement Costs: \$34,553
(Default)

ICC: No

Current federal lodging per diem: \$77

Population affected : 884

Current federal meals per diem: \$46

Cost per person to eat meals at home: \$7

Street Maintenance Details

Street maintenance budget (\$)

Miles of street (miles)

Length of road (miles)

21 Jan 2015

Project: **COE_MDP01**

Pg 78 of 121

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Total Reduced Street Maintenance Costs \$0.00

Volunteer Costs

Number of Volunteers Required:

Number of Hours Volunteered/Person:

Cost of Volunteers Time (\$/Hour/Person):

Number of Days Lodging/Volunteer:

Per-Person Cost of Lodging for a Volunteer:

Cost of Volunteers:

Social Benefits

Mental Stress and Anxiety

Lost Productivity

Number of Person:

Number of Worker:

Treatment Costs per person: \$2,443.00

Productivity Loss per person: \$8,736.00

Total Mental Stress and Anxiety Cost: \$0.00

Total Lost Productivity Cost: \$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft): 92.2

Flood Profile Number:

Flood Source Name:

Elevation At Which Barrier Will Be Overtopped: 97.80

FEMA Elevation Certificate Diagram Description:

Other Elevation Source:

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	96.85	60.0	94.90	60.0
50	2.00%	97.43	102.0	95.88	102.0
100	1.00%	97.67	125.0	96.52	125.0
500	0.20%	98.08	200.0	97.70	200.0

21 Jan 2015

Project: **COE_MDP01**

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Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Depth-Damage Functions Using USACE Generic

Building Flood Depth (ft)	Before Mitigation Values:			After Mitigation Values:		
	Before Mitigation (pct)	Before Mitigation User Entered (pct)	Before Mitigation (\$)	After Mitigation (pct)	After Mitigation User Entered (pct)	After Mitigation (\$)
-2.0	0.0%	0.0%	\$0	0.0%	0.0%	\$0
-1.0	2.5%	0.0%	\$820,463	0.0%	0.0%	\$0
0.0	13.4%	0.0%	\$4,397,679	13.4%	0.0%	\$4,397,679
1.0	23.3%	0.0%	\$7,646,711	23.3%	0.0%	\$7,646,711
2.0	32.1%	0.0%	\$10,534,739	32.1%	0.0%	\$10,534,739
3.0	40.1%	0.0%	\$13,160,219	40.1%	0.0%	\$13,160,219
4.0	47.1%	0.0%	\$15,457,514	47.1%	0.0%	\$15,457,514
5.0	53.2%	0.0%	\$32,818,500	53.2%	0.0%	\$32,818,500
6.0	58.6%	0.0%	\$32,818,500	58.6%	0.0%	\$32,818,500
7.0	63.2%	0.0%	\$32,818,500	63.2%	0.0%	\$32,818,500
8.0	67.2%	0.0%	\$32,818,500	67.2%	0.0%	\$32,818,500
9.0	70.5%	0.0%	\$32,818,500	70.5%	0.0%	\$32,818,500
10.0	73.2%	0.0%	\$32,818,500	73.2%	0.0%	\$32,818,500
11.0	75.4%	0.0%	\$32,818,500	75.4%	0.0%	\$32,818,500
12.0	77.2%	0.0%	\$32,818,500	77.2%	0.0%	\$32,818,500
13.0	78.5%	0.0%	\$32,818,500	78.5%	0.0%	\$32,818,500
14.0	79.5%	0.0%	\$32,818,500	79.5%	0.0%	\$32,818,500
15.0	80.2%	0.0%	\$32,818,500	80.2%	0.0%	\$32,818,500
16.0	80.7%	0.0%	\$32,818,500	80.7%	0.0%	\$32,818,500

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Depth-Damage Functions Using USACE Generic

Contents Flood Depth (ft)	Before Mitigation Values:			After Mitigation Values:		
	Before Mitigation (pct)	Before Mitigation User Entered (pct)	Before Mitigation (\$)	After Mitigation (pct)	After Mitigation User Entered (pct)	After Mitigation (\$)
-2.0	0.0%	0.0%	\$0	0.0%	0.0%	\$0
-1.0	2.4%	0.0%	\$787,644	0.0%	0.0%	\$0
0.0	8.1%	0.0%	\$2,658,299	8.1%	0.0%	\$2,658,299
1.0	13.3%	0.0%	\$4,364,861	13.3%	0.0%	\$4,364,861
2.0	17.9%	0.0%	\$5,874,512	17.9%	0.0%	\$5,874,512
3.0	22.0%	0.0%	\$7,220,070	22.0%	0.0%	\$7,220,070
4.0	25.7%	0.0%	\$8,434,355	25.7%	0.0%	\$8,434,355
5.0	28.8%	0.0%	\$9,451,728	28.8%	0.0%	\$9,451,728
6.0	31.5%	0.0%	\$10,337,828	31.5%	0.0%	\$10,337,828
7.0	33.8%	0.0%	\$11,092,653	33.8%	0.0%	\$11,092,653
8.0	35.7%	0.0%	\$11,716,205	35.7%	0.0%	\$11,716,205
9.0	37.2%	0.0%	\$12,208,482	37.2%	0.0%	\$12,208,482
10.0	38.4%	0.0%	\$12,602,304	38.4%	0.0%	\$12,602,304
11.0	39.2%	0.0%	\$12,864,852	39.2%	0.0%	\$12,864,852
12.0	39.7%	0.0%	\$13,028,945	39.7%	0.0%	\$13,028,945
13.0	40.0%	0.0%	\$13,127,400	40.0%	0.0%	\$13,127,400
14.0	40.0%	0.0%	\$13,127,400	40.0%	0.0%	\$13,127,400
15.0	40.0%	0.0%	\$13,127,400	40.0%	0.0%	\$13,127,400
16.0	40.0%	0.0%	\$13,127,400	40.0%	0.0%	\$13,127,400

21 Jan 2015

Project: **COE_MDP01**

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Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Depth-Damage Functions Using USACE Generic

Displacement Flood Depth (ft)	Before Mitigation Values:			After Mitigation Values:		
	Before Mitigation (Days)	Before Mitigation User Entered (Days)	Before Mitigation (\$)	After Mitigation (Days)	After Mitigation User Entered (Days)	After Mitigation (\$)
-2.0	0.0		\$0	0.0		\$0
-1.0	0.0		\$0	0.0		\$0
0.0	0.0		\$0	0.0		\$0
1.0	45.0		\$14,768,325	45.0		\$14,768,325
2.0	90.0		\$32,818,500	90.0		\$32,818,500
3.0	135.0		\$32,818,500	135.0		\$32,818,500
4.0	180.0		\$32,818,500	180.0		\$32,818,500
5.0	225.0		\$32,818,500	225.0		\$32,818,500
6.0	270.0		\$32,818,500	270.0		\$32,818,500
7.0	315.0		\$32,818,500	315.0		\$32,818,500
8.0	360.0		\$32,818,500	360.0		\$32,818,500
9.0	405.0		\$32,818,500	405.0		\$32,818,500
10.0	450.0		\$32,818,500	450.0		\$32,818,500
11.0	495.0		\$32,818,500	495.0		\$32,818,500
12.0	540.0		\$32,818,500	540.0		\$32,818,500
13.0	585.0		\$32,818,500	585.0		\$32,818,500
14.0	630.0		\$32,818,500	630.0		\$32,818,500
15.0	675.0		\$32,818,500	675.0		\$32,818,500
16.0	720.0		\$32,818,500	720.0		\$32,818,500

21 Jan 2015

Project: **COE_MDP01**

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Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Depth-Damage Functions Using USACE Generic

Loss of Function Flood Depth (ft)	Before Mitigation Values:			After Mitigation Values:		
	Before Mitigation (Days)	Before Mitigation User Entered (Days)	Before Mitigation (\$)	After Mitigation (Days)	After Mitigation User Entered (Days)	After Mitigation (\$)
-2.0	0.0		\$0	0.0		\$0
-1.0	0.0		\$0	0.0		\$0
0.0	0.0		\$0	0.0		\$0
1.0	45.0		\$14,768,325	45.0		\$14,768,325
2.0	90.0		\$32,818,500	90.0		\$32,818,500
3.0	135.0		\$32,818,500	135.0		\$32,818,500
4.0	180.0		\$32,818,500	180.0		\$32,818,500
5.0	225.0		\$32,818,500	225.0		\$32,818,500
6.0	270.0		\$32,818,500	270.0		\$32,818,500
7.0	315.0		\$32,818,500	315.0		\$32,818,500
8.0	360.0		\$32,818,500	360.0		\$32,818,500
9.0	405.0		\$32,818,500	405.0		\$32,818,500
10.0	450.0		\$32,818,500	450.0		\$32,818,500
11.0	495.0		\$32,818,500	495.0		\$32,818,500
12.0	540.0		\$32,818,500	540.0		\$32,818,500
13.0	585.0		\$32,818,500	585.0		\$32,818,500
14.0	630.0		\$32,818,500	630.0		\$32,818,500
15.0	675.0		\$32,818,500	675.0		\$32,818,500
16.0	720.0		\$32,818,500	720.0		\$32,818,500

21 Jan 2015

Project: **COE_MDP01**

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Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation

Expected Annual Damages After Mitigation

Expected Avoided Damages After Mitigation (Benefits)

Annual: \$295,768
Present Value: \$3,670,195

Annual: \$57,066
Present Value: \$708,140

Annual: \$238,702
Present Value: \$2,962,055

Mitigation Benefits: \$2,962,055

Mitigation Costs: \$452,263

Benefits Minus Costs: \$2,509,792

Benefit-Cost Ratio: 6.55

21 Jan 2015

Project: **COE_MDP01**

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Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	\$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	\$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	\$452,263	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

21 Jan 2015

Project: **COE_MDP01**

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Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Justification/Attachments

Field	Description	Attachments
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21 Jan 2015

Project: **COE_MDP01**

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Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Structure and Mitigation Details For: NM111, Edinburg, Texas, , Hidalgo

Benefits: \$387,074

Costs: \$258,228

BCR: 1.50

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:

Longitude:

Size of Building: 502,000

BRV (\$/sf): \$45.00

Total BRV: \$22,590,000

Residential: Yes

Building Type: One-Story

Obstruction: N/A

Foundation Type: Slab

Basement: No

Building Primary Use:

Structure Type:

Historic Building: No

Structure Elevation: 96.91

First Floor Being Raised:

Demolition Threshold: 50.00%

Source of Flood Data:

Project in SFHA: Yes

Community ID Number:

Effective FIS Date:

FIRM Panel Number:

FIRM Effective Date:

Project Useful Life: 30

H&H Study Title:

H&H Effective Date:

Flood Zone:

Loss of Rent: \$0

Building Contents: \$22,590,000
(Default)

Value of Crawlspace Contents: \$0

Ground Surface Elevation:

Flood Zone Determination:

Breaking wave height: 0.00

Utilities that are not elevated: No

Height FFE above grade: 96.91

One Time Displacement Costs:

NFIP: No

Displacement Costs: \$39,233
(Default)

ICC: No

Current federal lodging per diem: \$77

Population affected : 1,004

Current federal meals per diem: \$46

Cost per person to eat meals at home: \$7

Street Maintenance Details

Street maintenance budget (\$)

Miles of street (miles)

Length of road (miles)

21 Jan 2015

Project: **COE_MDP01**

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Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Total Reduced Street Maintenance Costs \$0.00

Volunteer Costs

Number of Volunteers Required:

Number of Hours Volunteered/Person:

Cost of Volunteers Time (\$/Hour/Person):

Number of Days Lodging/Volunteer:

Per-Person Cost of Lodging for a Volunteer:

Cost of Volunteers:

Social Benefits

Mental Stress and Anxiety

Lost Productivity

Number of Person:

Number of Worker:

Treatment Costs per person: \$2,443.00

Productivity Loss per person: \$8,736.00

Total Mental Stress and Anxiety Cost: \$0.00

Total Lost Productivity Cost: \$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft): 90.1

Flood Profile Number:

Flood Source Name:

Elevation At Which Barrier Will Be Overtopped: 96.41

FEMA Elevation Certificate Diagram Description:

Other Elevation Source:

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	94.51	65.0	93.98	65.0
50	2.00%	95.40	99.0	95.33	99.0
100	1.00%	96.01	123.0	95.88	123.0
500	0.20%	97.32	181.0	97.21	181.0

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Depth-Damage Functions Using USACE Generic

Building Flood Depth (ft)	Before Mitigation Values:			After Mitigation Values:		
	Before Mitigation (pct)	Before Mitigation User Entered (pct)	Before Mitigation (\$)	After Mitigation (pct)	After Mitigation User Entered (pct)	After Mitigation (\$)
-2.0	0.0%	0.0%	\$0	0.0%	0.0%	\$0
-1.0	2.5%	0.0%	\$564,750	0.0%	0.0%	\$0
0.0	13.4%	0.0%	\$3,027,060	13.4%	0.0%	\$3,027,060
1.0	23.3%	0.0%	\$5,263,470	23.3%	0.0%	\$5,263,470
2.0	32.1%	0.0%	\$7,251,390	32.1%	0.0%	\$7,251,390
3.0	40.1%	0.0%	\$9,058,590	40.1%	0.0%	\$9,058,590
4.0	47.1%	0.0%	\$10,639,890	47.1%	0.0%	\$10,639,890
5.0	53.2%	0.0%	\$22,590,000	53.2%	0.0%	\$22,590,000
6.0	58.6%	0.0%	\$22,590,000	58.6%	0.0%	\$22,590,000
7.0	63.2%	0.0%	\$22,590,000	63.2%	0.0%	\$22,590,000
8.0	67.2%	0.0%	\$22,590,000	67.2%	0.0%	\$22,590,000
9.0	70.5%	0.0%	\$22,590,000	70.5%	0.0%	\$22,590,000
10.0	73.2%	0.0%	\$22,590,000	73.2%	0.0%	\$22,590,000
11.0	75.4%	0.0%	\$22,590,000	75.4%	0.0%	\$22,590,000
12.0	77.2%	0.0%	\$22,590,000	77.2%	0.0%	\$22,590,000
13.0	78.5%	0.0%	\$22,590,000	78.5%	0.0%	\$22,590,000
14.0	79.5%	0.0%	\$22,590,000	79.5%	0.0%	\$22,590,000
15.0	80.2%	0.0%	\$22,590,000	80.2%	0.0%	\$22,590,000
16.0	80.7%	0.0%	\$22,590,000	80.7%	0.0%	\$22,590,000

21 Jan 2015

Project: **COE_MDP01**

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Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Depth-Damage Functions Using USACE Generic

Contents Flood Depth (ft)	Before Mitigation Values:			After Mitigation Values:		
	Before Mitigation (pct)	Before Mitigation User Entered (pct)	Before Mitigation (\$)	After Mitigation (pct)	After Mitigation User Entered (pct)	After Mitigation (\$)
-2.0	0.0%	0.0%	\$0	0.0%	0.0%	\$0
-1.0	2.4%	0.0%	\$542,160	0.0%	0.0%	\$0
0.0	8.1%	0.0%	\$1,829,790	8.1%	0.0%	\$1,829,790
1.0	13.3%	0.0%	\$3,004,470	13.3%	0.0%	\$3,004,470
2.0	17.9%	0.0%	\$4,043,610	17.9%	0.0%	\$4,043,610
3.0	22.0%	0.0%	\$4,969,800	22.0%	0.0%	\$4,969,800
4.0	25.7%	0.0%	\$5,805,630	25.7%	0.0%	\$5,805,630
5.0	28.8%	0.0%	\$6,505,920	28.8%	0.0%	\$6,505,920
6.0	31.5%	0.0%	\$7,115,850	31.5%	0.0%	\$7,115,850
7.0	33.8%	0.0%	\$7,635,420	33.8%	0.0%	\$7,635,420
8.0	35.7%	0.0%	\$8,064,630	35.7%	0.0%	\$8,064,630
9.0	37.2%	0.0%	\$8,403,480	37.2%	0.0%	\$8,403,480
10.0	38.4%	0.0%	\$8,674,560	38.4%	0.0%	\$8,674,560
11.0	39.2%	0.0%	\$8,855,280	39.2%	0.0%	\$8,855,280
12.0	39.7%	0.0%	\$8,968,230	39.7%	0.0%	\$8,968,230
13.0	40.0%	0.0%	\$9,036,000	40.0%	0.0%	\$9,036,000
14.0	40.0%	0.0%	\$9,036,000	40.0%	0.0%	\$9,036,000
15.0	40.0%	0.0%	\$9,036,000	40.0%	0.0%	\$9,036,000
16.0	40.0%	0.0%	\$9,036,000	40.0%	0.0%	\$9,036,000

21 Jan 2015

Project: **COE_MDP01**

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Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Depth-Damage Functions Using USACE Generic

Displacement Flood Depth (ft)	Before Mitigation Values:			After Mitigation Values:		
	Before Mitigation (Days)	Before Mitigation User Entered (Days)	Before Mitigation (\$)	After Mitigation (Days)	After Mitigation User Entered (Days)	After Mitigation (\$)
-2.0	0.0		\$0	0.0		\$0
-1.0	0.0		\$0	0.0		\$0
0.0	0.0		\$0	0.0		\$0
1.0	45.0		\$10,165,500	45.0		\$10,165,500
2.0	90.0		\$22,590,000	90.0		\$22,590,000
3.0	135.0		\$22,590,000	135.0		\$22,590,000
4.0	180.0		\$22,590,000	180.0		\$22,590,000
5.0	225.0		\$22,590,000	225.0		\$22,590,000
6.0	270.0		\$22,590,000	270.0		\$22,590,000
7.0	315.0		\$22,590,000	315.0		\$22,590,000
8.0	360.0		\$22,590,000	360.0		\$22,590,000
9.0	405.0		\$22,590,000	405.0		\$22,590,000
10.0	450.0		\$22,590,000	450.0		\$22,590,000
11.0	495.0		\$22,590,000	495.0		\$22,590,000
12.0	540.0		\$22,590,000	540.0		\$22,590,000
13.0	585.0		\$22,590,000	585.0		\$22,590,000
14.0	630.0		\$22,590,000	630.0		\$22,590,000
15.0	675.0		\$22,590,000	675.0		\$22,590,000
16.0	720.0		\$22,590,000	720.0		\$22,590,000

21 Jan 2015

Project: **COE_MDP01**

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Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Depth-Damage Functions Using USACE Generic

Loss of Function Flood Depth (ft)	Before Mitigation Values:			After Mitigation Values:		
	Before Mitigation (Days)	Before Mitigation User Entered (Days)	Before Mitigation (\$)	After Mitigation (Days)	After Mitigation User Entered (Days)	After Mitigation (\$)
-2.0	0.0		\$0	0.0		\$0
-1.0	0.0		\$0	0.0		\$0
0.0	0.0		\$0	0.0		\$0
1.0	45.0		\$10,165,500	45.0		\$10,165,500
2.0	90.0		\$22,590,000	90.0		\$22,590,000
3.0	135.0		\$22,590,000	135.0		\$22,590,000
4.0	180.0		\$22,590,000	180.0		\$22,590,000
5.0	225.0		\$22,590,000	225.0		\$22,590,000
6.0	270.0		\$22,590,000	270.0		\$22,590,000
7.0	315.0		\$22,590,000	315.0		\$22,590,000
8.0	360.0		\$22,590,000	360.0		\$22,590,000
9.0	405.0		\$22,590,000	405.0		\$22,590,000
10.0	450.0		\$22,590,000	450.0		\$22,590,000
11.0	495.0		\$22,590,000	495.0		\$22,590,000
12.0	540.0		\$22,590,000	540.0		\$22,590,000
13.0	585.0		\$22,590,000	585.0		\$22,590,000
14.0	630.0		\$22,590,000	630.0		\$22,590,000
15.0	675.0		\$22,590,000	675.0		\$22,590,000
16.0	720.0		\$22,590,000	720.0		\$22,590,000

21 Jan 2015

Project: **COE_MDP01**

Pg 92 of 121

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation

Expected Annual Damages After Mitigation

Expected Avoided Damages After Mitigation (Benefits)

Annual: \$112,847
Present Value: \$1,400,320

Annual: \$81,654
Present Value: \$1,013,246

Annual: \$31,193
Present Value: \$387,074

Mitigation Benefits: \$387,074

Mitigation Costs: \$258,228

Benefits Minus Costs: \$128,846

Benefit-Cost Ratio: 1.50

21 Jan 2015

Project: **COE_MDP01**

Pg 93 of 121

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	\$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	\$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	\$258,228	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

21 Jan 2015

Project: **COE_MDP01**

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Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Justification/Attachments

Field	Description	Attachments
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21 Jan 2015

Project: **COE_MDP01**

Pg 95 of 121

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Structure and Mitigation Details For: NM113, Edinburg, Texas, , Hidalgo

Benefits: \$1,160,902

Costs: \$143,313

BCR: 8.10

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:

Longitude:

Size of Building: 794,750

BRV (\$/sf): \$43.64

Total BRV: \$34,682,890

Residential: Yes

Building Type: One-Story

Obstruction: N/A

Foundation Type: Slab

Basement: No

Building Primary Use:

Structure Type:

Historic Building: No

Structure Elevation: 99.93

First Floor Being Raised:

Demolition Threshold: 50.00%

Source of Flood Data:

Project in SFHA: Yes

Community ID Number:

Effective FIS Date:

FIRM Panel Number:

FIRM Effective Date:

Project Useful Life: 30

H&H Study Title:

H&H Effective Date:

Flood Zone:

Loss of Rent: \$0

Building Contents: \$34,682,890
(Default)

Value of Crawlspace Contents: \$0

Ground Surface Elevation:

Flood Zone Determination:

Breaking wave height: 0.00

Utilities that are not elevated: No

Height FFE above grade: 99.93

One Time Displacement Costs:

NFIP: No

Displacement Costs: \$45,161
(Default)

ICC: No

Current federal lodging per diem: \$77

Population affected : 1,156

Current federal meals per diem: \$46

Cost per person to eat meals at home: \$7

Street Maintenance Details

Street maintenance budget (\$)

Miles of street (miles)

Length of road (miles)

21 Jan 2015

Project: **COE_MDP01**

Pg 96 of 121

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Total Reduced Street Maintenance Costs \$0.00

Volunteer Costs

Number of Volunteers Required:

Number of Hours Volunteered/Person:

Cost of Volunteers Time (\$/Hour/Person):

Number of Days Lodging/Volunteer:

Per-Person Cost of Lodging for a Volunteer:

Cost of Volunteers:

Social Benefits

Mental Stress and Anxiety

Lost Productivity

Number of Person:

Number of Worker:

Treatment Costs per person: \$2,443.00

Productivity Loss per person: \$8,736.00

Total Mental Stress and Anxiety Cost: \$0.00

Total Lost Productivity Cost: \$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft): 93.6

Flood Profile Number:

Flood Source Name:

Elevation At Which Barrier Will Be Overtopped: 98.93

FEMA Elevation Certificate Diagram Description:

Other Elevation Source:

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	97.57	43.0	96.31	43.0
50	2.00%	98.51	71.0	97.24	71.0
100	1.00%	99.15	86.0	97.83	86.0
500	0.20%	99.77	136.0	99.60	136.0

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Depth-Damage Functions Using USACE Generic

Building Flood Depth (ft)	Before Mitigation Values:			After Mitigation Values:		
	Before Mitigation (pct)	Before Mitigation User Entered (pct)	Before Mitigation (\$)	After Mitigation (pct)	After Mitigation User Entered (pct)	After Mitigation (\$)
-2.0	0.0%	0.0%	\$0	0.0%	0.0%	\$0
-1.0	2.5%	0.0%	\$867,072	2.5%	0.0%	\$867,072
0.0	13.4%	0.0%	\$4,647,507	13.4%	0.0%	\$4,647,507
1.0	23.3%	0.0%	\$8,081,113	23.3%	0.0%	\$8,081,113
2.0	32.1%	0.0%	\$11,133,208	32.1%	0.0%	\$11,133,208
3.0	40.1%	0.0%	\$13,907,839	40.1%	0.0%	\$13,907,839
4.0	47.1%	0.0%	\$16,335,641	47.1%	0.0%	\$16,335,641
5.0	53.2%	0.0%	\$34,682,890	53.2%	0.0%	\$34,682,890
6.0	58.6%	0.0%	\$34,682,890	58.6%	0.0%	\$34,682,890
7.0	63.2%	0.0%	\$34,682,890	63.2%	0.0%	\$34,682,890
8.0	67.2%	0.0%	\$34,682,890	67.2%	0.0%	\$34,682,890
9.0	70.5%	0.0%	\$34,682,890	70.5%	0.0%	\$34,682,890
10.0	73.2%	0.0%	\$34,682,890	73.2%	0.0%	\$34,682,890
11.0	75.4%	0.0%	\$34,682,890	75.4%	0.0%	\$34,682,890
12.0	77.2%	0.0%	\$34,682,890	77.2%	0.0%	\$34,682,890
13.0	78.5%	0.0%	\$34,682,890	78.5%	0.0%	\$34,682,890
14.0	79.5%	0.0%	\$34,682,890	79.5%	0.0%	\$34,682,890
15.0	80.2%	0.0%	\$34,682,890	80.2%	0.0%	\$34,682,890
16.0	80.7%	0.0%	\$34,682,890	80.7%	0.0%	\$34,682,890

21 Jan 2015

Project: **COE_MDP01**

Pg 98 of 121

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Depth-Damage Functions Using USACE Generic

Contents Flood Depth (ft)	Before Mitigation Values:			After Mitigation Values:		
	Before Mitigation (pct)	Before Mitigation User Entered (pct)	Before Mitigation (\$)	After Mitigation (pct)	After Mitigation User Entered (pct)	After Mitigation (\$)
-2.0	0.0%	0.0%	\$0	0.0%	0.0%	\$0
-1.0	2.4%	0.0%	\$832,389	2.4%	0.0%	\$832,389
0.0	8.1%	0.0%	\$2,809,314	8.1%	0.0%	\$2,809,314
1.0	13.3%	0.0%	\$4,612,824	13.3%	0.0%	\$4,612,824
2.0	17.9%	0.0%	\$6,208,237	17.9%	0.0%	\$6,208,237
3.0	22.0%	0.0%	\$7,630,236	22.0%	0.0%	\$7,630,236
4.0	25.7%	0.0%	\$8,913,503	25.7%	0.0%	\$8,913,503
5.0	28.8%	0.0%	\$9,988,672	28.8%	0.0%	\$9,988,672
6.0	31.5%	0.0%	\$10,925,110	31.5%	0.0%	\$10,925,110
7.0	33.8%	0.0%	\$11,722,817	33.8%	0.0%	\$11,722,817
8.0	35.7%	0.0%	\$12,381,792	35.7%	0.0%	\$12,381,792
9.0	37.2%	0.0%	\$12,902,035	37.2%	0.0%	\$12,902,035
10.0	38.4%	0.0%	\$13,318,230	38.4%	0.0%	\$13,318,230
11.0	39.2%	0.0%	\$13,595,693	39.2%	0.0%	\$13,595,693
12.0	39.7%	0.0%	\$13,769,107	39.7%	0.0%	\$13,769,107
13.0	40.0%	0.0%	\$13,873,156	40.0%	0.0%	\$13,873,156
14.0	40.0%	0.0%	\$13,873,156	40.0%	0.0%	\$13,873,156
15.0	40.0%	0.0%	\$13,873,156	40.0%	0.0%	\$13,873,156
16.0	40.0%	0.0%	\$13,873,156	40.0%	0.0%	\$13,873,156

21 Jan 2015

Project: **COE_MDP01**

Pg 99 of 121

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Depth-Damage Functions Using USACE Generic

Displacement Flood Depth (ft)	Before Mitigation Values:			After Mitigation Values:		
	Before Mitigation (Days)	Before Mitigation User Entered (Days)	Before Mitigation (\$)	After Mitigation (Days)	After Mitigation User Entered (Days)	After Mitigation (\$)
-2.0	0.0		\$0	0.0		\$0
-1.0	0.0		\$0	0.0		\$0
0.0	0.0		\$0	0.0		\$0
1.0	45.0		\$15,607,301	45.0		\$15,607,301
2.0	90.0		\$34,682,890	90.0		\$34,682,890
3.0	135.0		\$34,682,890	135.0		\$34,682,890
4.0	180.0		\$34,682,890	180.0		\$34,682,890
5.0	225.0		\$34,682,890	225.0		\$34,682,890
6.0	270.0		\$34,682,890	270.0		\$34,682,890
7.0	315.0		\$34,682,890	315.0		\$34,682,890
8.0	360.0		\$34,682,890	360.0		\$34,682,890
9.0	405.0		\$34,682,890	405.0		\$34,682,890
10.0	450.0		\$34,682,890	450.0		\$34,682,890
11.0	495.0		\$34,682,890	495.0		\$34,682,890
12.0	540.0		\$34,682,890	540.0		\$34,682,890
13.0	585.0		\$34,682,890	585.0		\$34,682,890
14.0	630.0		\$34,682,890	630.0		\$34,682,890
15.0	675.0		\$34,682,890	675.0		\$34,682,890
16.0	720.0		\$34,682,890	720.0		\$34,682,890

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Depth-Damage Functions Using USACE Generic

Loss of Function Flood Depth (ft)	Before Mitigation Values:			After Mitigation Values:		
	Before Mitigation (Days)	Before Mitigation User Entered (Days)	Before Mitigation (\$)	After Mitigation (Days)	After Mitigation User Entered (Days)	After Mitigation (\$)
-2.0	0.0		\$0	0.0		\$0
-1.0	0.0		\$0	0.0		\$0
0.0	0.0		\$0	0.0		\$0
1.0	45.0		\$15,607,301	45.0		\$15,607,301
2.0	90.0		\$34,682,890	90.0		\$34,682,890
3.0	135.0		\$34,682,890	135.0		\$34,682,890
4.0	180.0		\$34,682,890	180.0		\$34,682,890
5.0	225.0		\$34,682,890	225.0		\$34,682,890
6.0	270.0		\$34,682,890	270.0		\$34,682,890
7.0	315.0		\$34,682,890	315.0		\$34,682,890
8.0	360.0		\$34,682,890	360.0		\$34,682,890
9.0	405.0		\$34,682,890	405.0		\$34,682,890
10.0	450.0		\$34,682,890	450.0		\$34,682,890
11.0	495.0		\$34,682,890	495.0		\$34,682,890
12.0	540.0		\$34,682,890	540.0		\$34,682,890
13.0	585.0		\$34,682,890	585.0		\$34,682,890
14.0	630.0		\$34,682,890	630.0		\$34,682,890
15.0	675.0		\$34,682,890	675.0		\$34,682,890
16.0	720.0		\$34,682,890	720.0		\$34,682,890

21 Jan 2015

Project: **COE_MDP01**

Pg 101 of 121

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation

Expected Annual Damages After Mitigation

Expected Avoided Damages After Mitigation (Benefits)

Annual: \$167,591
Present Value: \$2,079,649

Annual: \$74,039
Present Value: \$918,747

Annual: \$93,552
Present Value: \$1,160,902

Mitigation Benefits: \$1,160,902

Mitigation Costs: \$143,313

Benefits Minus Costs: \$1,017,589

Benefit-Cost Ratio: 8.10

21 Jan 2015

Project: **COE_MDP01**

Pg 102 of 121

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	\$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	\$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	\$143,313	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

21 Jan 2015

Project: **COE_MDP01**

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Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Justification/Attachments

Field	Description	Attachments
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21 Jan 2015

Project: **COE_MDP01**

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Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Structure and Mitigation Details For: NM115, Edinburg, Texas, , Hidalgo

Benefits: \$2,033,922

Costs: \$596,720

BCR: 3.41

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:

Longitude:

Size of Building: 2,154,000

BRV (\$/sf): \$55.00

Total BRV: \$118,470,000

Residential: Yes

Building Type: Two or More Stories

Obstruction: N/A

Foundation Type: Slab

Basement: No

Building Primary Use:

Structure Type:

Historic Building: No

Structure Elevation: 109.00

First Floor Being Raised:

Demolition Threshold: 50.00%

Source of Flood Data:

Project in SFHA: Yes

Community ID Number:

Effective FIS Date:

FIRM Panel Number:

FIRM Effective Date:

Project Useful Life: 30

H&H Study Title:

H&H Effective Date:

Flood Zone:

Loss of Rent: \$0

Building Contents: \$118,470,000
(Default)

Value of Crawlspace Contents: \$0

Ground Surface Elevation:

Flood Zone Determination:

Breaking wave height: 0.00

Utilities that are not elevated: No

Height FFE above grade: 109.00

One Time Displacement Costs:

NFIP: No

Displacement Costs: \$112,085
(Default)

ICC: No

Current federal lodging per diem: \$77

Population affected : 2,872

Current federal meals per diem: \$46

Cost per person to eat meals at home: \$7

Street Maintenance Details

Street maintenance budget (\$)

Miles of street (miles)

Length of road (miles)

21 Jan 2015

Project: **COE_MDP01**

Pg 105 of 121

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Total Reduced Street Maintenance Costs \$0.00

Volunteer Costs

Number of Volunteers Required:

Number of Hours Volunteered/Person:

Cost of Volunteers Time (\$/Hour/Person):

Number of Days Lodging/Volunteer:

Per-Person Cost of Lodging for a Volunteer:

Cost of Volunteers:

Social Benefits

Mental Stress and Anxiety

Lost Productivity

Number of Person:

Number of Worker:

Treatment Costs per person: \$2,443.00

Productivity Loss per person: \$8,736.00

Total Mental Stress and Anxiety Cost: \$0.00

Total Lost Productivity Cost: \$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft): 96.1

Flood Profile Number:

Flood Source Name:

Elevation At Which Barrier Will Be Overtopped: 108.50

FEMA Elevation Certificate Diagram Description:

Other Elevation Source:

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	104.57	243.0	102.73	243.0
50	2.00%	107.91	367.0	105.04	367.0
100	1.00%	108.98	434.0	106.48	434.0
500	0.20%	109.62	641.0	108.89	641.0

21 Jan 2015

Project: **COE_MDP01**

Pg 106 of 121

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Depth-Damage Functions Using USACE Generic

Building Flood Depth (ft)	Before Mitigation Values:			After Mitigation Values:		
	Before Mitigation (pct)	Before Mitigation User Entered (pct)	Before Mitigation (\$)	After Mitigation (pct)	After Mitigation User Entered (pct)	After Mitigation (\$)
-2.0	0.0%	0.0%	\$0	0.0%	0.0%	\$0
-1.0	3.0%	0.0%	\$3,554,100	0.0%	0.0%	\$0
0.0	9.3%	0.0%	\$11,017,710	9.3%	0.0%	\$11,017,710
1.0	15.2%	0.0%	\$18,007,440	15.2%	0.0%	\$18,007,440
2.0	20.9%	0.0%	\$24,760,230	20.9%	0.0%	\$24,760,230
3.0	26.3%	0.0%	\$31,157,610	26.3%	0.0%	\$31,157,610
4.0	31.4%	0.0%	\$37,199,580	31.4%	0.0%	\$37,199,580
5.0	36.2%	0.0%	\$42,886,140	36.2%	0.0%	\$42,886,140
6.0	40.7%	0.0%	\$48,217,290	40.7%	0.0%	\$48,217,290
7.0	44.9%	0.0%	\$53,193,030	44.9%	0.0%	\$53,193,030
8.0	48.8%	0.0%	\$57,813,360	48.8%	0.0%	\$57,813,360
9.0	52.4%	0.0%	\$118,470,000	52.4%	0.0%	\$118,470,000
10.0	55.7%	0.0%	\$118,470,000	55.7%	0.0%	\$118,470,000
11.0	58.7%	0.0%	\$118,470,000	58.7%	0.0%	\$118,470,000
12.0	61.4%	0.0%	\$118,470,000	61.4%	0.0%	\$118,470,000
13.0	63.8%	0.0%	\$118,470,000	63.8%	0.0%	\$118,470,000
14.0	65.9%	0.0%	\$118,470,000	65.9%	0.0%	\$118,470,000
15.0	67.7%	0.0%	\$118,470,000	67.7%	0.0%	\$118,470,000
16.0	69.2%	0.0%	\$118,470,000	69.2%	0.0%	\$118,470,000

21 Jan 2015

Project: **COE_MDP01**

Pg 107 of 121

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Depth-Damage Functions Using USACE Generic

Contents Flood Depth (ft)	Before Mitigation Values:			After Mitigation Values:		
	Before Mitigation (pct)	Before Mitigation User Entered (pct)	Before Mitigation (\$)	After Mitigation (pct)	After Mitigation User Entered (pct)	After Mitigation (\$)
-2.0	0.0%	0.0%	\$0	0.0%	0.0%	\$0
-1.0	1.0%	0.0%	\$1,184,700	0.0%	0.0%	\$0
0.0	5.0%	0.0%	\$5,923,500	5.0%	0.0%	\$5,923,500
1.0	8.7%	0.0%	\$10,306,890	8.7%	0.0%	\$10,306,890
2.0	12.2%	0.0%	\$14,453,340	12.2%	0.0%	\$14,453,340
3.0	15.5%	0.0%	\$18,362,850	15.5%	0.0%	\$18,362,850
4.0	18.5%	0.0%	\$21,916,950	18.5%	0.0%	\$21,916,950
5.0	21.3%	0.0%	\$25,234,110	21.3%	0.0%	\$25,234,110
6.0	23.9%	0.0%	\$28,314,330	23.9%	0.0%	\$28,314,330
7.0	26.3%	0.0%	\$31,157,610	26.3%	0.0%	\$31,157,610
8.0	28.4%	0.0%	\$33,645,480	28.4%	0.0%	\$33,645,480
9.0	30.3%	0.0%	\$35,896,410	30.3%	0.0%	\$35,896,410
10.0	32.0%	0.0%	\$37,910,400	32.0%	0.0%	\$37,910,400
11.0	33.4%	0.0%	\$39,568,980	33.4%	0.0%	\$39,568,980
12.0	34.7%	0.0%	\$41,109,090	34.7%	0.0%	\$41,109,090
13.0	35.6%	0.0%	\$42,175,320	35.6%	0.0%	\$42,175,320
14.0	36.4%	0.0%	\$43,123,080	36.4%	0.0%	\$43,123,080
15.0	36.9%	0.0%	\$43,715,430	36.9%	0.0%	\$43,715,430
16.0	37.2%	0.0%	\$44,070,840	37.2%	0.0%	\$44,070,840

21 Jan 2015

Project: **COE_MDP01**

Pg 108 of 121

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Depth-Damage Functions Using USACE Generic

Displacement Flood Depth (ft)	Before Mitigation Values:			After Mitigation Values:		
	Before Mitigation (Days)	Before Mitigation User Entered (Days)	Before Mitigation (\$)	After Mitigation (Days)	After Mitigation User Entered (Days)	After Mitigation (\$)
-2.0	0.0		\$0	0.0		\$0
-1.0	0.0		\$0	0.0		\$0
0.0	0.0		\$0	0.0		\$0
1.0	45.0		\$53,311,500	45.0		\$53,311,500
2.0	90.0		\$118,470,000	90.0		\$118,470,000
3.0	135.0		\$118,470,000	135.0		\$118,470,000
4.0	180.0		\$118,470,000	180.0		\$118,470,000
5.0	225.0		\$118,470,000	225.0		\$118,470,000
6.0	270.0		\$118,470,000	270.0		\$118,470,000
7.0	315.0		\$118,470,000	315.0		\$118,470,000
8.0	360.0		\$118,470,000	360.0		\$118,470,000
9.0	405.0		\$118,470,000	405.0		\$118,470,000
10.0	450.0		\$118,470,000	450.0		\$118,470,000
11.0	495.0		\$118,470,000	495.0		\$118,470,000
12.0	540.0		\$118,470,000	540.0		\$118,470,000
13.0	585.0		\$118,470,000	585.0		\$118,470,000
14.0	630.0		\$118,470,000	630.0		\$118,470,000
15.0	675.0		\$118,470,000	675.0		\$118,470,000
16.0	720.0		\$118,470,000	720.0		\$118,470,000

Depth-Damage Functions Using USACE Generic

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Loss of Function Flood Depth (ft)	Before Mitigation Values:			After Mitigation Values:		
	Before Mitigation (Days)	Before Mitigation User Entered (Days)	Before Mitigation (\$)	After Mitigation (Days)	After Mitigation User Entered (Days)	After Mitigation (\$)
-2.0	0.0		\$0	0.0		\$0
-1.0	0.0		\$0	0.0		\$0
0.0	0.0		\$0	0.0		\$0
1.0	45.0		\$53,311,500	45.0		\$53,311,500
2.0	90.0		\$118,470,000	90.0		\$118,470,000
3.0	135.0		\$118,470,000	135.0		\$118,470,000
4.0	180.0		\$118,470,000	180.0		\$118,470,000
5.0	225.0		\$118,470,000	225.0		\$118,470,000
6.0	270.0		\$118,470,000	270.0		\$118,470,000
7.0	315.0		\$118,470,000	315.0		\$118,470,000
8.0	360.0		\$118,470,000	360.0		\$118,470,000
9.0	405.0		\$118,470,000	405.0		\$118,470,000
10.0	450.0		\$118,470,000	450.0		\$118,470,000
11.0	495.0		\$118,470,000	495.0		\$118,470,000
12.0	540.0		\$118,470,000	540.0		\$118,470,000
13.0	585.0		\$118,470,000	585.0		\$118,470,000
14.0	630.0		\$118,470,000	630.0		\$118,470,000
15.0	675.0		\$118,470,000	675.0		\$118,470,000
16.0	720.0		\$118,470,000	720.0		\$118,470,000

21 Jan 2015

Project: **COE_MDP01**

Pg 110 of 121

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation

Expected Annual Damages After Mitigation

Expected Avoided Damages After Mitigation (Benefits)

Annual:	\$512,081
Present Value:	\$6,354,431

Annual:	\$348,174
Present Value:	\$4,320,509

Annual:	\$163,907
Present Value:	\$2,033,922

Mitigation Benefits: \$2,033,922

Mitigation Costs: \$596,720

Benefits Minus Costs: \$1,437,202

Benefit-Cost Ratio: 3.41

21 Jan 2015

Project: **COE_MDP01**

Pg 111 of 121

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	\$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	\$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	\$596,720	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

21 Jan 2015

Project: **COE_MDP01**

Pg 112 of 121

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Justification/Attachments

Field	Description	Attachments
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21 Jan 2015

Project: **COE_MDP01**

Pg 113 of 121

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Structure and Mitigation Details For: NM116, Edinburg, Texas, , Hidalgo

Benefits: \$538,217

Costs: \$134,467

BCR: 4.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:

Longitude:

Size of Building: 351,000

BRV (\$/sf): \$66.67

Total BRV: \$23,401,170

Residential: Yes

Building Type: Two or More Stories

Obstruction: N/A

Foundation Type: Slab

Basement: No

Building Primary Use:

Structure Type:

Historic Building: No

Structure Elevation: 106.30

First Floor Being Raised:

Demolition Threshold: 50.00%

Source of Flood Data:

Project in SFHA: Yes

Community ID Number:

Effective FIS Date:

FIRM Panel Number:

FIRM Effective Date:

Project Useful Life: 30

H&H Study Title:

H&H Effective Date:

Flood Zone:

Loss of Rent: \$0

Building Contents: \$23,401,170
(Default)

Value of Crawlspace Contents: \$0

Ground Surface Elevation:

Flood Zone Determination:

Breaking wave height: 0.00

Utilities that are not elevated: No

Height FFE above grade: 106.30

One Time Displacement Costs:

NFIP: No

Displacement Costs: \$18,329
(Default)

ICC: No

Current federal lodging per diem: \$77

Population affected : 468

Current federal meals per diem: \$46

Cost per person to eat meals at home: \$7

Street Maintenance Details

Street maintenance budget (\$)

Miles of street (miles)

Length of road (miles)

21 Jan 2015

Project: **COE_MDP01**

Pg 114 of 121

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Total Reduced Street Maintenance Costs \$0.00

Volunteer Costs

Number of Volunteers Required:

Number of Hours Volunteered/Person:

Cost of Volunteers Time (\$/Hour/Person):

Number of Days Lodging/Volunteer:

Per-Person Cost of Lodging for a Volunteer:

Cost of Volunteers:

Social Benefits

Mental Stress and Anxiety

Lost Productivity

Number of Person:

Number of Worker:

Treatment Costs per person: \$2,443.00

Productivity Loss per person: \$8,736.00

Total Mental Stress and Anxiety Cost: \$0.00

Total Lost Productivity Cost: \$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft): 95.4

Flood Profile Number:

Flood Source Name:

Elevation At Which Barrier Will Be Overtopped: 105.80

FEMA Elevation Certificate Diagram Description:

Other Elevation Source:

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	98.15	50.0	97.81	50.0
50	2.00%	100.44	78.0	98.72	78.0
100	1.00%	101.98	92.0	99.19	92.0
500	0.20%	104.53	137.0	100.52	137.0

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Depth-Damage Functions Using USACE Generic

Building Flood Depth (ft)	Before Mitigation Values:			After Mitigation Values:		
	Before Mitigation (pct)	Before Mitigation User Entered (pct)	Before Mitigation (\$)	After Mitigation (pct)	After Mitigation User Entered (pct)	After Mitigation (\$)
-2.0	0.0%	0.0%	\$0	0.0%	0.0%	\$0
-1.0	3.0%	0.0%	\$702,035	0.0%	0.0%	\$0
0.0	9.3%	0.0%	\$2,176,309	9.3%	0.0%	\$2,176,309
1.0	15.2%	0.0%	\$3,556,978	15.2%	0.0%	\$3,556,978
2.0	20.9%	0.0%	\$4,890,845	20.9%	0.0%	\$4,890,845
3.0	26.3%	0.0%	\$6,154,508	26.3%	0.0%	\$6,154,508
4.0	31.4%	0.0%	\$7,347,967	31.4%	0.0%	\$7,347,967
5.0	36.2%	0.0%	\$8,471,224	36.2%	0.0%	\$8,471,224
6.0	40.7%	0.0%	\$9,524,276	40.7%	0.0%	\$9,524,276
7.0	44.9%	0.0%	\$10,507,125	44.9%	0.0%	\$10,507,125
8.0	48.8%	0.0%	\$11,419,771	48.8%	0.0%	\$11,419,771
9.0	52.4%	0.0%	\$23,401,170	52.4%	0.0%	\$23,401,170
10.0	55.7%	0.0%	\$23,401,170	55.7%	0.0%	\$23,401,170
11.0	58.7%	0.0%	\$23,401,170	58.7%	0.0%	\$23,401,170
12.0	61.4%	0.0%	\$23,401,170	61.4%	0.0%	\$23,401,170
13.0	63.8%	0.0%	\$23,401,170	63.8%	0.0%	\$23,401,170
14.0	65.9%	0.0%	\$23,401,170	65.9%	0.0%	\$23,401,170
15.0	67.7%	0.0%	\$23,401,170	67.7%	0.0%	\$23,401,170
16.0	69.2%	0.0%	\$23,401,170	69.2%	0.0%	\$23,401,170

21 Jan 2015

Project: **COE_MDP01**

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Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Depth-Damage Functions Using USACE Generic

Contents Flood Depth (ft)	Before Mitigation Values:			After Mitigation Values:		
	Before Mitigation (pct)	Before Mitigation User Entered (pct)	Before Mitigation (\$)	After Mitigation (pct)	After Mitigation User Entered (pct)	After Mitigation (\$)
-2.0	0.0%	0.0%	\$0	0.0%	0.0%	\$0
-1.0	1.0%	0.0%	\$234,012	0.0%	0.0%	\$0
0.0	5.0%	0.0%	\$1,170,059	5.0%	0.0%	\$1,170,059
1.0	8.7%	0.0%	\$2,035,902	8.7%	0.0%	\$2,035,902
2.0	12.2%	0.0%	\$2,854,943	12.2%	0.0%	\$2,854,943
3.0	15.5%	0.0%	\$3,627,181	15.5%	0.0%	\$3,627,181
4.0	18.5%	0.0%	\$4,329,216	18.5%	0.0%	\$4,329,216
5.0	21.3%	0.0%	\$4,984,449	21.3%	0.0%	\$4,984,449
6.0	23.9%	0.0%	\$5,592,880	23.9%	0.0%	\$5,592,880
7.0	26.3%	0.0%	\$6,154,508	26.3%	0.0%	\$6,154,508
8.0	28.4%	0.0%	\$6,645,932	28.4%	0.0%	\$6,645,932
9.0	30.3%	0.0%	\$7,090,555	30.3%	0.0%	\$7,090,555
10.0	32.0%	0.0%	\$7,488,374	32.0%	0.0%	\$7,488,374
11.0	33.4%	0.0%	\$7,815,991	33.4%	0.0%	\$7,815,991
12.0	34.7%	0.0%	\$8,120,206	34.7%	0.0%	\$8,120,206
13.0	35.6%	0.0%	\$8,330,817	35.6%	0.0%	\$8,330,817
14.0	36.4%	0.0%	\$8,518,026	36.4%	0.0%	\$8,518,026
15.0	36.9%	0.0%	\$8,635,032	36.9%	0.0%	\$8,635,032
16.0	37.2%	0.0%	\$8,705,235	37.2%	0.0%	\$8,705,235

21 Jan 2015

Project: **COE_MDP01**

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Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Depth-Damage Functions Using USACE Generic

Displacement Flood Depth (ft)	Before Mitigation Values:			After Mitigation Values:		
	Before Mitigation (Days)	Before Mitigation User Entered (Days)	Before Mitigation (\$)	After Mitigation (Days)	After Mitigation User Entered (Days)	After Mitigation (\$)
-2.0	0.0		\$0	0.0		\$0
-1.0	0.0		\$0	0.0		\$0
0.0	0.0		\$0	0.0		\$0
1.0	45.0		\$10,530,527	45.0		\$10,530,527
2.0	90.0		\$23,401,170	90.0		\$23,401,170
3.0	135.0		\$23,401,170	135.0		\$23,401,170
4.0	180.0		\$23,401,170	180.0		\$23,401,170
5.0	225.0		\$23,401,170	225.0		\$23,401,170
6.0	270.0		\$23,401,170	270.0		\$23,401,170
7.0	315.0		\$23,401,170	315.0		\$23,401,170
8.0	360.0		\$23,401,170	360.0		\$23,401,170
9.0	405.0		\$23,401,170	405.0		\$23,401,170
10.0	450.0		\$23,401,170	450.0		\$23,401,170
11.0	495.0		\$23,401,170	495.0		\$23,401,170
12.0	540.0		\$23,401,170	540.0		\$23,401,170
13.0	585.0		\$23,401,170	585.0		\$23,401,170
14.0	630.0		\$23,401,170	630.0		\$23,401,170
15.0	675.0		\$23,401,170	675.0		\$23,401,170
16.0	720.0		\$23,401,170	720.0		\$23,401,170

21 Jan 2015

Project: **COE_MDP01**

Pg 118 of 121

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Depth-Damage Functions Using USACE Generic

Loss of Function Flood Depth (ft)	Before Mitigation Values:			After Mitigation Values:		
	Before Mitigation (Days)	Before Mitigation User Entered (Days)	Before Mitigation (\$)	After Mitigation (Days)	After Mitigation User Entered (Days)	After Mitigation (\$)
-2.0	0.0		\$0	0.0		\$0
-1.0	0.0		\$0	0.0		\$0
0.0	0.0		\$0	0.0		\$0
1.0	45.0		\$10,530,527	45.0		\$10,530,527
2.0	90.0		\$23,401,170	90.0		\$23,401,170
3.0	135.0		\$23,401,170	135.0		\$23,401,170
4.0	180.0		\$23,401,170	180.0		\$23,401,170
5.0	225.0		\$23,401,170	225.0		\$23,401,170
6.0	270.0		\$23,401,170	270.0		\$23,401,170
7.0	315.0		\$23,401,170	315.0		\$23,401,170
8.0	360.0		\$23,401,170	360.0		\$23,401,170
9.0	405.0		\$23,401,170	405.0		\$23,401,170
10.0	450.0		\$23,401,170	450.0		\$23,401,170
11.0	495.0		\$23,401,170	495.0		\$23,401,170
12.0	540.0		\$23,401,170	540.0		\$23,401,170
13.0	585.0		\$23,401,170	585.0		\$23,401,170
14.0	630.0		\$23,401,170	630.0		\$23,401,170
15.0	675.0		\$23,401,170	675.0		\$23,401,170
16.0	720.0		\$23,401,170	720.0		\$23,401,170

21 Jan 2015

Project: **COE_MDP01**

Pg 119 of 121

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation

Expected Annual Damages After Mitigation

Expected Avoided Damages After Mitigation (Benefits)

Annual: \$43,444

Present Value: \$539,098

Annual: \$71

Present Value: \$881

Annual: \$43,373

Present Value: \$538,217

Mitigation Benefits: \$538,217

Benefits Minus Costs: \$403,750

Mitigation Costs: \$134,467

Benefit-Cost Ratio: 4.00

21 Jan 2015

Project: **COE_MDP01**

Pg 120 of 121

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	\$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	\$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	\$134,467	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

21 Jan 2015

Project: **COE_MDP01**

Pg 121 of 121

Total Benefits: **\$56,126,434**

Total Costs: **\$18,781,746**

BCR: **2.99**

Project Number:

Disaster #:

Program:

Agency:

State:

Point of Contact:

Analyst:

Justification/Attachments

Field	Description	Attachments
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APPENDIX F
GIS PROJECT & SHAPEFILE MAP PACKAGE

GIS FILES INCLUDED ON DISKETTE



APPENDIX G
ENVIRONMENTAL SITE ASSESSMENT &
CONSTRAINTS MAP





Raba Kistner
Environmental, Inc.
12821 W. Golden Lane
San Antonio, TX 78249

P.O. Box 690287
San Antonio, TX 78269-0287

www.rkci.com

P 210 :: 699 :: 9090
F 210 :: 699 :: 6426
TBPE Firm F-3257

Project No. ASF14-001-00
March 3, 2014

Mr. Mark Luper, P.E., RPLS, CFM
Executive Vice President
TEDSI Infrastructure Group
738 Hwy 6 South, Suite 430
Houston, Texas 77079

**RE: Phase I Environmental Site Assessment & Constraints Map
City of Edinburg Master Drainage Plan – 16 Outfall Locations
Edinburg, Hidalgo County, Texas**

Dear Mr. Luper:

Raba Kistner Environmental, Inc. (RKEI) is pleased to forward the attached Phase I Environmental Site Assessment (ESA-I) and Constraints Map report for the above-referenced properties. This report was prepared for TEDSI Infrastructure Group (CLIENT) and may not provide sufficient information for other parties. If other parties wish to rely on this report, please have them contact us so that a mutual understanding and agreement of the terms and conditions for our services can be established prior to their use of this information. Reliance on the information provided in this ESA-I report for the purposes of conducting "All Appropriate Inquiry" (AAI) is subject to the conditions in ASTM E 1527-05 §4.6 describing the continued viability of an ESA-I.

We appreciate the opportunity to be of professional service to you on this important project. Should there be any questions or additional information required, please contact our office at your earliest convenience.

Very truly yours,

RABA KISTNER ENVIRONMENTAL, INC.

Tomas Cruz
Environmental Professional

Callie Bletsch, P.E.
Environmental Planner

TC/CB/bg

Attachments

Copies submitted: Above (1 Electronic PDF Copy)

**PHASE I
ENVIRONMENTAL SITE ASSESSMENT
AND CONSTRAINTS MAP**

For

**CITY OF EDINBURG MASTER DRAINAGE PLAN - 16 OUTFALL LOCATIONS
EDINBURG, HIDALGO COUNTY, TEXAS**

Prepared for

TEDSI INFRASTRUCTURE GROUP
Houston, Texas

Prepared by

RABA KISTNER ENVIRONMENTAL, INC.
McAllen, Texas

PROJECT NO. ASF14-001-00

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RABA KISTNER

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EXECUTIVE SUMMARY

As authorized by Mr. Mark Lupher, P.E., RPLS, CFM – Executive Vice President – with TEDSI Infrastructure Group (CLIENT), **Raba Kistner Environmental, Inc. (RKEI)** has completed a Phase I Environmental Site Assessment (ESA-I) and Constraints Map for the City of Edinburg Master Drainage Plan – 16 Outfall Locations designated as four City sectors located throughout the City of Edinburg, Hidalgo County, Texas; hereinafter referred to as the SITE (Northeast, Southeast, Northwest, Southwest).

This ESA-I was performed in accordance with **RKEI** Proposal Number PSF13-344-00, dated November 06, 2013. The American Society of Testing and Materials (ASTM) Practice E 1527-05, Environmental Site Assessments: Phase I Environmental Site Assessment Process, was used as a guidance document for the performance of the ESA-I.

The SITE reconnaissance was performed by **RKEI** on January 24, 2014. The findings, opinions, conclusions, and recommendations developed during this ESA-I are presented as follows:

- The SITE was observed as 16 earthen drainage ditch outfall locations in Northeast, Southeast, Northwest and Southwest sectors of the City of Edinburg, Hidalgo County, Texas. Based on CLIENT provided outfall mapping data, concrete outfall piping was observed at 15 locations with one likely a proposed location for outfall piping installations. The SITE Northeast, Southeast, Northwest and Southwest outfall locations are accessible primarily via private, gated drainage ditch right-of-ways.
- During SITE reconnaissance activities, **RKEI** observed no evidence of the following: bulk storage of hazardous materials and/or petroleum products in underground or aboveground storage tanks (USTs/ASTs); process wastewater generation; oil or gas wells; hazardous material usage; stained soils or stressed vegetation; suspect polychlorinated biphenyls (PCBs) or other features that would suggest potential *recognized environmental conditions* associated with the SITE.
- Current use of SITE Northeast, Southeast, Northwest and Southwest adjacent properties includes a combination of vacant/undeveloped land, cultivated farmland, citrus crop farmland, native brushland, public thoroughfares, single-family residential development, multi-family residential development, commercial, church and school developments. Field observations indicated no readily observable *recognized environmental conditions* in connection with the adjacent properties.
- **RKEI** reviewed available historical aerial photography dated 1939, 1955, 1961, 1977, 1980, 1995, 2004, 2008 and 2012 to determine historical use of the SITE Northeast, Southeast, Northwest and Southwest outfall locations. Throughout the aerial photographs the SITE locations are depicted as vacant/undeveloped land until 1980 with increased development into drainage ditch and outfall locations after 1980 until 2012. Throughout the aerial photographs adjacent properties are depicted generally as vacant/undeveloped land, farmland and public thoroughfares, single-family residential development, multi-family residential development, commercial, church and school developments, as observed during recent SITE reconnaissance activities. No imagery suggesting adverse environmental conditions (i.e., heavy industrial, landfill usage) for the SITE Northeast, Southeast, Northwest and Southwest outfall locations, or adjacent properties was discerned in review of the referenced historical aerial photographs.

- A search of federal (U.S. Environmental Protection Agency) and state (Texas Commission on Environmental Quality [TCEQ]) regulatory databases revealed forty-four (44) regulated facilities within the standard search radius of the SITE Northeast, Southeast, Northwest and Southwest outfall locations, as defined by the ASTM Standard E 1527-05. However, based on regulatory database information reviewed, none of the findings are considered environmental concerns to the SITE Northeast, Southeast, Northwest and Southwest outfall locations.
- Based on the information reviewed, there was no evidence that the subject or adjacent properties are currently under federal or state environmental enforcement action. The SITE reconnaissance, regulatory database review, and historical review, revealed no evidence to suggest that there are any potential environmental concerns associated with the SITE Northeast, Southeast, Northwest and Southwest outfall locations that would preclude construction or development activities from an environmental standpoint.
- **RKEI** has performed a Phase I Environmental Site Assessment for 16 Outfall Locations designated as four City sectors located throughout the City of Edinburg, Hidalgo County, Texas; the SITE Northeast, Southeast, Northwest and Southwest. A SITE Constraints Map is also included in this ESA-I. This assessment has revealed no evidence of *recognized environmental conditions* in connection with the SITE Northeast, Southeast, Northwest and Southwest outfall locations.
- Based on the information developed as the result of this ESA-I, no further environmental assessment activities are recommended for the SITE Northeast, Southeast, Northwest and Southwest outfall locations.

This executive summary is for an overview only and should not be relied upon as the sole source of the reported results without first reading the full contents of this report, including appended materials.

INTRODUCTION

PURPOSE

The purpose of this Phase I Environmental Site Assessment (ESA-I) is to define good commercial and customary practice in the United States of America for conducting an environmental site assessment of a parcel of commercial real estate with respect to the range of contaminants within the scope of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (42 U.S.C. §9601) and petroleum products. This ESA-I is intended to permit CLIENT (*user*) to satisfy one of the requirements to qualify for the *innocent landowner, contiguous property owner, or bona fide prospective purchaser* limitations to CERCLA liability a.k.a. "*landowner liability protections,*" or "*LLPs*": That is, to provide documentation that "appropriate inquiry into the previous ownership and uses of the property consistent with good commercial or customary practice" as defined in 42 USC § 9601(35) (B). Information about the SITE regarding recognized past or current uses of hazardous substances or evidence of contaminants within the scope of CERCLA and petroleum products is reported herein and is subject to the limitations, terms, and conditions described in the following section.

SCOPE OF SERVICES

This ESA-I was performed in accordance with **RKEI** Proposal Number PSF13-344-00, dated November 06, 2013. The ASTM Practice E 1527-05, Environmental Site Assessments: Phase I Environmental Site Assessment Process, was used as a guidance document for the performance of the ESA-I. Specifically, the scope of work for the ESA-I include the following components as a minimum: 1) Interviews with past and present owners; 2) Interviews with local government officials; 3) Review of historical sources of information; 4) Review of federal, state, tribal, and local government records; 5) Site reconnaissance by an Environmental Professional; and 6) Report preparation.

LIMITATIONS AND EXCEPTIONS OF ASSESSMENT

"*Recognized environmental conditions*" as defined by ASTM, means "the presence or likely presence of any hazardous substances or petroleum products on the SITE under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the SITE or into the ground, groundwater, or surface water of the SITE. This term is not intended to include *de minimus* conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies." In general, the ESA-I is a risk management process. It is intended to reduce environmental risk, not wholly eliminate it.

The conclusions and recommendations of this ESA-I are based upon: 1) Research and evaluation of readily available and practically reviewable documents and databases; 2) Interviews with persons knowledgeable about the SITE; and 3) Site reconnaissance by an environmental professional. **RKEI** makes no warranty, expressed or implied, as to the accuracy or completeness of the information provided by the various governmental regulatory agencies and other referenced information sources used during this ESA-I. This ESA-I does not address requirements of any state, local or federal laws other than the *appropriate inquiry* provisions of CERCLA's *innocent landowner defense*. Other legal obligations with regard to hazardous substances or petroleum products discovered on the SITE are beyond the scope of work for this ESA-I. This ESA-I does not include sampling or analyses of any kind unless authorized in writing by CLIENT.

This assessment was conducted at the request of CLIENT utilizing methods and procedures consistent with good commercial or customary practices designed to conform to industry standards. The independent conclusions represent the best professional judgment of the Environmental Professional based on the conditions that existed and the information and the data available to **RKEI** during the course of this assignment. Factual information regarding operations, conditions and test data provided by CLIENT, owner, or their representative has been assumed to be correct and complete.

This ESA-I does not include intrusive investigations or sampling or analyses of any kind unless authorized as additional scope considerations. Furthermore, the location or identification of undocumented buried tanks or concealed wastes, hidden conditions, and subsurface conditions are not included.

SPECIAL TERMS AND CONDITIONS

No special terms or conditions were applicable to this ESA-I report.

USER RELIANCE

This report was prepared on behalf and for the sole use of CLIENT and may not provide adequate information for other parties. If other parties wish to rely on this report, please have them contact us so that a mutual understanding and agreement of the terms and conditions for our services can be established prior to their use of this information. Reliance on the information and conclusions presented in this report by any other parties is not authorized by **RKEI**.

RKEI will not extend reliance or liability on the information provided in this ESA-I report beyond ASTM E 1527's "shelf life" requirements of one year unless an update assessment has been performed by **RKEI** after 180 days per ASTM E 1527-05 §4.6 describing the continued viability of an ESA-I.

Moreover, due to requirements developed by the U.S. Small Business Administration (SBA) as a result of SOP50-10[5] effective June 2008 (revised March 2009), **RKEI** cannot extend reliance on the ESA-I report to the SBA or its development company loan programs (a.k.a. Certified Development Company [CDC]), should CLIENT seek funding through the SBA or its CDC under an SBA 7(a) and 504 loan program.

PROPERTY DESCRIPTION

PROPERTY LOCATION

The subject property is comprised of the City of Edinburg Master Drainage Plan – 16 Outfall Locations designated as four City sectors located throughout the City of Edinburg, Hidalgo County, Texas; the SITE Northeast, Southeast, Northwest and Southwest. The SITE Northeast, Southeast, Northwest and Southwest outfall locations are accessible primarily via private, gated drainage ditch right-of-ways.

An Area Location Map is provided in *Figure 1*.

LEGAL DESCRIPTION

Commitment for title insurance or chain-of-title run documentation identifying legal descriptions for the SITE was not developed by and/or provided to RKEI during this ESA-I process.

CURRENT USE OF PROPERTY

At the time of the site reconnaissance, RKEI observed the SITE as 16 earthen drainage ditch outfall locations in Northeast, Southeast, Northwest and Southwest sectors of the City of Edinburg.

DESCRIPTION OF STRUCTURES, ROADS, OR OTHER IMPROVEMENTS

Other than concrete outfall drainage piping and earthen drain ditch excavated features, no structures, roads or other significant improvements were observed at the SITE Northeast, Southeast, Northwest and Southwest outfall locations.

Photographs taken during the SITE reconnaissance are presented in *Attachment A*.

CURRENT USE OF ADJACENT PROPERTIES

Current use of SITE Northeast, Southeast, Northwest and Southwest adjacent properties includes a combination of vacant/undeveloped land, cultivated farmland, citrus crop farmland, native brushland, public thoroughfares, single-family residential development, multi-family residential development, commercial, church and school developments.

Field observations indicated no readily observable *recognized environmental conditions* in connection with the adjacent properties.

USER PROVIDED INFORMATION

The purpose of the information is to describe tasks to be performed by the *user* that will assist in the identification of possible *recognized environmental conditions* in connection with the SITE. The *user* is defined by ASTM E 1527-05 as: The party seeking to use Practice E 1527 to complete an environmental site assessment of the property. A *user* may include, without limitation, a potential purchaser of property, a potential tenant of property, an owner of property, a lender, or a property manager. The *user* has specific obligations for completing a successful application of this Practice as defined in ASTM E 1527-05 §6.0 describing the *user's* responsibilities.

ASTM E 1527-05 *user* questionnaire was not completed by any parties during this ESA-I process.

RECORDS REVIEW

PHYSICAL SETTING

Topography

According to the 1984 *Edinburg, Texas* and 1984 *La Blanca, Texas United States Geological Survey (USGS) Topographic Maps (Figure 2)*, the surface elevation of the SITE Northeast, Southeast, Northwest and Southwest outfall locations ranges from approximately 80 to 100 feet above mean sea level with topographic relief towards the east/southeast.

Geology

According to the 1976 *Geological Atlas of Texas, McAllen-Brownsville Sheet*, published by the Bureau of Economic Geology at The University of Texas in Austin, the underlying geologic formation of the SITE is of the following: (i) SITE Northeast: *Windblown Deposits (map unit Qds), Lissie Formation undivided (map unit QI)*; (ii) SITE Southeast: *Lissie Formation undivided (QI)*; (iii) SITE Northwest: *Windblown Deposits (Qds), Lissie Formation undivided (QI), Goliad Formation (map unit Pg)*; and (iv) SITE Southwest: *Windblown Deposits (Qds), Lissie Formation undivided (QI)*.

Qds is predominantly comprised of stabilized sand dune deposits of strong relict eolian grain and sparse grass of moderate to very high permeability, low to moderate water holding capacity, low compressibility, low shrink-swell potential, good to fair drainage, high shear strength, low plasticity and shallow water table.

QI is predominantly comprised of clay, silt, sand, gravel and caliche materials; gray to brown to pale yellow, gravel mainly silicious, locally cemented by and interbedded with sandy caliche; caliche massive to nodular; surface characterized by many undrained circular to irregular depressions, by relict clay dunes, and by stabilized northwest-trending longitudinal dunes.

Pg is predominantly clay, sand, sandstone, marl, caliche, limestone, and conglomerate of thicknesses of 100-500 feet.

Soil Survey

According to the 1981 *United States Department of Agriculture – Soil Survey of Hidalgo County, Texas*, the soils for the SITE are mapped as the following: (i) SITE Northeast: *Hidalgo County sandy clay loam of 0-1% slopes (map unit 28)*; (ii) SITE Southeast: *Hidalgo County sandy clay loam of 0-1% slopes (28)*; (iii) SITE Northwest: *Hidalgo fine sandy loam of 0-1% slopes (map unit 25), Hidalgo fine sandy loam of 0-3% slopes (map unit 26), Hidalgo County sandy clay loam of 0-1% slopes (28), Hidalgo sandy clay loam, saline of 0-1% slopes (map unit 30), Raymondville clay loam (map unit 52)*; and (iv) SITE Southwest: *Brennan fine sandy loam of 0-1% slopes (map unit 3), Hidalgo County sandy clay loam of 0-1% slopes (28), Hidalgo-Urban land complex of 0-3% slopes (map unit 31)*.

The Brennan fine sandy loam (0-1% slopes) series (3) consists of deep, nearly level, well drained, loamy soils on convex uplands. These soils are formed of sandy clay loam to approximately 65 inches below ground surface. The soil is well drained, surface runoff is medium, permeability is medium, and the available water capacity is medium. Potential is high for urban and recreational uses.

The Hidalgo fine sandy loam (0-1% slopes) series (25) consists of deep, nearly level soil on convex uplands. Typically, the surface layer is dark grayish brown fine sandy loam about 15 inches thick. The upper part of the subsoil, from 15 to 30 inches, is brown sandy clay loam. The lower part, from 30 to 39 inches, is pale brown sandy clay loam. The layer extending from 39 to 72 inches is very pale brown sandy clay loam. The soil is calcareous throughout. This soil is well drained, surface runoff is slow, permeability is moderate and the available water capacity is moderate. Potential is medium for urban uses and high for recreation uses.

The Hidalgo fine sandy loam (0-3% slopes) series (26) consists of deep, gently sloping soil is on convex uplands. Typically, the surface layer is dark grayish brown fine sandy loam about 17 inches thick. The upper part of the subsoil, to a depth of 37 inches, is brown sandy clay loam. The lower part, to a depth of 49 inches, is pale brown sandy clay loam. The layer extending to a depth of 65 inches is very pale brown sandy clay loam. The soil is calcareous throughout. This soil is well drained, surface runoff is medium, permeability is moderate and the available water capacity is medium. Potential is medium for urban uses and high for recreation uses.

The Hidalgo sandy clay loam (0-1% slopes) series (28) consists of deep, well-drained, loamy soils on convex uplands. These soils formed in calcareous loamy and clayey sediments. Typically, the surface layer is dark grayish brown, brown, and pale brown sandy clay loam and clay loam to an approximate depth of 6.67 feet below ground surface. The soil is well drained, surface runoff is slow, permeability is moderate, and the available water capacity is high. The main limitations are shrinking and swelling of the soil and high corrosivity to uncoated steel.

The Hidalgo sandy clay loam, saline (0-1% slopes) series (30) consists of deep, nearly level saline soil on convex uplands. Typically, the surface layer is saline, dark grayish brown sandy clay loam of about 15 inches thick. The next layer from 15-25 inches is saline, brown sandy clay loam. The next layer from 25-36 inches is saline, pale brown clay loam. The soil is calcareous throughout. The soil is well drained, surface runoff is slow, and permeability is moderate. Potential is low for urban and recreation uses. The main limitations are wetness and high corrosivity to uncoated steel.

The Hidalgo-Urban land complex (0-3% slopes) series (31) consists of nearly level to gently sloping Hidalgo soil and Urban land in areas that are broad and irregular in shape and range in size from 10 to 900 acres or more. Hidalgo soil makes up 35 to 80 percent of this map unit, Urban land 15 to 55 percent, and other soils 5 to 10 percent. Typically, Hidalgo soil has a surface layer of dark grayish brown sandy clay loam about 11 inches thick. The next layer, from 11 to 38 inches, is grayish brown sandy clay loam. The layer extending from 38 to 65 inches is very pale brown sandy clay loam. In some areas the surface layer is fine sandy loam. The soil is calcareous throughout. Urban land consists of areas that are covered by buildings and other urban structures, which make their classification impractical. Typical structures are single or multiple-unit dwellings, garages, sidewalks, patios, driveways, streets, schools, churches, shopping centers on less than 40 acres, office buildings, paved parking lots and industrial sites. Some areas of the Hidalgo soil have been altered by cutting, grading, and filling over the surface layer with 6 to 24 inches of loamy

material. The main limitations for these soils are moderate shrink-swell potential and high corrosivity to uncoated steel.

The Raymondville clay loam series (52) consists of deep, moderately well drained, calcareous soils that are nearly level and are on deltas or coastal terraces. Slopes are less than 0.5 percent, and the surface is plane to slightly concave. In a representative profile the surface layer is calcareous clay loam about 14 inches thick that is gray in the upper part and dark gray in the lower part. The next layer is gray clay loam about 11 inches thick. Beneath this, to a depth of about 78 inches, is clay. Permeability is slow and runoff is slow.

Groundwater Depth and Movement

Occasionally, groundwater occurs in shallow, discontinuous or “perched” water-bearing units. These shallow water-bearing units are the groundwater zones most likely to be impacted by releases from underground storage tank systems or surface spills.

No actual groundwater data was readily available for the SITE. In general, groundwater tends to mimic surface topography with influence towards area streams, creeks, rivers, etc. The general topographic grade of the SITE vicinity is to the east/southeast.

HISTORICAL RECORDS

The objective of consulting historical sources is to develop a history of the previous uses of the property and surrounding area in order to help identify the likelihood of past uses having led to *recognized environmental conditions* in connection with the property.

Historical Property Use

RKEI reviewed available historical aerial photography dated 1939, 1955, 1961, 1977, 1980, 1995, 2004, 2008 and 2012 (**Attachment B**) to determine historical use of the SITE Northeast, Southeast, Northwest and Southwest outfall locations. Throughout the aerial photographs the SITE locations are depicted as vacant/undeveloped land until 1980 with increased development into drainage ditch and outfall locations after 1980 until 2012.

No imagery suggesting adverse environmental conditions (i.e., heavy industrial, landfill usage) for the SITE Northeast, Southeast, Northwest and Southwest outfall locations was discerned in review of the referenced historical aerial photographs.

City Directories

City directories such as R. L. Polk & Co., Morrison & Fourmy, Coles, or Criss-Cross include year-by-year listings of property occupancy by address. Based on review of aerial photography, the SITE Northeast, Southeast, Northwest and Southwest outfall locations have consisted of vacant/undeveloped land and drainage ditch and outfall features of with no evidence of structural development for occupancy. As a result, a city directory search was deemed unnecessary as part of this ESA-I process.

Sanborn Maps

In the late nineteenth century, the Sanborn Company began preparing property usage maps for use by fire insurance companies. However, these maps were discontinued in the early 1970's and did not include undeveloped properties such as the SITE Northeast, Southeast, Northwest and Southwest outfall locations, at that time. Based on a January 28, 2014 review of The University of Texas Perry-Castañeda online Texas Sanborn Maps, (<http://www.lib.utexas.edu/maps/sanborn/p.html>), a Sanborn Map for the City of Edinburg dated 1925, does not include coverage for the SITE Northeast, Southeast, Northwest and Southwest outfall locations.

Recorded Land Title Records

A chain-of-title run or commitment for title insurance documentation identifying current ownership of the SITE was not developed by and/or provided to RKEI during this ESA-I process.

Historical Topographic Maps

RKEI reviewed two historical topographic maps titled *Edinburg, Texas (1930, 1936)* on January 28, 2014 via The University of Texas Perry-Castañeda Library Map Collection (<http://www.lib.utexas.edu/maps/topo/texas/s.html>) to assist in determining historical use of the SITE. In the topographic maps reviewed, the SITE Northeast, Southeast, Northwest and Southwest outfall locations are depicted primarily as rural and undeveloped areas.

No imagery suggesting adverse environmental conditions (i.e., industrial usage, landfills, etc.) for the SITE Northeast, Southeast, Northwest and Southwest outfall locations was discerned in review of the above-referenced historical sources.

Historical Use of Adjacent Properties

RKEI reviewed available historical aerial photography dated 1939, 1955, 1961, 1977, 1980, 1995, 2004, 2008 and 2012 to determine historical use of the SITE Northeast, Southeast, Northwest and Southwest outfall location adjacent properties. Throughout the aerial photographs dating to 1980, adjacent properties are depicted generally as vacant/undeveloped land, farmland and public thoroughfares. Beyond 1980 to 2012, structural development is depicted and appears to resemble public thoroughfares, single-family residential development, multi-family residential development, commercial, church and school developments, as observed during recent SITE reconnaissance activities.

No imagery suggesting adverse environmental conditions (i.e., heavy industrial, landfill usage) for the SITE Northeast, Southeast, Northwest and Southwest outfall location adjacent properties was discerned in review of the referenced historical aerial photographs.

STANDARD ENVIRONMENTAL RECORDS REVIEW

The objective of the environmental regulatory agency database review is to obtain and review records that will help identify "recognized environmental conditions" in connection with the property. The regulatory

database search was performed by Banks Environmental Data (The Banks Regulatory Database Report™). The Banks Regulatory Database Report™ is presented in **Attachment C**. This report meets the government records search requirement of ASTM E 1527-05. The following is an overview of the databases searched and the findings:

SITE NORTHEAST

Federal Databases:

NPL Report: The National Priority List (NPL) is a list of sites identified by the federal government as having a priority for cleanup. The NPL appears in the Code of Federal Regulations, CFR 40, Parts 190 to 399. The standard search radius for NPL sites is one (1) mile.

- No NPL findings were reported within the search area.

NPL Delisted: The National Priority List (NPL) Delisted consists of a database of delisted Superfund sites. The standard search radius for NPL Delisted sites is one-half (½) mile.

- No NPL Delisted findings were reported within the search area.

CERCLIS Report: The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Information System (CERCLIS) is compiled by the federal government and includes sites which could possibly be contaminated and may require cleanup. Many of the properties that appear on the CERCLIS List have not been thoroughly investigated. The standard search radius for CERCLA sites is one-half (½) mile.

- No CERCLIS findings were reported within the search area.

NFRAP Report: The No Further Remedial Action Planned (NFRAP) Report includes sites, which have been determined by the EPA, following preliminary assessment, to no longer pose a significant risk or require further activity under CERCLA. After initial investigation, no contamination was found, contamination was quickly removed or contamination was not serious enough to require Federal Superfund action or National Priorities List (NPL) consideration. The standard search radius for NFRAP sites is one-half (½) mile.

- No NFRAP findings were reported within the search area.

RCRA COR ACT: Corrective Action (COR ACT) lists Resource Conservation and Recovery Information System (RCRIS) Sites that are currently under corrective action. The standard search radius for COR ACT facilities is one (1) mile.

- No RCRA COR ACT findings were reported within the search area.

RCRA TSD: The RCRIS serves to track the status of all registrations, permits, reports, inspections, enforcement activities, and financial data of all sites which are generators and/or treatment, storage, and

disposal facilities of hazardous wastes regulated under the RCRA. The RCRA Treatment Storage or Disposal (TSD) is a subset of the RCRIS list. The standard search radius for TSD facilities is one-half (½) mile.

- No RCRA TSD findings were reported within the search area.

RCRA GEN: Database of facilities that generate or transport hazardous wastes or meet other RCRA requirements such as Large Quantity Generators (LQG), Small Quantity Generators (SQG), Conditionally Exempt Small Quantity Generator (CESQG). Included are RCRA Administrative Action Tracking System (RAATS) and Compliance Monitoring & Enforcement List (CMEL) facilities. The standard search for RCRA Generators (GEN) facilities is for the SITE and adjacent properties.

- No RCRA GEN findings were reported within the search area.

Federal Institutional Control/Engineering Controls: The Federal Institutional Control/Engineering Control (IC/EC) is a database for Superfund sites that have either engineering or an institutional control placed on the property. The data includes the control and the media contaminated. The standard search for Federal IC/EC sites is for the SITE only.

- No Federal IC/EC findings were reported for the SITE.

Federal Brownfield: A listing of Federal Brownfield (FED BWN) sites that assist the EPA in collecting, tracking, and updating information of sites in relation to the Small Business Liability Relief and Brownfields Revitalization Act. These sites are real property that are either abandoned or underutilized where redevelopment or expansion is complicated by real or perceived environmental contamination. The approximate minimum search distance for FED BWN sites is one-half (½) mile.

- No Federal Brownfield findings were reported within the search area.

ERNS: The Federal "Emergency Response Notification System" (ERNS) documents sites or facilities that have been reported as areas subjected to or impacted by spills or discharges of hazardous substances. The standard search for ERNS facilities is for the SITE only.

- No ERNS findings were reported for the SITE.

State Databases:

State/Tribal Sites (NPL): This State/Tribal Sites is a TCEQ database listing of sites contained in the State Superfund Registry. The standard search radius for State/Tribal Sites is one (1) mile.

- No State/Tribal Site findings were reported within the search area.

State/Tribal Disposal or Landfill (SWL): Solid Waste Landfills (SWL) maintained by the TCEQ Municipal Solid Waste Landfill (MSWLF) Registration and Permit Database serves to track permits and registration for landfills, transfer stations, sludge application sites, illegal dumping sites, recycling facilities, medical generators and transporters. The standard search radius for SWL facilities is one-half (½) mile.

- No State/Tribal SWL findings were reported within the search area.

State/Tribal Leaking PST: The Leaking Petroleum Storage Tank (LPST) List is maintained by the TCEQ under the LPST Program. The standard search radius for LPST sites is one-half (½) mile.

- No State/Tribal Leaking PST findings were reported within a one-quarter (¼) mile radius of the SITE.

State/Tribal Storage Tanks (UST/AST): Underground and aboveground storage tanks (USTs/ASTs) are tracked by the TCEQ under the Petroleum Storage Tank (PST) Program. The standard search for PST facilities is for the SITE and adjacent properties.

- One State/Tribal Storage PST finding was reported for a SITE adjacent property:

Evins Regional Juvenile Center, Facility ID# 0055834, located at 3801 E. Monte Cristo Rd, 0.23 miles northwest of the SITE. This facility is reported to have 1- 2,000-gallon fiberglass reinforced plastic coated steel UST used for gasoline storage/dispensing. The facility does not have a past or present LPST status.

Based on the information reviewed for this finding, it is **RKEI's** opinion that impact to the SITE from the reported facility is unlikely.

State/Tribal VCP: Listing of all sites in the Voluntary Cleanup Program (VCP) and Innocent Owner/Operator Program (IOP). Some VCP and IOP sites are noted as having institutional controls placed on the property. The standard search radius for State/Tribal VCP sites is one-half (½) mile.

- No State/Tribal VCP findings were reported within the search area.

State/Tribal Engineering Controls (EC): TCEQ database listing in the VCP and IOP where engineering controls have been placed on the property. The standard search for State/Tribal EC sites is for the SITE only.

- No State/Tribal EC findings were reported for the SITE.

State/Tribal Institutional Controls (IC): TCEQ database listing in the VCP and IOP where institutional controls have been placed on the property. The standard search for State/Tribal IC sites is for the SITE only.

- No State/Tribal IC findings were reported for the SITE.

State/Tribal Brownfields: Listing of all former industrial properties that lie dormant or underutilized due to liability associated with real or perceived contamination. Some sites are noted as having institutional controls placed on the property. The standard search radius for State/Tribal Brownfield sites is one-half (½) mile.

- No State/Tribal Brownfield findings were reported within the search area.

Industrial Hazardous Waste (IHW): This database includes Texas Industrial Hazardous Waste Notice of Registration (IHW NOR) data. The TCEQ enters all information submitted by industrial and hazardous waste transporters, receivers (including recyclers), generators and one time shipments into a database that tracks industrial and hazardous waste generation and management activities in the State of Texas. All facilities of these types receive a solid waste registration number. IHW facilities are searched for one-quarter (¼) mile.

- No State IHW sites were reported within the search area.

Non-ASTM/AAI Required Databases:

RCRA: This database lists all sites that fall under the RCRA and are not classified as treatment, storage, disposers of hazardous material, hazardous waste generator or subject to corrective action requirements. RCRA facilities are searched for one-quarter (¼) mile.

- No RCRA facilities were identified within the search area.

Dry Cleaners (DRYC and DCRP): Dry Cleaner data houses both the Dry Cleaner Remediation Program (DCRP) and perchloroethylene (PERC) information released by the TCEQ. The DCRP database contains records funded for state-led cleanup of dry cleaner related contaminated sites. The DCRP administers the Dry Cleaning Facility Release Fund to assist with remediation of contamination caused by dry cleaning solvents. This database also lists active dry cleaning facilities and drop stations registered with the TCEQ as DRYC. The search radius for DCRP and DRYC facilities is one-quarter (¼) mile.

- No DRYC or DCRP findings were reported within the search area.

SITE SOUTHEAST

Federal Databases:

NPL Report: The National Priority List (NPL) is a list of sites identified by the federal government as having a priority for cleanup. The NPL appears in the Code of Federal Regulations, CFR 40, Parts 190 to 399. The standard search radius for NPL sites is one (1) mile.

- No NPL findings were reported within the search area.

NPL Delisted: The National Priority List (NPL) Delisted consists of a database of delisted Superfund sites. The standard search radius for NPL Delisted sites is one-half (½) mile.

- No NPL Delisted findings were reported within the search area.

CERCLIS Report: The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Information System (CERCLIS) is compiled by the federal government and includes sites which could possibly be contaminated and may require cleanup. Many of the properties that appear on the CERCLIS

List have not been thoroughly investigated. The standard search radius for CERCLA sites is one-half (½) mile.

- No CERCLIS findings were reported within the search area.

NFRAP Report: The No Further Remedial Action Planned (NFRAP) Report includes sites, which have been determined by the EPA, following preliminary assessment, to no longer pose a significant risk or require further activity under CERCLA. After initial investigation, no contamination was found, contamination was quickly removed or contamination was not serious enough to require Federal Superfund action or National Priorities List (NPL) consideration. The standard search radius for NFRAP sites is one-half (½) mile.

- No NFRAP findings were reported within the search area.

RCRA COR ACT: Corrective Action (COR ACT) lists Resource Conservation and Recovery Information System (RCRIS) Sites that are currently under corrective action. The standard search radius for COR ACT facilities is one (1) mile.

- No RCRA COR ACT findings were reported within the search area.

RCRA TSD: The RCRIS serves to track the status of all registrations, permits, reports, inspections, enforcement activities, and financial data of all sites which are generators and/or treatment, storage, and disposal facilities of hazardous wastes regulated under the RCRA. The RCRA Treatment Storage or Disposal (TSD) is a subset of the RCRIS list. The standard search radius for TSD facilities is one-half (½) mile.

- No RCRA TSD findings were reported within the search area.

RCRA GEN: Database of facilities that generate or transport hazardous wastes or meet other RCRA requirements such as Large Quantity Generators (LQG), Small Quantity Generators (SQG), Conditionally Exempt Small Quantity Generator (CESQG). Included are RCRA Administrative Action Tracking System (RAATS) and Compliance Monitoring & Enforcement List (CMEL) facilities. The standard search for RCRA Generators (GEN) facilities is for the SITE and adjacent properties.

- No RCRA GEN findings were reported within the search area.

Federal Institutional Control/Engineering Controls: The Federal Institutional Control/Engineering Control (IC/EC) is a database for Superfund sites that have either engineering or an institutional control placed on the property. The data includes the control and the media contaminated. The standard search for Federal IC/EC sites is for the SITE only.

- No Federal IC/EC findings were reported for the SITE.

Federal Brownfield: A listing of Federal Brownfield (FED BWN) sites that assist the EPA in collecting, tracking, and updating information of sites in relation to the Small Business Liability Relief and Brownfields Revitalization Act. These sites are real property that are either abandoned or underutilized where

redevelopment or expansion is complicated by real or perceived environmental contamination. The approximate minimum search distance for FED BWN sites is one-half (½) mile.

- No Federal Brownfield findings were reported within the search area.

ERNS: The Federal "Emergency Response Notification System" (ERNS) documents sites or facilities that have been reported as areas subjected to or impacted by spills or discharges of hazardous substances. The standard search for ERNS facilities is for the SITE only.

- No ERNS findings were reported for the SITE.

State Databases:

State/Tribal Sites (NPL): This State/Tribal Sites is a TCEQ database listing of sites contained in the State Superfund Registry. The standard search radius for State/Tribal Sites is one (1) mile.

- No State/Tribal NPL Site findings were reported within the search area:

State/Tribal Disposal or Landfill (SWL): Solid Waste Landfills (SWL) maintained by the TCEQ Municipal Solid Waste Landfill (MSWLF) Registration and Permit Database serves to track permits and registration for landfills, transfer stations, sludge application sites, illegal dumping sites, recycling facilities, medical generators and transporters. The standard search radius for SWL facilities is one-half (½) mile.

- No State/Tribal SWL findings were reported within the search area.

State/Tribal Leaking PST: The Leaking Petroleum Storage Tank (LPST) List is maintained by the TCEQ under the LPST Program. The standard search radius for LPST sites is one-half (½) mile.

- One State/Tribal Leaking PST findings was reported within a one-quarter (¼) mile radius of the SITE.

South Texas Concrete, LPST ID# 114780, located at 1420 S. 28th Street and 1420 S. 26th Street, approximately 0.12 miles west of the SITE. According to TCEQ records, three 1,000-gallon underground ground storage tanks (USTs) for gasoline and diesel fuel storage were installed on January 1, 1984 and were removed in 1999. The leak discovery date was September 26, 1999 with groundwater impacted and no apparent threats or impacts to receptors. This facility has been issued final concurrence and the case is closed.

Based on the information reviewed for this finding, including non-adjacent location, it is **RKEI's** opinion that impact to the SITE from the reported facility is unlikely.

State/Tribal Storage Tanks (UST/AST): Underground and aboveground storage tanks (USTs/ASTs) are tracked by the TCEQ under the Petroleum Storage Tank (PST) Program. The standard search for PST facilities is for the SITE and adjacent properties.

- One State/Tribal Storage PST findings were reported for a SITE adjacent property:

South Texas Concrete, Facility ID# 0029482, 0078610, 0078815, located at 1420 S. 28th Street and 1420 S. 26th Street, approximately 0.12 miles west of the SITE. This facility is identified as a location where three 1,000-gallon USTs for gasoline/diesel use were installed in 1984 but have been removed from the ground in 1999. This facility has five ASTs exist at this location; 1-4,000-gallon (gasoline), 1-10,000-gallon (diesel), 1-9,200-gallon (diesel), 1-11,722-gallon (diesel), and 1-722-gallon (diesel). This facility is also referenced in the preceding LSPT section.

Based on the information reviewed for this finding, it is **RKEI's** opinion that impact to the SITE from the reported facility is unlikely.

State/Tribal VCP: Listing of all sites in the Voluntary Cleanup Program (VCP) and Innocent Owner/Operator Program (IOP). Some VCP and IOP sites are noted as having institutional controls placed on the property. The standard search radius for State/Tribal VCP sites is one-half (½) mile.

- No State/Tribal VCP findings were reported within the search area.

State/Tribal Engineering Controls (EC): TCEQ database listing in the VCP and IOP where engineering controls have been placed on the property. The standard search for State/Tribal EC sites is for the SITE only.

- No State/Tribal EC findings were reported for the SITE.

State/Tribal Institutional Controls (IC): TCEQ database listing in the VCP and IOP where institutional controls have been placed on the property. The standard search for State/Tribal IC sites is for the SITE only.

- No State/Tribal IC findings were reported for the SITE.

State/Tribal Brownfields: Listing of all former industrial properties that lie dormant or underutilized due to liability associated with real or perceived contamination. Some sites are noted as having institutional controls placed on the property. The standard search radius for State/Tribal Brownfield sites is one-half (½) mile.

- No State/Tribal Brownfield findings were reported within the search area.

Industrial Hazardous Waste (IHW): This database includes Texas Industrial Hazardous Waste Notice of Registration (IHW NOR) data. The TCEQ enters all information submitted by industrial and hazardous waste transporters, receivers (including recyclers), generators and one time shipments into a database that tracks industrial and hazardous waste generation and management activities in the State of Texas. All facilities of these types receive a solid waste registration number. IHW facilities are searched for one-quarter (¼) mile.

- Two State IHW sites were reported within the search area:

Ryder Pie Nationwide, EPA ID# FLD007922578, located at 1302 S. 28th Avenue, Ste A, approximately 0.12 miles northwest of the SITE. The facility is reported as active; with no corrective actions reported.

Holt Cat, EPA ID# TXR000002956, located at 1320 S. 25th Avenue, approximately 0.25 miles northwest of the SITE. The facility is reported as inactive facility with past solvent, grease and oil waste generated as a result of truck/heavy equipment operations/servicing. This facility does not have any reported corrective actions.

Based on the information reviewed for the reported findings, it is **RKEI's** opinion that impact to the SITE from the reported facilities is unlikely.

Non-ASTM/AAI Required Databases:

RCRA: This database lists all sites that fall under the RCRA and are not classified as treatment, storage, disposers of hazardous material, hazardous waste generator or subject to corrective action requirements. RCRA facilities are searched for one-quarter (¼) mile.

- One RCRA facility was identified within the search area:

Holt Cat, EPA ID# TXR000002956, located at 1320 S. 25th Avenue, approximately 0.25 miles northwest of the SITE. The facility is reported as inactive facility with past solvent, grease and oil waste generated as a result of truck/heavy equipment operations/servicing. This facility is a verified non-generator.

Based on the information reviewed for the reported findings, it is **RKEI's** opinion that impact to the SITE from the reported facilities is unlikely.

Dry Cleaners (DRYC and DCRP): Dry Cleaner data houses both the Dry Cleaner Remediation Program (DCRP) and perchloroethylene (PERC) information released by the TCEQ. The DCRP database contains records funded for state-led cleanup of dry cleaner related contaminated sites. The DCRP administers the Dry Cleaning Facility Release Fund to assist with remediation of contamination caused by dry cleaning solvents. This database also lists active dry cleaning facilities and drop stations registered with the TCEQ as DRYC. The search radius for DCRP and DRYC facilities is one-quarter (¼) mile.

- No DRYC or DCRP findings were reported within the search area.

SITE NORTHWEST

Federal Databases:

NPL Report: The National Priority List (NPL) is a list of sites identified by the federal government as having a priority for cleanup. The NPL appears in the Code of Federal Regulations, CFR 40, Parts 190 to 399. The standard search radius for NPL sites is one (1) mile.

- No NPL findings were reported within the search area.

NPL Delisted: The National Priority List (NPL) Delisted consists of a database of delisted Superfund sites. The standard search radius for NPL Delisted sites is one-half (½) mile.

- No NPL Delisted findings were reported within the search area.

CERCLIS Report: The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Information System (CERCLIS) is compiled by the federal government and includes sites which could possibly be contaminated and may require cleanup. Many of the properties that appear on the CERCLIS List have not been thoroughly investigated. The standard search radius for CERCLA sites is one-half (½) mile.

- No CERCLIS findings were reported within the search area.

NFRAP Report: The No Further Remedial Action Planned (NFRAP) Report includes sites, which have been determined by the EPA, following preliminary assessment, to no longer pose a significant risk or require further activity under CERCLA. After initial investigation, no contamination was found, contamination was quickly removed or contamination was not serious enough to require Federal Superfund action or National Priorities List (NPL) consideration. The standard search radius for NFRAP sites is one-half (½) mile.

- No NFRAP findings were reported within the search area.

RCRA COR ACT: Corrective Action (COR ACT) lists Resource Conservation and Recovery Information System (RCRIS) Sites that are currently under corrective action. The standard search radius for COR ACT facilities is one (1) mile.

- No RCRA COR ACT findings were reported within the search area.

RCRA TSD: The RCRIS serves to track the status of all registrations, permits, reports, inspections, enforcement activities, and financial data of all sites which are generators and/or treatment, storage, and disposal facilities of hazardous wastes regulated under the RCRA. The RCRA Treatment Storage or Disposal (TSD) is a subset of the RCRIS list. The standard search radius for TSD facilities is one-half (½) mile.

- No RCRA TSD findings were reported within the search area.

RCRA GEN: Database of facilities that generate or transport hazardous wastes or meet other RCRA requirements such as Large Quantity Generators (LQG), Small Quantity Generators (SQG), Conditionally Exempt Small Quantity Generator (CESQG). Included are RCRA Administrative Action Tracking System (RAATS) and Compliance Monitoring & Enforcement List (CMEL) facilities. The standard search for RCRA Generators (GEN) facilities is for the SITE and adjacent properties.

- One RCRA GEN finding was reported for the SITE or adjacent properties.

BJ Services, EPA ID# TXD078485976, located at 825 FM 1925, approximately 0.24 miles east of the SITE. The facility is reported as small quantity generator for support of oil and gas operators. No

violations are reported for this facility. This facility is not currently reported as subject to any corrective actions.

Based on the information reviewed for this finding, it is **RKEI's** opinion that impact to the SITE from the reported facility is unlikely.

Federal Institutional Control/Engineering Controls: The Federal Institutional Control/Engineering Control (IC/EC) is a database for Superfund sites that have either engineering or an institutional control placed on the property. The data includes the control and the media contaminated. The standard search for Federal IC/EC sites is for the SITE only.

- No Federal IC/EC findings were reported for the SITE.

Federal Brownfield: A listing of Federal Brownfield (FED BWN) sites that assist the EPA in collecting, tracking, and updating information of sites in relation to the Small Business Liability Relief and Brownfields Revitalization Act. These sites are real property that are either abandoned or underutilized where redevelopment or expansion is complicated by real or perceived environmental contamination. The approximate minimum search distance for FED BWN sites is one-half (½) mile.

- No Federal Brownfield findings were reported within the search area.

ERNS: The Federal "Emergency Response Notification System" (ERNS) documents sites or facilities that have been reported as areas subjected to or impacted by spills or discharges of hazardous substances. The standard search for ERNS facilities is for the SITE only.

- No ERNS findings were reported for the SITE.

State Databases:

State/Tribal Sites (NPL): This State/Tribal Sites is a TCEQ database listing of sites contained in the State Superfund Registry. The standard search radius for State/Tribal Sites is one (1) mile.

- No State/Tribal Site findings were reported within the search area.

State/Tribal Disposal or Landfill (SWL): Solid Waste Landfills (SWL) maintained by the TCEQ Municipal Solid Waste Landfill (MSWLF) Registration and Permit Database serves to track permits and registration for landfills, transfer stations, sludge application sites, illegal dumping sites, recycling facilities, medical generators and transporters. The standard search radius for SWL facilities is one-half (½) mile.

- No State/Tribal SWL findings were reported within the search area.

State/Tribal Leaking PST: The Leaking Petroleum Storage Tank (LPST) List is maintained by the TCEQ under the LPST Program. The standard search radius for LPST sites is one-half (½) mile.

- Three State/Tribal Leaking PST findings were reported within a one-quarter ($\frac{1}{4}$) mile radius of the SITE. Of the three, two are reported as having received final concurrence and case closure from TCEQ for completed corrective actions. The following is an active facility:

Cantus Country Mart, LPST ID# 118732, located at 2202 W. Monte Cristo Road, 0.23 miles east of the SITE. According to TCEQ records, 1-8,000-gallon, 2-4,000-gallon underground ground storage tanks (USTs) that were installed on February 1993 and were removed in 2012. The leak discovery date was November 29, 2011 with groundwater impacted and no apparent threats or impacts to receptors. This facility also has 2-30260-gallon USTs used for the storage of gasoline that were installed on June 25, 2012. This facility is currently in the preassessment/release determination stage. No groundwater monitor wells were observed on or in the immediate vicinity of the facility.

Based on the information reviewed for this finding, including non-adjacent location, it is RKEI's opinion that impact to the SITE from the reported facilities is unlikely.

State/Tribal Storage Tanks (UST/AST): Underground and aboveground storage tanks (USTs/ASTs) are tracked by the TCEQ under the Petroleum Storage Tank (PST) Program. The standard search for PST facilities is for the SITE and adjacent properties.

- No State/Tribal Storage PST finding were reported for the SITE or adjacent properties.

State/Tribal VCP: Listing of all sites in the Voluntary Cleanup Program (VCP) and Innocent Owner/Operator Program (IOP). Some VCP and IOP sites are noted as having institutional controls placed on the property. The standard search radius for State/Tribal VCP sites is one-half ($\frac{1}{2}$) mile.

- No State/Tribal VCP findings were reported within the search area.

State/Tribal Engineering Controls (EC): TCEQ database listing in the VCP and IOP where engineering controls have been placed on the property. The standard search for State/Tribal EC sites is for the SITE only.

- No State/Tribal EC findings were reported for the SITE.

State/Tribal Institutional Controls (IC): TCEQ database listing in the VCP and IOP where institutional controls have been placed on the property. The standard search for State/Tribal IC sites is for the SITE only.

- No State/Tribal IC findings were reported for the SITE.

State/Tribal Brownfields: Listing of all former industrial properties that lie dormant or underutilized due to liability associated with real or perceived contamination. Some sites are noted as having institutional controls placed on the property. The standard search radius for State/Tribal Brownfield sites is one-half ($\frac{1}{2}$) mile.

- No State/Tribal Brownfield findings were reported within the search area.

Industrial Hazardous Waste (IHW): This database includes Texas Industrial Hazardous Waste Notice of Registration (IHW NOR) data. The TCEQ enters all information submitted by industrial and hazardous waste transporters, receivers (including recyclers), generators and one time shipments into a database that tracks industrial and hazardous waste generation and management activities in the State of Texas. All facilities of these types receive a solid waste registration number. IHW facilities are searched for one-quarter (¼) mile.

- One State IHW site was reported within the search area.

BJ Services, EPA ID# TXD078485976, addressed at 825 FM 1925, approximately 0.24 miles east of the SITE. The facility is reported as an active location where oilfield service waste such as office refuse, scrap metal, truck lubricants/solvents, and wastewater are generated. No violations are reported for this facility. This facility is not reported as subject to any current corrective actions.

Based on the information reviewed for the reported finding, it is **RKEI's** opinion that impact to the SITE from the reported facility is unlikely.

Non-ASTM/AAI Required Databases:

RCRA: This database lists all sites that fall under the RCRA and are not classified as treatment, storage, disposers of hazardous material, hazardous waste generator or subject to corrective action requirements. RCRA facilities are searched for one-quarter (¼) mile.

- No RCRA facilities were identified within the search area.

Dry Cleaners (DRYC and DCRP): Dry Cleaner data houses both the Dry Cleaner Remediation Program (DCRP) and perchloroethylene (PERC) information released by the TCEQ. The DCRP database contains records funded for state-led cleanup of dry cleaner related contaminated sites. The DCRP administers the Dry Cleaning Facility Release Fund to assist with remediation of contamination caused by dry cleaning solvents. This database also lists active dry cleaning facilities and drop stations registered with the TCEQ as DRYC. The search radius for DCRP and DRYC facilities is one-quarter (¼) mile.

- No DRYC or DCRP findings were reported within the search area.

SITE SOUTHWEST

Federal Databases:

NPL Report: The National Priority List (NPL) is a list of sites identified by the federal government as having a priority for cleanup. The NPL appears in the Code of Federal Regulations, CFR 40, Parts 190 to 399. The standard search radius for NPL sites is one (1) mile.

- No NPL findings were reported within the search area.

NPL Delisted: The National Priority List (NPL) Delisted consists of a database of delisted Superfund sites. The standard search radius for NPL Delisted sites is one-half (½) mile.

- No NPL Delisted findings were reported within the search area.

CERCLIS Report: The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Information System (CERCLIS) is compiled by the federal government and includes sites which could possibly be contaminated and may require cleanup. Many of the properties that appear on the CERCLIS List have not been thoroughly investigated. The standard search radius for CERCLA sites is one-half (½) mile.

- No CERCLIS findings were reported within the search area.

NFRAP Report: The No Further Remedial Action Planned (NFRAP) Report includes sites, which have been determined by the EPA, following preliminary assessment, to no longer pose a significant risk or require further activity under CERCLA. After initial investigation, no contamination was found, contamination was quickly removed or contamination was not serious enough to require Federal Superfund action or National Priorities List (NPL) consideration. The standard search radius for NFRAP sites is one-half (½) mile.

- No NFRAP findings were reported within the search area.

RCRA COR ACT: Corrective Action (COR ACT) lists Resource Conservation and Recovery Information System (RCRIS) Sites that are currently under corrective action. The standard search radius for COR ACT facilities is one (1) mile.

- No RCRA COR ACT findings were reported within the search area.

RCRA TSD: The RCRIS serves to track the status of all registrations, permits, reports, inspections, enforcement activities, and financial data of all sites which are generators and/or treatment, storage, and disposal facilities of hazardous wastes regulated under the RCRA. The RCRA Treatment Storage or Disposal (TSD) is a subset of the RCRIS list. The standard search radius for TSD facilities is one-half (½) mile.

- Two RCRA TSD findings were reported within the search area:

Mo-Vac Service Company Inc., EPA Handler ID# TXD006801369, located at 3721-A S. McColl Road, 0.20 miles south of the SITE. This facility is reported as a non-generator, not subject to any corrective actions.

Mo-Vac Environmental Inc., EPA Handler ID# TXR000014779, located at 3721 S. McColl Road, 0.20 miles south of the SITE. This facility is reported as a conditionally exempt small quantity generator of general freight trucking waste and is not subject to any corrective actions.

Based on the information reviewed for the findings, including non-adjacent locations, it is **RKEI's** opinion that impact to the SITE from the reported facilities is unlikely.

RCRA GEN: Database of facilities that generate or transport hazardous wastes or meet other RCRA requirements such as Large Quantity Generators (LQG), Small Quantity Generators (SQG), Conditionally Exempt Small Quantity Generator (CESQG). Included are RCRA Administrative Action Tracking System (RAATS) and Compliance Monitoring & Enforcement List (CMEL) facilities. The standard search for RCRA Generators (GEN) facilities is for the SITE and adjacent properties.

- Four RCRA GEN findings were reported within the search area.

1.50 Cleaners, EPA Handler ID# TX000074518, located at 2524 W. Freddy Gonzales Drive, 0.08 miles southwest of the SITE. This facility is reported as a conditionally exempt small quantity generator, not subject to any corrective actions.

Mo-Vac Environmental Inc., EPA Handler ID# TXR000014779, located at 3721 S. McColl Road, 0.20 miles south of the SITE. This facility is reported as a conditionally exempt small quantity generator of general freight trucking waste and is not subject to any current corrective actions.

CVS Pharmacy #4821, EPA Handler ID# TXR000081366, located at 2820 W. University Drive, 0.23 miles west of the SITE. This facility is reported as a conditionally exempt small quantity generator of general freight trucking waste and is not subject to any corrective actions.

One Hour Pronto Cleaners, EPA Handler ID# TXR000074534, located at 1106 S. Mccoll Rd., 0.23 miles west of the SITE. This facility is reported as a conditionally exempt small quantity generator of general freight trucking waste and is not subject to any corrective actions.

Based on the information reviewed for the findings, it is **RKEI's** opinion that impact to the SITE from the reported facilities is unlikely.

Federal Institutional Control/Engineering Controls: The Federal Institutional Control/Engineering Control (IC/EC) is a database for Superfund sites that have either engineering or an institutional control placed on the property. The data includes the control and the media contaminated. The standard search for Federal IC/EC sites is for the SITE only.

- No Federal IC/EC findings were reported for the SITE.

Federal Brownfield: A listing of Federal Brownfield (FED BWN) sites that assist the EPA in collecting, tracking, and updating information of sites in relation to the Small Business Liability Relief and Brownfields Revitalization Act. These sites are real property that are either abandoned or underutilized where redevelopment or expansion is complicated by real or perceived environmental contamination. The approximate minimum search distance for FED BWN sites is one-half (½) mile.

- No Federal Brownfield findings were reported within the search area.

ERNS: The Federal "Emergency Response Notification System" (ERNS) documents sites or facilities that have been reported as areas subjected to or impacted by spills or discharges of hazardous substances. The standard search for ERNS facilities is for the SITE only.

- No ERNS findings were reported for the SITE.

State Databases:

State/Tribal Sites (NPL): This State/Tribal Sites is a TCEQ database listing of sites contained in the State Superfund Registry. The standard search radius for State/Tribal Sites is one (1) mile.

- No State/Tribal Site findings were reported within the search area.

State/Tribal Disposal or Landfill (SWL): Solid Waste Landfills (SWL) maintained by the TCEQ Municipal Solid Waste Landfill (MSWLF) Registration and Permit Database serves to track permits and registration for landfills, transfer stations, sludge application sites, illegal dumping sites, recycling facilities, medical generators and transporters. The standard search radius for SWL facilities is one-half (½) mile.

- No State/Tribal SWL findings were reported within the search area.

State/Tribal Leaking PST: The Leaking Petroleum Storage Tank (LPST) List is maintained by the TCEQ under the LPST Program. The standard search radius for LPST sites is one-half (½) mile.

- Six State/Tribal Leaking PST findings were reported within a one-quarter (¼) mile radius of the SITE. Of the six, four are reported as having received final concurrence and case closure from TCEQ for completed corrective actions. The following two are active facilities:

Economy Drive Inn FFP 290, LPST ID# 116761, located at 2015 S. McColl Road, 0.29 miles northwest of the SITE. This facility is reported as a location where a hydrocarbon released was discovered dating back to 2005. Groundwater was impacted however; no apparent threats or impacts to receptors were discovered. No groundwater monitor wells were observed on any immediate adjacent property indicating environmental concern for the SITE from this finding.

Fres Gas Depot, LPST ID# 110326, located at 2527 S. Hwy 281, 0.43 miles northeast of the SITE. According to TCEQ records, 2-8,000-gallon and 2-1,000-gallon underground ground storage tanks (USTs) that were installed in January 1977 and 4-1,000-gallon USTs were installed in August 1987. All of the USTs were removed in 2005. The leak discovery date was November 2004 with groundwater impacted and no apparent threats or impacts to receptors. This facility is currently awaiting final concurrence after documentation of well plugging. No groundwater monitor wells were observed on or in the immediate vicinity of the facility.

Based on the information reviewed for the findings, including non-adjacent locations, it is **RKEI's** opinion that impact to the SITE from the reported facilities is unlikely.

State/Tribal Storage Tanks (UST/AST): Underground and aboveground storage tanks (USTs/ASTs) are tracked by the TCEQ under the Petroleum Storage Tank (PST) Program. The standard search for PST facilities is for the SITE and adjacent properties.

- No State/Tribal Storage PST findings were reported for the SITE or adjacent properties.

State/Tribal VCP: Listing of all sites in the Voluntary Cleanup Program (VCP) and Innocent Owner/Operator Program (IOP). Some VCP and IOP sites are noted as having institutional controls placed on the property. The standard search radius for State/Tribal VCP sites is one-half (½) mile.

- No State/Tribal VCP findings were reported within the search area.

State/Tribal Engineering Controls (EC): TCEQ database listing in the VCP and IOP where engineering controls have been placed on the property. The standard search for State/Tribal EC sites is for the SITE only.

- No State/Tribal EC findings were reported for the SITE.

State/Tribal Institutional Controls (IC): TCEQ database listing in the VCP and IOP where institutional controls have been placed on the property. The standard search for State/Tribal IC sites is for the SITE only.

- No State/Tribal IC findings were reported for the SITE.

State/Tribal Brownfields: Listing of all former industrial properties that lie dormant or underutilized due to liability associated with real or perceived contamination. Some sites are noted as having institutional controls placed on the property. The standard search radius for State/Tribal Brownfield sites is one-half (½) mile.

- No State/Tribal Brownfield findings were reported within the search area.

Industrial Hazardous Waste (IHW): This database includes Texas Industrial Hazardous Waste Notice of Registration (IHW NOR) data. The TCEQ enters all information submitted by industrial and hazardous waste transporters, receivers (including recyclers), generators and one time shipments into a database that tracks industrial and hazardous waste generation and management activities in the State of Texas. All facilities of these types receive a solid waste registration number. IHW facilities are searched for one-quarter (¼) mile.

- Two State IHW sites were reported within the search area. Of them, a non-adjacent facility is reported as inactive. The following facility is reported as active:

Mo-Vac Environmental, EPA Handler ID# TXR000014779, located at 3721 S. McColl Road, 0.20 miles south of the SITE. This facility is reported as an active generator of the cleanup of oil based mud materials. The facility is not reported subject to any corrective actions.

Based on the information reviewed for the findings, including non-adjacent locations, it is **RKEI's** opinion that impact to the SITE from the reported facilities is unlikely.

Non-ASTM/AAI Required Databases:

RCRA: This database lists all sites that fall under the RCRA and are not classified as treatment, storage, disposers of hazardous material, hazardous waste generator or subject to corrective action requirements. RCRA facilities are searched for one-quarter (¼) mile.

- One RCRA facility was identified within the search area:

Mo-Vac Environmental, EPA Handler ID# TXD988062378, located at 3721 S. McColl Road, 0.20 miles south of the SITE. This facility is reported as a past generator of benzene waste materials. This facility is currently reported as a verified non-generator and is not subject to any corrective actions.

Based on the information reviewed for the finding, including non-adjacent location, it is **RKEI's** opinion that impact to the SITE from the reported facility is unlikely.

Dry Cleaners (DRYC and DCRP): Dry Cleaner data houses both the Dry Cleaner Remediation Program (DCRP) and perchloroethylene (PERC) information released by the TCEQ. The DCRP database contains records funded for state-led cleanup of dry cleaner related contaminated sites. The DCRP administers the Dry Cleaning Facility Release Fund to assist with remediation of contamination caused by dry cleaning solvents. This database also lists active dry cleaning facilities and drop stations registered with the TCEQ as DRYC. The search radius for DCRP and DRYC facilities is one-quarter ($\frac{1}{4}$) mile.

- Two DRYC or DCRP findings were reported within the search area.

1.50 Cleaners, Registration ID# RN104094453, located at 2524 W. Freddy Gonzalez Dr., 0.08 miles southwest of the SITE. This facility is reported as an active drop station. This facility is currently not reported subject to any corrective actions.

Oasis One Dry Cleaners, Registration ID# RN104094594, located at 1106 S. McColl Rd., 0.23 miles west of the SITE. This facility is reported as an active drop station and facility. This facility is currently not reported subject to any corrective actions.

Based on the information reviewed for the findings, including non-adjacent locations, it is **RKEI's** opinion that impact to the SITE from the reported facilities is unlikely.

ADDITIONAL ENVIRONMENTAL RECORD SOURCES

During the course of this ESA-I, **RKEI** supplemented the standard environmental record sources by reviewing reasonably ascertainable records pertaining to the SITE and adjacent properties:

Closed Landfills: According to a January 28, 2014 review of the Lower Rio Grande Valley Development Council's *Inventory of Closed Landfills*, no permitted and/or unpermitted landfills are identified on or immediately adjacent to the SITE Northeast, Southeast, Northwest and Southwest outfall locations.

Groundwater Wells: According to a January 28, 2014 review of the Texas Water Development Board's *Water Information Integration and Dissemination* website via <http://wiid.twdb.state.tx.us>, no groundwater wells are mapped at the SITE Northeast, Southeast, Northwest and Southwest outfall locations.

Oil Well, Gas Wells, and Pipelines: According to a January 28, 2014 review of the Texas Railroad Commission map records available online via <http://gis2.rrc.state.tx.us/public/>, no gas or oil wells or pipelines are mapped at the SITE Northeast, Southeast, Northwest and Southwest outfall locations.

PREVIOUS ENVIRONMENTAL REPORTS

No previous environmental reports were identified or provided to **RKEI** during the course of this assessment.

SITE RECONNAISSANCE

The objective of the site reconnaissance is to obtain information indicating the likelihood of identifying *recognized environmental conditions* in connection with the SITE.

METHODOLOGY AND LIMITING CONDITIONS

Tomas Cruz of **RKEI** performed the SITE reconnaissance on January 24, 2014. The SITE and its perimeter were traversed by foot and the surrounding area of reconnaissance was observed from a vehicle.

RKEI did not encounter SITE access limitations imposed by physical obstructions, such as adjacent buildings, bodies of water, asphalt or other paved areas, and limiting conditions (e.g., adverse weather conditions).

GENERAL SITE SETTING

Sewage Disposal System

No sewage disposal systems were observed at the SITE Northeast, Southeast, Northwest and Southwest outfall locations.

Surface Stormwater Drainage

Surface stormwater occurring at the SITE Northeast, Southeast, Northwest and Southwest outfall locations appeared to drain into associated drainage ditch features.

Potable Water Supply

RKEI observed no potable water supply system associated with the SITE Northeast, Southeast, Northwest and Southwest outfall locations.

Surface Water

Other than standing water located in the earthen drainage ditch features associated with SITE Northeast, Southeast, Northwest and Southwest outfall locations, **RKEI** observed no creeks, streams or surface water impoundments at the SITE.

Underground and Above Ground Storage Tanks (UST/AST)

RKEI observed no USTs or ASTs at the SITE Northeast, Southeast, Northwest and Southwest outfall locations.

Odors

No strong, pungent, or noxious odors were identified at the SITE Northeast, Southeast, Northwest and Southwest outfall locations.

Pools of Liquid

No pools of liquid were noted at the SITE Northeast, Southeast, Northwest and Southwest outfall locations.

Drums

RKEI observed no drums of regulated substances at the SITE Northeast, Southeast, Northwest and Southwest outfall locations.

Hazardous Substance and Petroleum Products Containers

RKEI observed no hazardous substance or petroleum product containers at the SITE Northeast, Southeast, Northwest and Southwest outfall locations.

Known or Observed Usage of Hazardous Substances

No known or observed usage of hazardous substances was identified at the SITE Northeast, Southeast, Northwest and Southwest outfall locations.

Unidentified Substance Containers

RKEI observed no unidentified substance containers on or about the SITE Northeast, Southeast, Northwest and Southwest outfall locations during the reconnaissance.

Polychlorinated Biphenyls (PCBs)

Electrical transformers are a potential source of environmental concern due to the potential presence of polychlorinated biphenyls (PCBs) contained in dielectric fluids used in some units. No such equipment was observed at the SITE Northeast, Southeast, Northwest and Southwest outfall locations.

Potential for Offsite Migration of Hazardous Materials or Petroleum Products

RKEI observed no visual or documented evidence of migration of hazardous substances or petroleum hydrocarbons onto or from the SITE Northeast, Southeast, Northwest and Southwest outfall locations.

INTERIOR OBSERVATIONS

Structures are not located at the SITE Northeast, Southeast, Northwest and Southwest outfall locations. Therefore, heating and cooling, stains and corrosions, and drains and sumps were not addressed pursuant to ASTM E 1527-05 §9.4.3.

EXTERIOR OBSERVATIONS

Pits, Ponds, or Lagoons

No evidence of pits, ponds, or lagoons was observed or identified in connection with waste disposal or waste treatment at the SITE Northeast, Southeast, Northwest and Southwest outfall locations.

Stained Soils or Stressed Vegetation

No evidence of stained soils or stressed vegetation as a result of a release of hazardous materials and/or petroleum products was observed at the SITE Northeast, Southeast, Northwest and Southwest outfall locations.

Solid Waste Disposal

No evidence of solid waste disposal, storage, or generation, or areas apparently filled or graded by non-natural causes suggesting solid waste disposal was observed at the SITE Northeast, Southeast, Northwest and Southwest outfall locations.

Process Wastewater

Process wastewater is not generated at the SITE Northeast, Southeast, Northwest and Southwest outfall locations.

Wells

No groundwater, environmental monitoring, oil, or gas wells were observed at the SITE Northeast, Southeast, Northwest and Southwest outfall locations.

One well was observed located to northwest of SITE Southwest outfall location #1. According to a January 28, 2014 review of the Texas Railroad Commission map records available online via <http://gis2.rrc.state.tx.us/public/>, the well is a plugged natural gas well. No groundwater monitor wells were observed on any immediate adjacent outfall location grounds indicating environmental concern for the SITE from this finding.

Septic Systems

RKEI neither observed nor identified any septic systems or cesspools at the SITE Northeast, Southeast, Northwest and Southwest outfall locations.

Site Plan

A Site Plan is presented in **Figure 3**.

INTERVIEWS

The objective of interviews is to obtain information indicating *recognized environmental conditions* in connection with the SITE.

INTERVIEW WITH OWNER

During the course of this assessment a SITE owner interview for the purpose of obtaining historical property information was not reasonably ascertainable.

INTERVIEW WITH LOCAL GOVERNMENT OFFICIALS

The City of Edinburg Fire Department (EFD) was contacted by online public information request on January 21, 2014 to determine if the SITE has been subject to any emergency incident response activity such as hazardous materials spills. No records were identified indicating environmental conditions or incident response such as chemical spills or releases, chemical storage, underground storage tanks, leaking underground storage tanks.

RKEI contacted the TCEQ Open Records & Reporting Services – Information Resources Division on January 21, 2014 to determine if the agency has information related to potential environmental impacts occurring on the SITE. However, as of this reporting a response from TCEQ has not been received.

FINDINGS AND OPINIONS

- The SITE was observed as 16 earthen drainage ditch outfall locations in Northeast, Southeast, Northwest and Southwest sectors of the City of Edinburg, Hidalgo County, Texas. Based on CLIENT provided outfall mapping data, concrete outfall piping was observed at 15 locations with one likely a proposed location for outfall piping installations. The SITE Northeast, Southeast, Northwest and Southwest outfall locations are accessible primarily via private, gated drainage ditch right-of-ways.
- During SITE reconnaissance activities, **RKEI** observed no evidence of the following: bulk storage of hazardous materials and/or petroleum products in underground or aboveground storage tanks (USTs/ASTs); process wastewater generation; oil or gas wells; hazardous material usage; stained soils or stressed vegetation; suspect polychlorinated biphenyls (PCBs) or other features that would suggest potential *recognized environmental conditions* associated with the SITE.
- Current use of SITE Northeast, Southeast, Northwest and Southwest adjacent properties includes a combination of vacant/undeveloped land, cultivated farmland, citrus crop farmland, native brushland, public thoroughfares, single-family residential development, multi-family residential development, commercial, church and school developments. Field observations indicated no readily observable *recognized environmental conditions* in connection with the adjacent properties.
- **RKEI** reviewed available historical aerial photography dated 1939, 1955, 1961, 1977, 1980, 1995, 2004, 2008 and 2012 to determine historical use of the SITE Northeast, Southeast, Northwest and Southwest outfall locations. Throughout the aerial photographs the SITE locations are depicted as vacant/undeveloped land until 1980 with increased development into drainage ditch and outfall locations after 1980. Throughout the aerial photographs adjacent properties are depicted generally as vacant/undeveloped land, farmland and public thoroughfares, single-family residential development, multi-family residential development, commercial, church and school developments, as observed during recent SITE reconnaissance activities. No imagery suggesting adverse environmental conditions (i.e., heavy industrial, landfill usage) for the SITE Northeast, Southeast, Northwest and Southwest outfall locations, or adjacent properties was discerned in review of the referenced historical aerial photographs.
- A search of federal (U.S. Environmental Protection Agency) and state (Texas Commission on Environmental Quality [TCEQ]) regulatory databases revealed forty-four (44) regulated facilities within the standard search radius of the SITE Northeast, Southeast, Northwest and Southwest outfall locations, as defined by the ASTM Standard E 1527-05. However, based on regulatory database information reviewed, none of the findings are considered environmental concerns to the SITE Northeast, Southeast, Northwest and Southwest outfall locations.
- Based on the information reviewed, there was no evidence that the subject or adjacent properties are currently under federal or state environmental enforcement action. The SITE reconnaissance, regulatory database review, and historical review, revealed no evidence to suggest that there are any potential environmental concerns associated with the SITE Northeast, Southeast, Northwest and Southwest outfall locations.

CONCLUSIONS

RKEI has performed a Phase I Environmental Site Assessment for 16 Outfall Locations designated as four City sectors located throughout the City of Edinburg, Hidalgo County, Texas; the SITE Northeast, Southeast, Northwest and Southwest. A SITE Constraints Map is also included in this ESA-I. This assessment has revealed no evidence of *recognized environmental conditions* in connection with the SITE Northeast, Southeast, Northwest and Southwest outfall locations.

RECOMMENDATIONS

Based on the information developed as the result of this ESA-I, no further environmental assessment activities are recommended for the SITE Northeast, Southeast, Northwest and Southwest outfall locations.

DATA GAPS

A data gap is a lack of or inability to obtain information required by this ESA-I practice despite good faith efforts by the Environmental Professional to gather such information.

- Past and/or present SITE owner interviews were not *reasonably ascertainable* during this ESA-I process.

ADDITIONAL SERVICES

Additional services (i.e., asbestos, mold, lead-based paint, etc.) per ASTM Standard E 1527-05 §13.1.5 are considered non-scope considerations and were not addressed as part of this ESA-I.

A Constraints Map was created to illustrate, manage, analyze, and visualize geographically-referenced information with respect to the 16 outfall locations. The Constraints Map illustrates threatened and Endangered Species Habitat, Occurrences, or Designated Critical Habitat Areas, Surface Water and Groundwater Resources, Riparian Areas, Floodplains, Archeological Sites with respect to the 16 outfall locations. The Constraints Map can be found in **Attachment D**.

REFERENCES

The following documents, maps, or other publications may have been utilized specifically in the preparation of this ESA-I report or generally in the development of the report format. References to specific documents are also provided in appropriate sections of this report.

- American Society for Testing and Materials (ASTM). 2005. *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, Designation E 1527-05*.
- Banks Environmental Data. January 09-10, 2014. *The Banks Regulatory Database Report™*.
- Banks Environmental Data. 1939, 1955, 1961, 1977, 1980, 1995, 2004, 2008, 2012. *Historical Aerial Photographs*.
- Bureau of Economic Geology, The University of Texas at Austin. 1976. *Geologic Atlas of Texas: McAllen - Brownsville Sheet*.
- Lower Rio Grande Valley Development Council. *Closed Landfill Inventory*, <http://www.lrgvdc.org/> (accessed January 28, 2014).
- The University of Texas Perry-Castaneda Library Map Collection. 1930, 1936. *Historical Topographic Maps, Edinburg, Texas*, <http://www.lib.utexas.edu/maps/texas.html> (accessed January 28, 2014).
- Texas Railroad Commission. *Railroad Commission of Texas Public GIS Map Viewer*. <http://gis2.rrc.state.tx.us/public/>, (accessed January 28, 2014).
- Texas Water Development Board. *Water Information Integration & Dissemination, Groundwater Database*, <http://wiid.twdb.state.tx.us>, (accessed January 28, 2014).
- United States Geological Survey (USGS). 1984. *7.5 minute Series Topographic Maps: Edinburg, La Blanca, Texas, Quadrangle*.

ENVIRONMENTAL PROFESSIONAL STATEMENT

We declare that, to best of our professional knowledge and belief, we meet the definition of Environmental Professional as defined in §312.10 of 40 CFR 312 and we have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the SITE. We have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in CFR Part 312.

PROFESSIONAL QUALIFICATIONS AND SIGNATURE PAGE

RKEI is a multi-disciplined engineering and consulting firm with over twenty years of experience in the areas of environmental assessments, environmental audits, hazardous waste site restoration, environmental compliance and permitting, geological assessments, geotechnical evaluations, petroleum storage tank site monitoring and remediation, and wastewater monitoring. **RKEI** has been involved with thousands of environmental assessments and remediation projects throughout Texas.

Tomas Cruz was the Environmental Professional that performed this ESA-I. Mr. Cruz has over thirteen years of direct experience in conducting, managing, and coordinating subsurface soil and groundwater investigations, landfill monitoring, landfill liner construction, risk-based assessments, indoor air quality and lead-based paint surveys and has performed over 300 environmental site assessments. Callie Bletsch provided peer review for this ESA-I. Ms. Bletsch has more than 6 years in the environmental consulting field with an emphasis on environmental assessments and permitting. She received a Bachelor's and Masters of Science in Environmental Engineering in May of 2000.

The Environmental Professionals that performed this ESA-I represent that, to the best of their knowledge, the statements and facts in this ESA-I are true and correct and, to the best of the assessor's knowledge, no material facts have been suppressed or misstated.



Tomas Cruz
Environmental Professional



Callie Bletsch, P.E.
Environmental Planner

ATTACHMENTS

FIGURE 1

AREA LOCATION MAP

FIGURE 2
TOPOGRAPHIC MAP (USGS)

FIGURE 3

SITE PLAN

ATTACHMENT A

PHOTOGRAPHS OF SITE AND VICINITY



Photo 1. Outfall SE2. View to the west.



Photo 2. Outfall SE2. View to the east.



Photo 3. Outfall SE1. View to the northwest.



Photo 4. Outfall SE1 discharge area. View to the south.



Photo 5. Outfall NE1. View to the southwest.



Photo 6. Outfall NE1. View to the north.



Photo 7. Outfall NW2. View to the east.



Photo 8. Outfall NW2 discharge area. View to the southeast.



Photo 9. Outfall NW1. View to the east.



Photo 10. Outfall NW4. View to the southwest.



Photo 11. Outfall NW4. View to the north.



Photo 12. Outfall NW3. View to the west.



Photo 13. Outfall NW5. View to the northeast.



Photo 14. Outfall NW5 discharge area. View to the south.



Photo 15. Outfall SW1. View to the southwest.



Photo 16. AST on residential property adjacent to outfall SW1. View to the southwest.



Photo 17. Inactive, plugged gas well location west of outfall SW1. View to the west.



Photo 18. Outfall SW2. View to the southwest.



Photo 19. Outfall SW3. View to the southwest.



Photo 20. Outfall SW3 discharge area. View to the south.



Photo 21. Natural gas pipeline marker located east of outfall SW3.



Photo 22. Outfall SW4. View to the east.



Photo 23. Outfall SW5 area. View to the south.



Photo 24. Outfall SW5. View to the southeast.



Photo 25. Outfall SW5. View to the north.



Photo 26. Outfall SW6. View to the south.



Photo 27. Outfall SW6 discharge area. View to the northeast.



Photo 28. Outfall SW7. View to the northwest.



Photo 29. Outfall SW8. View to the northeast.




Photo 30. Outfall SW8 discharge area. View to the east.

ATTACHMENT B

HISTORICAL AERIAL PHOTOGRAPHS



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 **OUTFALL**

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 12821 West Golden Lane
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 P 210 :: 699 :: 9090
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 TBPE Firm F-3257


SOURCE: Banks Environmental Data.

1939 (ASCS) HISTORICAL AERIAL (NORTHWEST AREA)
 PHASE I ESA
 CITY OF EDINBURG MASTER DRAINAGE PLAN
 EDINBURG, HIDALGO COUNTY, TEXAS

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0 325 650 1,300
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1955 (AMS) HISTORICAL AERIAL (NORTHWEST AREA)
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**1961 (USGS) HISTORICAL AERIAL
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1977 (TXDOT) HISTORICAL AERIAL (NORTHWEST AREA)
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**1980 (USGS) HISTORICAL AERIAL
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1995 (USGS) HISTORICAL AERIAL (NORTHWEST AREA)


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2008 (USDA) HISTORICAL AERIAL (NORTHWEST AREA)


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**2012 (USDA) HISTORICAL AERIAL
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1961 (USGS) HISTORICAL AERIAL (NORTHEAST AREA)
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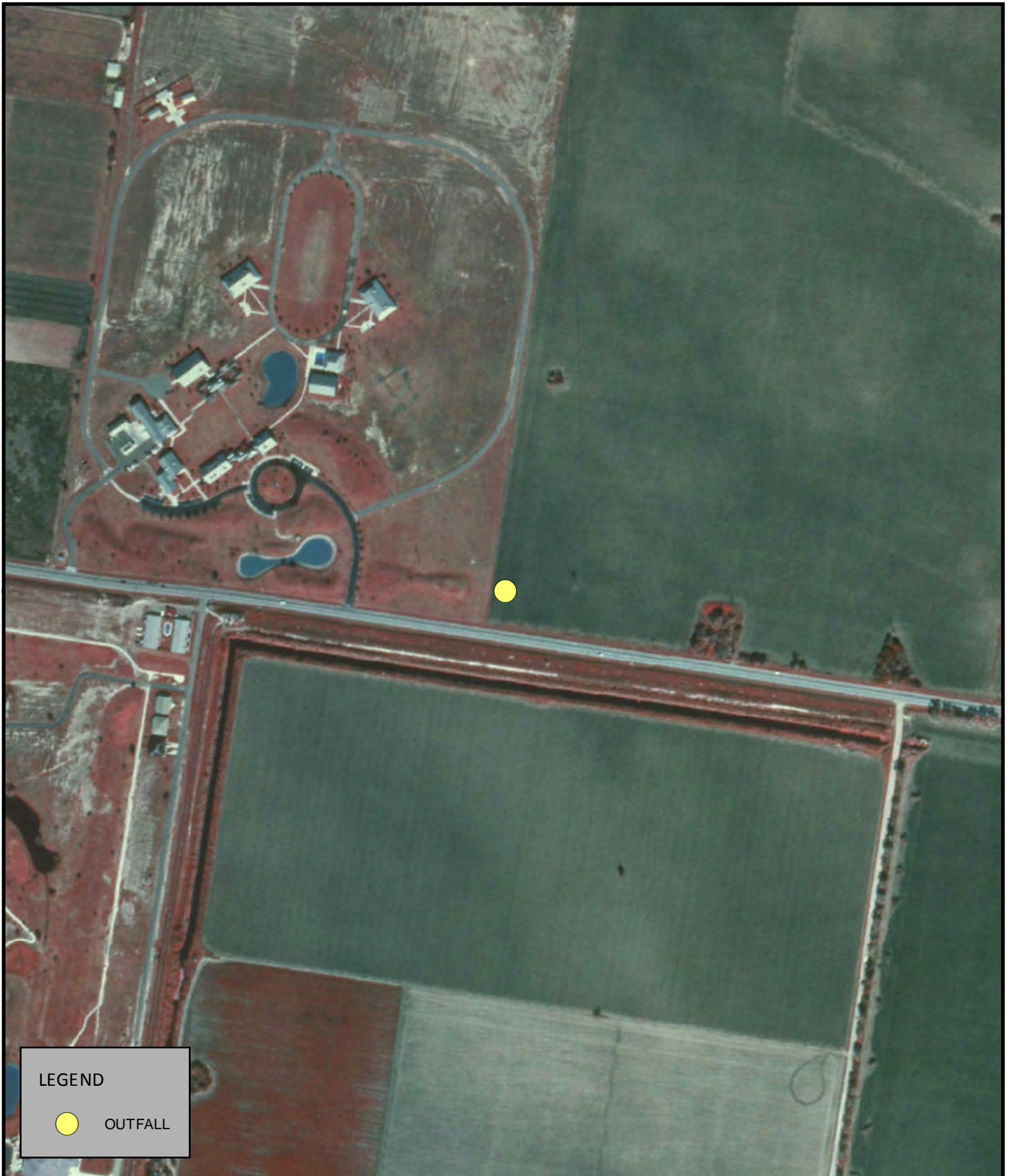
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2004 (USDA) HISTORICAL AERIAL (NORTHEAST AREA)
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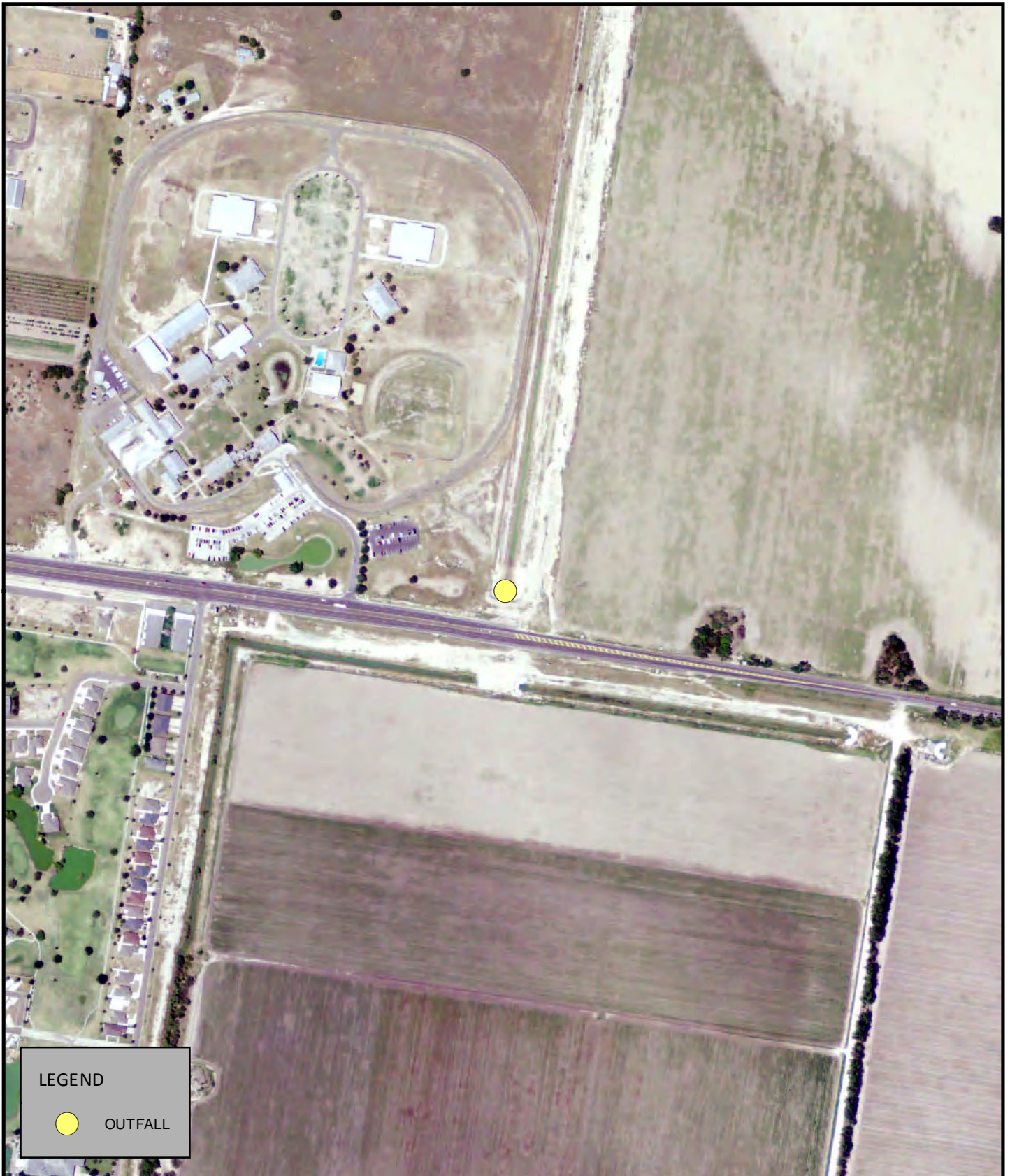
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2008 (USDA) HISTORICAL AERIAL (NORTHEAST AREA)
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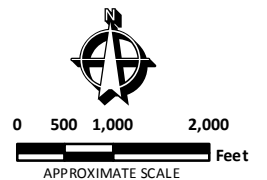
SOURCE: Banks Environmental Data.

**1939 (ASCS) HISTORICAL AERIAL
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LEGEND

 OUTFALL



RABA KISTNER ENVIRONMENTAL
 Raba Kistner Environmental, Inc.
 12821 West Golden Lane
 San Antonio, Texas 78249
 www.rkci.com
 P 210 :: 699 :: 9090
 F 210 :: 699 :: 6426
 TBPE Firm F-3257

SOURCE: Banks Environmental Data.

1961 (USGS) HISTORICAL AERIAL (SOUTHWEST AREA)


PHASE I ESA

CITY OF EDINBURG MASTER DRAINAGE PLAN
 EDINBURG, HIDALGO COUNTY, TEXAS

REVISIONS:

No.	DATE	DESCRIPTION

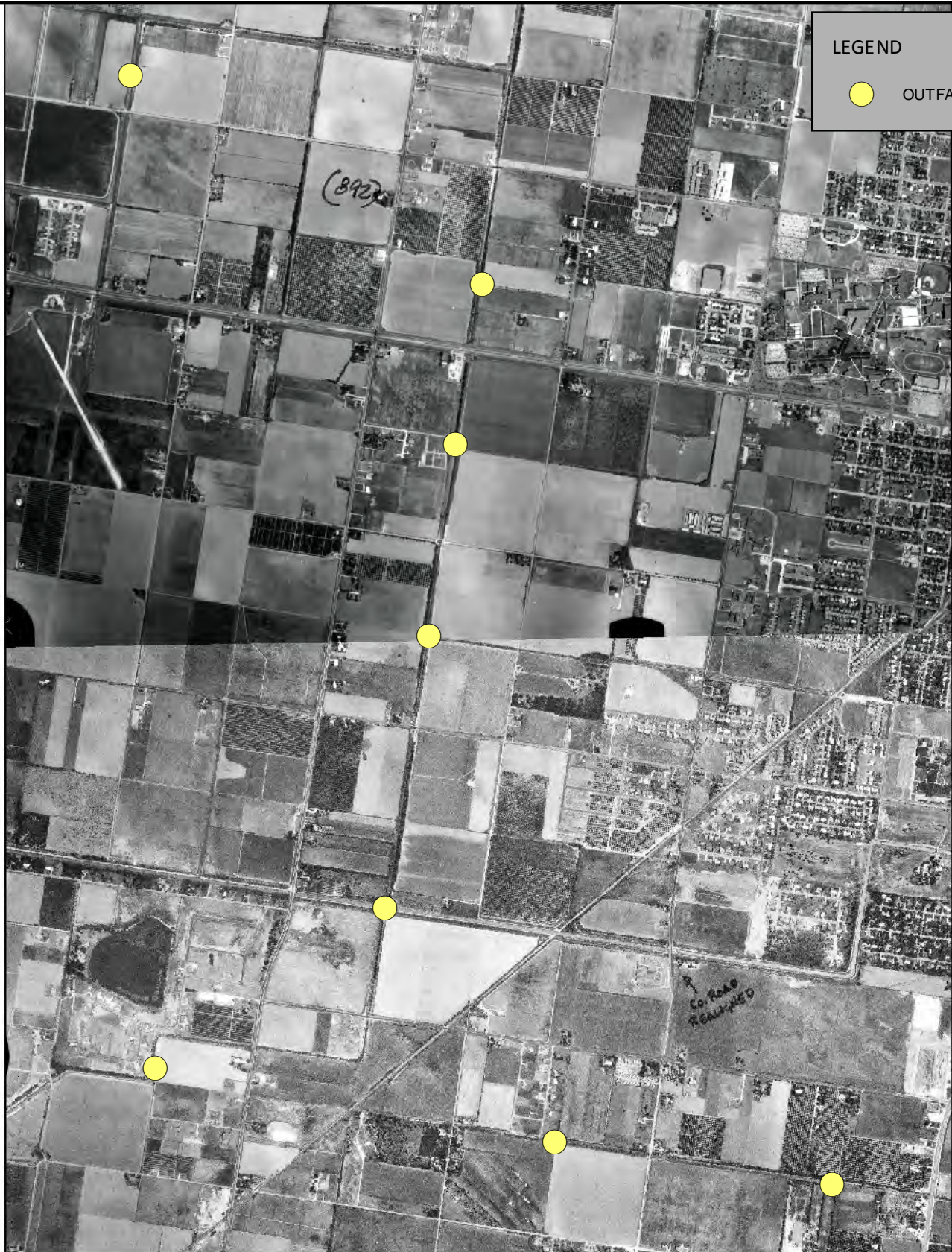
PROJECT No.: ASF14-001-00



0 500 1,000 2,000
 Feet
 APPROXIMATE SCALE

LEGEND

● OUTFALL



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SOURCE: Banks Environmental Data.

1977 (TXDOT) HISTORICAL AERIAL (SOUTHWEST AREA)
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 EDINBURG, HIDALGO COUNTY, TEXAS

REVISIONS:

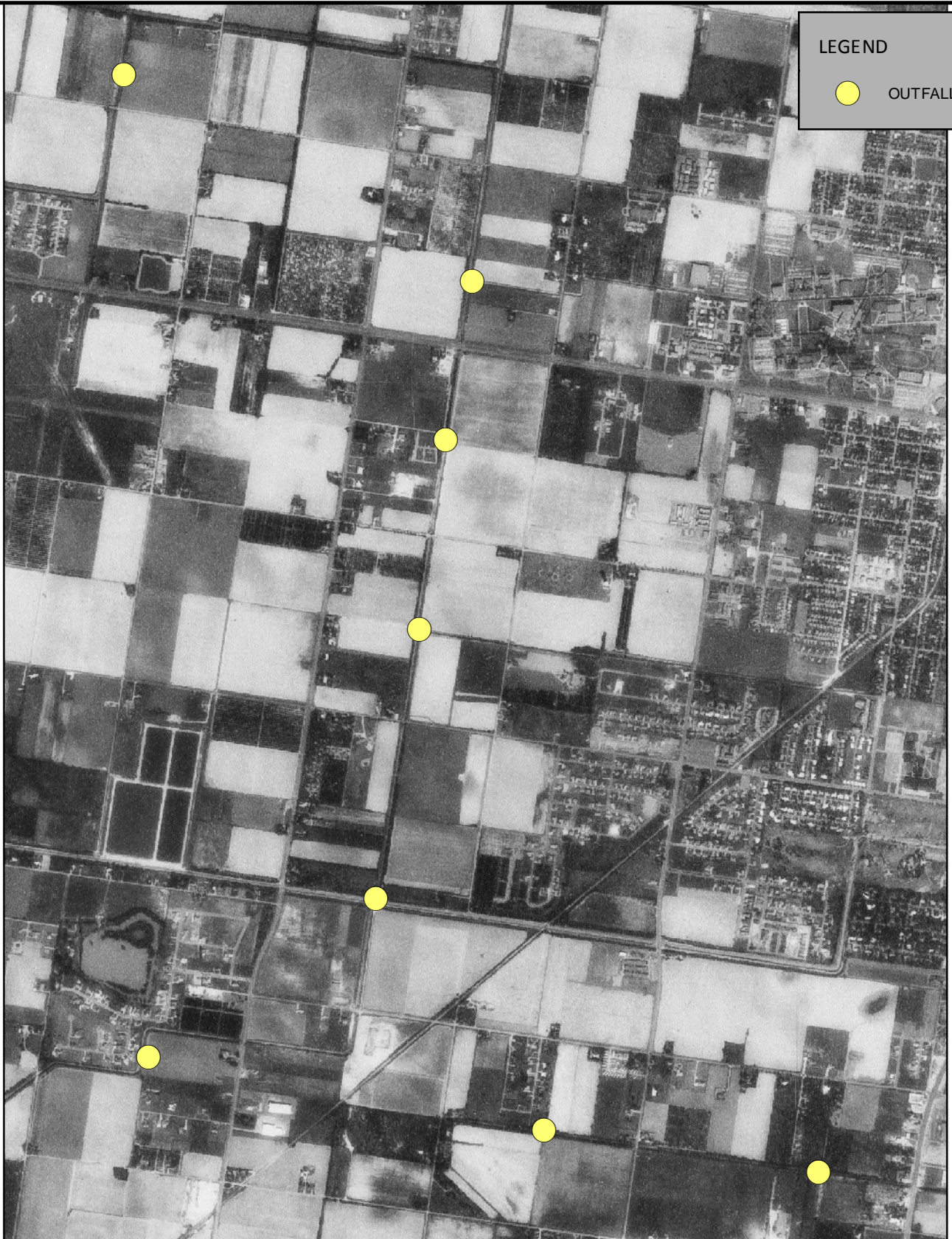
No.	DATE	DESCRIPTION

PROJECT No.: ASF14-001-00

APPROXIMATE SCALE

LEGEND

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SOURCE: Banks Environmental Data.

1980 (USGS) HISTORICAL AERIAL (SOUTHWEST AREA)
 PHASE I ESA
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 EDINBURG, HIDALGO COUNTY, TEXAS

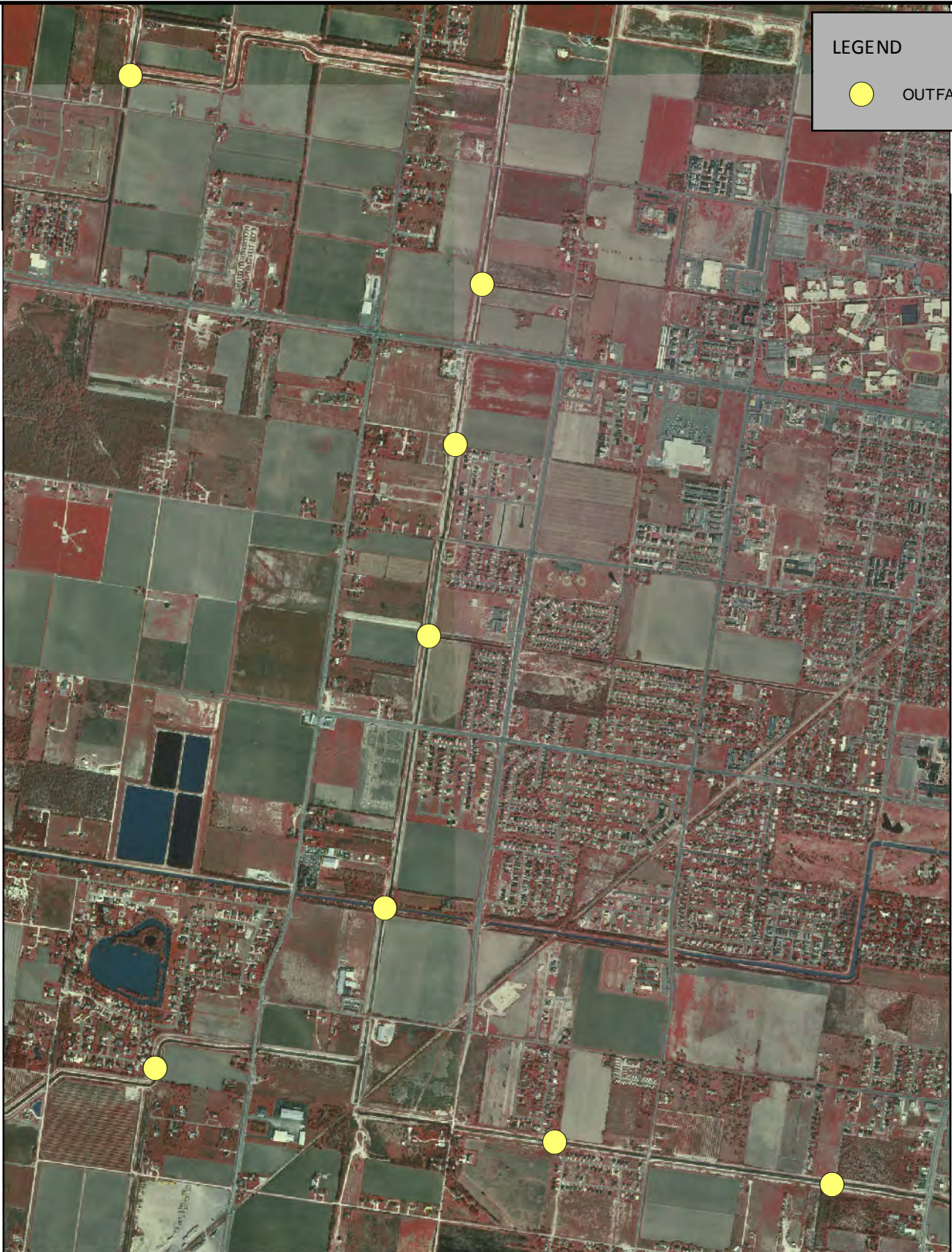
REVISIONS:

No.	DATE	DESCRIPTION


PROJECT No.: ASF14-001-00



0 500 1,000 2,000 Feet
 APPROXIMATE SCALE



LEGEND

 **OUTFALL**

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SOURCE: Banks Environmental Data.

1995 (USGS) HISTORICAL AERIAL (SOUTHWEST AREA)


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 EDINBURG, HIDALGO COUNTY, TEXAS

REVISIONS:

No.	DATE	DESCRIPTION

PROJECT No.: ASF14-001-00

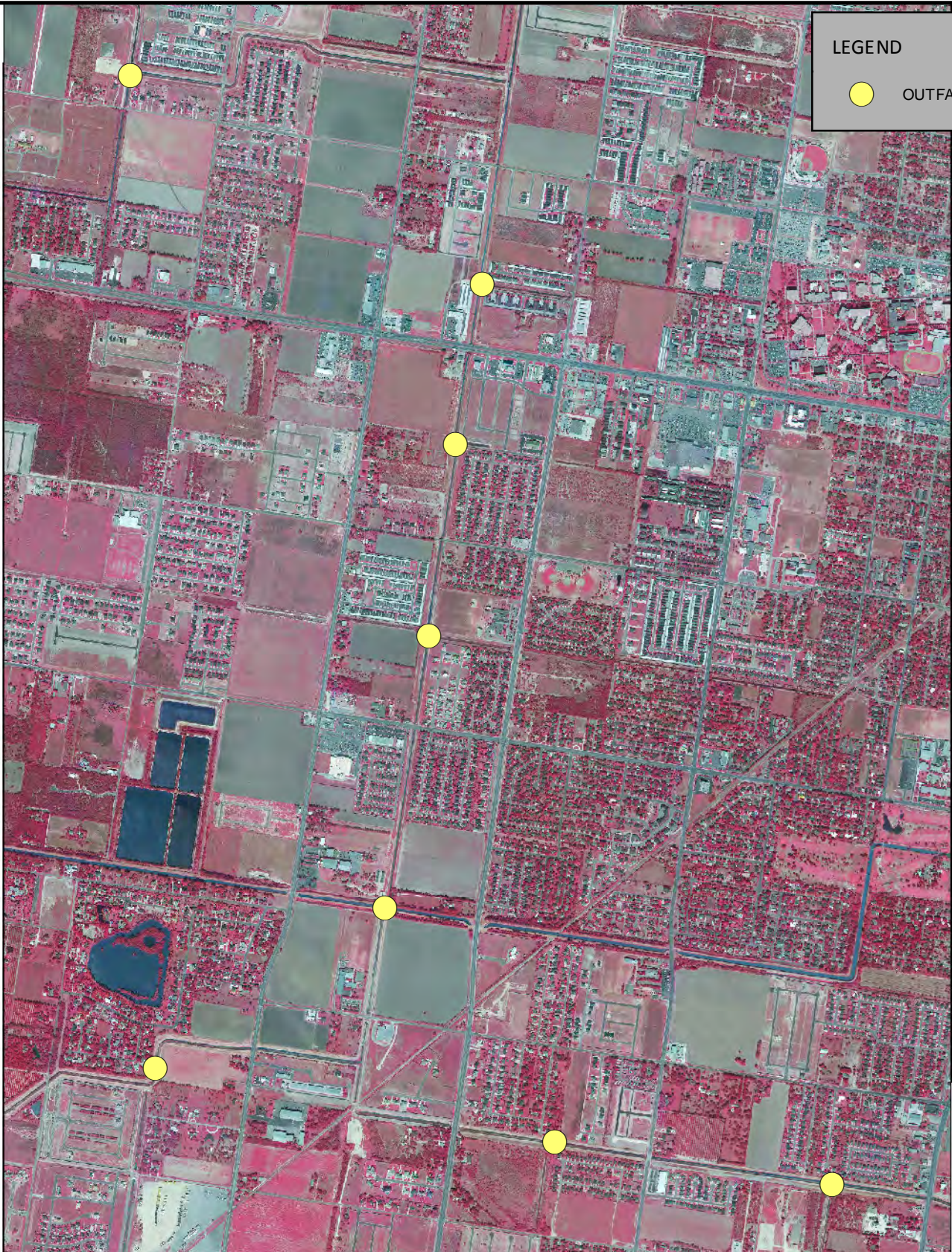


0 500 1,000 2,000 Feet


APPROXIMATE SCALE

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SOURCE: Banks Environmental Data.

2004 (USDA) HISTORICAL AERIAL (SOUTHWEST AREA)


PHASE I ESA

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 EDINBURG, HIDALGO COUNTY, TEXAS

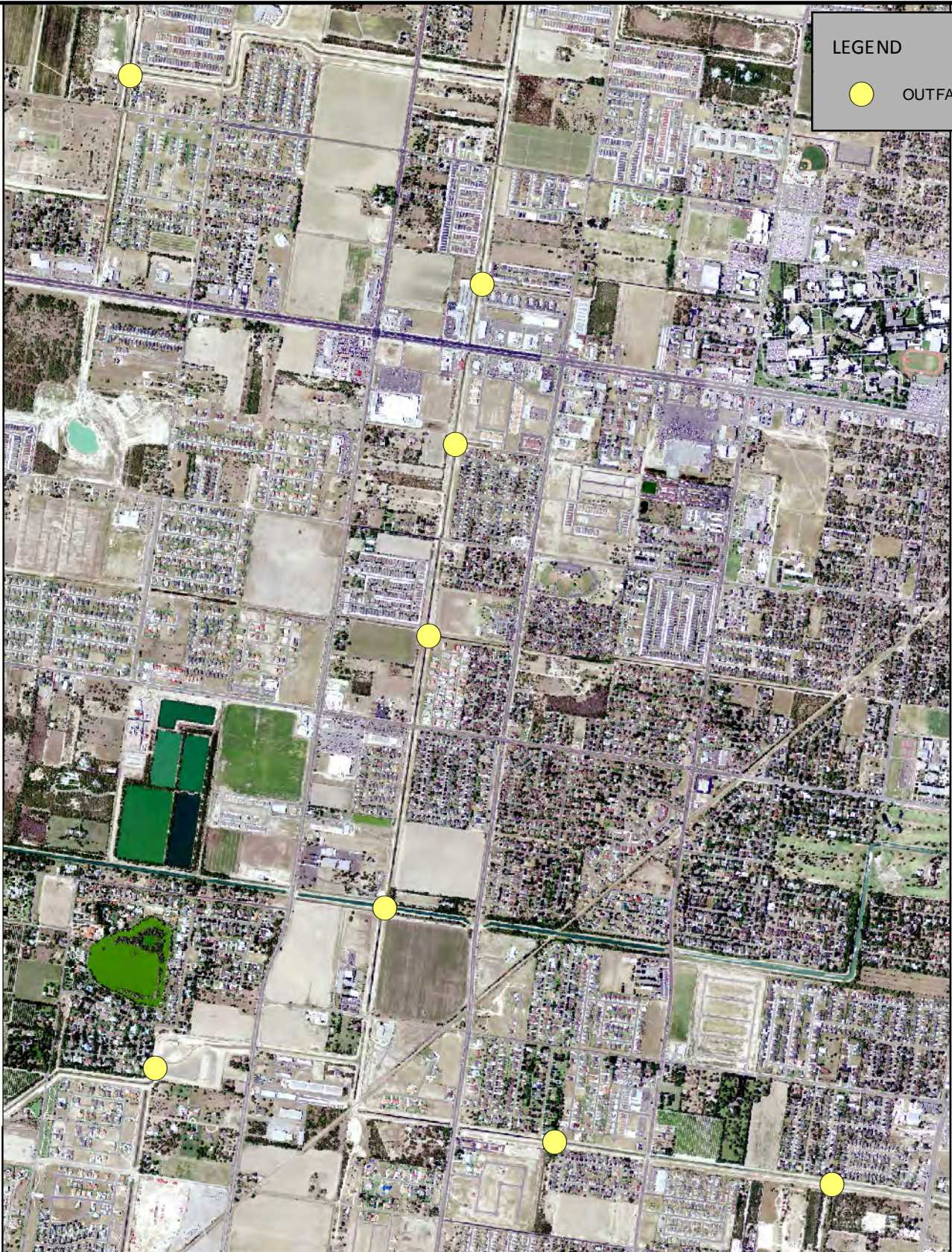
REVISIONS:

No.	DATE	DESCRIPTION


PROJECT No.: ASF14-001-00



0 500 1,000 2,000
 Feet
 APPROXIMATE SCALE



LEGEND

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SOURCE: Banks Environmental Data.

2008 (USDA) HISTORICAL AERIAL (SOUTHWEST AREA)


PHASE I ESA

CITY OF EDINBURG MASTER DRAINAGE PLAN
 EDINBURG, HIDALGO COUNTY, TEXAS

REVISIONS:

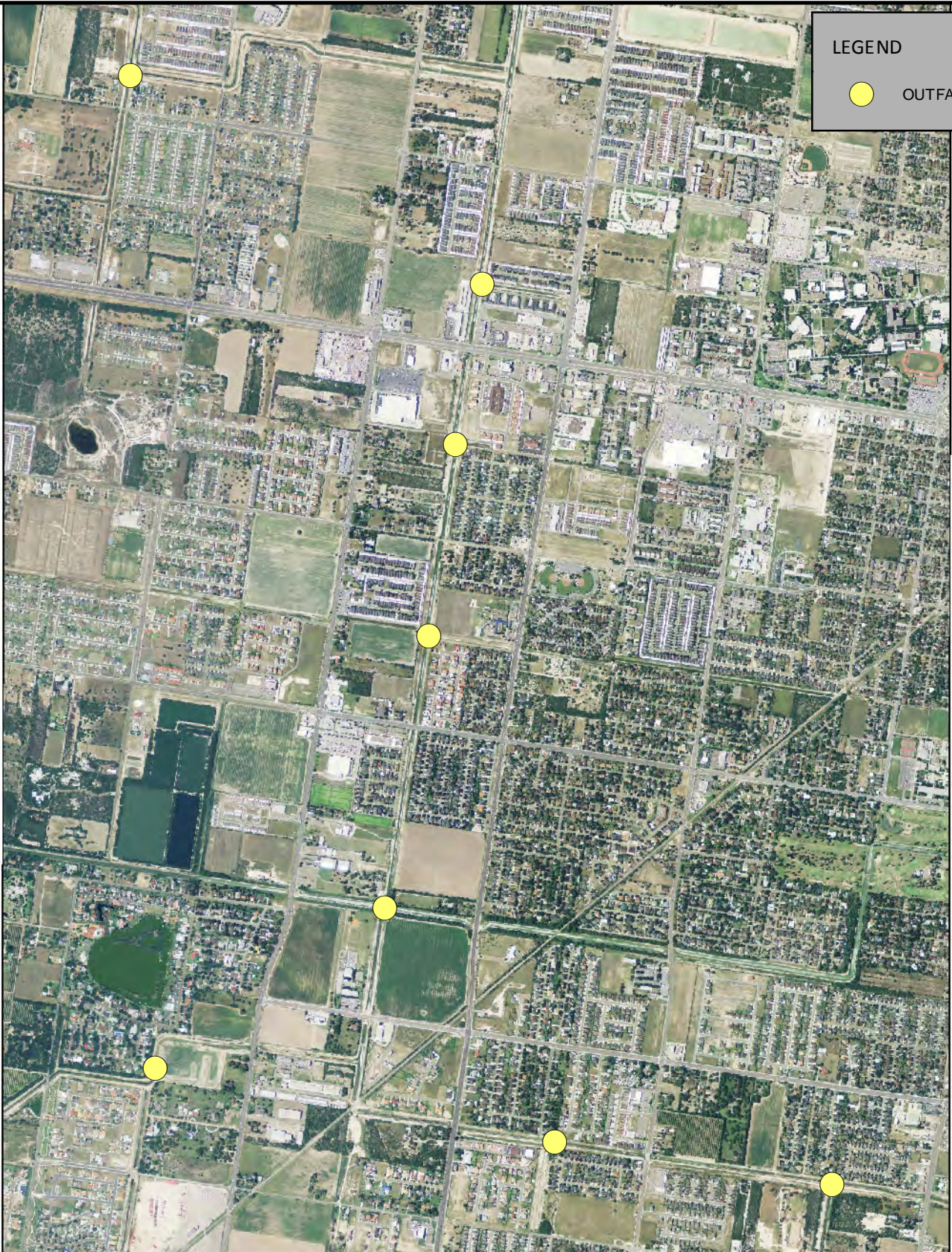
No.	DATE	DESCRIPTION

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0 500 1,000 2,000 Feet
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SOURCE: Banks Environmental Data.

2012 (USDA) HISTORICAL AERIAL (SOUTHWEST AREA)


PHASE I ESA

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 EDINBURG, HIDALGO COUNTY, TEXAS

REVISIONS:

No.	DATE	DESCRIPTION


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0 500 1,000 2,000
 Feet
 APPROXIMATE SCALE



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SOURCE: Banks Environmental Data.

1939 (ASCS) HISTORICAL AERIAL (SOUTHEAST AREA)


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CITY OF EDINBURG MASTER DRAINAGE PLAN
 EDINBURG, HIDALGO COUNTY, TEXAS

REVISIONS:

No.	DATE	DESCRIPTION

PROJECT No.: ASF14-001-00




0 200 400 800 Feet

APPROXIMATE SCALE



LEGEND

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SOURCE: Banks Environmental Data.

1961 (USGS) HISTORICAL AERIAL (SOUTHEAST AREA)


PHASE I ESA

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 EDINBURG, HIDALGO COUNTY, TEXAS

REVISIONS:

No.	DATE	DESCRIPTION

PROJECT No.: ASF14-001-00



0 200 400 800 Feet


APPROXIMATE SCALE

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SOURCE: Banks Environmental Data.

1977 (TXDOT) HISTORICAL AERIAL (SOUTHEAST AREA)
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 EDINBURG, HIDALGO COUNTY, TEXAS

REVISIONS:

No.	DATE	DESCRIPTION


PROJECT No.: ASF14-001-00



0 200 400 800 Feet
 APPROXIMATE SCALE



LEGEND

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SOURCE: Banks Environmental Data.

1980 (USGS) HISTORICAL AERIAL (SOUTHEAST AREA)
 PHASE I ESA
 CITY OF EDINBURG MASTER DRAINAGE PLAN
 EDINBURG, HIDALGO COUNTY, TEXAS

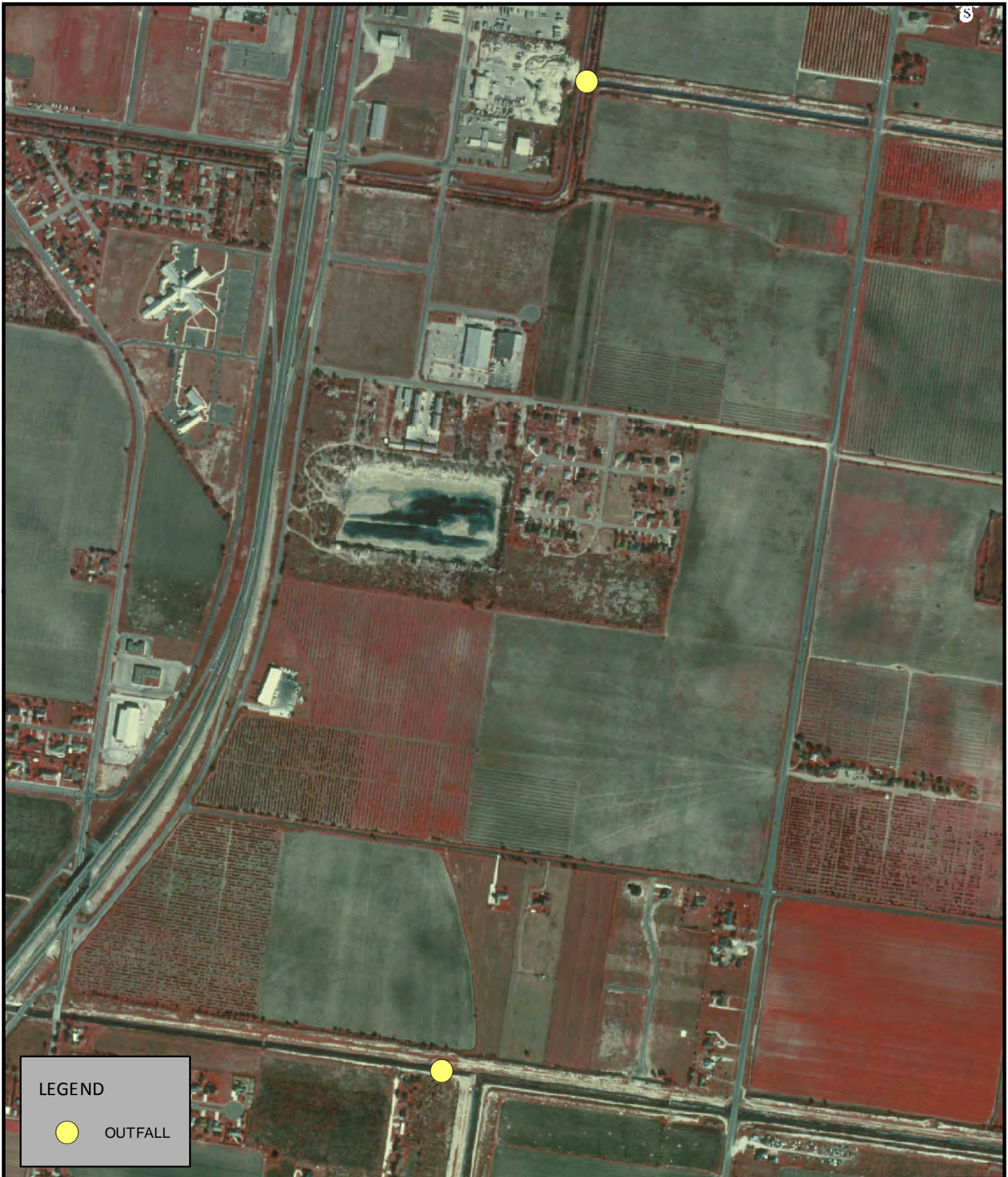
REVISIONS:

No.	DATE	DESCRIPTION


PROJECT No.: ASF14-001-00



0 200 400 800 Feet
 APPROXIMATE SCALE



LEGEND

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SOURCE: Banks Environmental Data.

1995 (USGS) HISTORICAL AERIAL (SOUTHEAST AREA)
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0 200 400 800 Feet
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SOURCE: Banks Environmental Data.

2004 (USDA) HISTORICAL AERIAL (SOUTHEAST AREA)
 PHASE I ESA
 CITY OF EDINBURG MASTER DRAINAGE PLAN
 EDINBURG, HIDALGO COUNTY, TEXAS

REVISIONS:

No.	DATE	DESCRIPTION

PROJECT No.: ASF14-001-00




0 200 400 800 Feet
 APPROXIMATE SCALE

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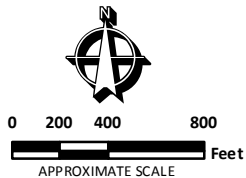
SOURCE: Banks Environmental Data.

**2008 (USDA) HISTORICAL AERIAL
 (SOUTHEAST AREA)**
 PHASE I ESA
 CITY OF EDINBURG MASTER DRAINAGE PLAN
 EDINBURG, HIDALGO COUNTY, TEXAS

REVISIONS:
 No. DATE DESCRIPTION

No.	DATE	DESCRIPTION

PROJECT No.:
 ASF14-001-00




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SOURCE: Banks Environmental Data.

2012 (USDA) HISTORICAL AERIAL (SOUTHEAST AREA)
 PHASE I ESA
 CITY OF EDINBURG MASTER DRAINAGE PLAN
 EDINBURG, HIDALGO COUNTY, TEXAS

REVISIONS:

No.	DATE	DESCRIPTION

PROJECT No.: ASF14-001-00



0 200 400 800 Feet
 APPROXIMATE SCALE

ATTACHMENT C

THE BANKS REGULATORY DATABASE REPORT™

Prepared for:

RABA KISTNER, INC-HOUSTON
3602 Westchase
Houston, TX 77042



Regulatory Database Report

ASTM E1527-13/AAI Compliant

TWDB Master Drainage Plan - SE(1)

TX

Hidalgo County

ES-108904 SE (1)

Friday, January 10, 2014

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Geographic Summary TWDB Master Drainage Plan - SE(1)**Location**

Hidalgo, TX

Coordinates

Longitude & Latitude in Degrees Minutes Seconds	-98° 8' 40", 26° 17' 9"
Longitude & Latitude in Decimal Degrees	-98.144563°, 26.285726°
X and Y in UTM	585403.92, 2907609.16 (Zone 14)

Elevation

Target Property lies 97.33 feet above sea level.

Zip Codes Searched

Search Distance	Zip Codes
Target Property	78542, 78516, 78537, 78538, 78539, 78543, 78549, 78558, 78589
0.25 miles	78542, 78516, 78537, 78538, 78539, 78543, 78549, 78558, 78589
0.5 miles	78539, 78541, 78542, 78543, 78549, 78558, 78574, 78542, 78516, 78537, 78538, 78539, 78543, 78549, 78558, 78589
1 mile	78539, 78541, 78542, 78543, 78549, 78558, 78574, 78541, 78504, 78538, 78539, 78560, 78563, 78572, 78595, 78542, 78516, 78537, 78538, 78539, 78543, 78549, 78558, 78589

Topos Searched

Search Distance	Topo Name
Target Property	Edinburg (1984)
0.25 miles	Edinburg (1984)
0.5 miles	Edinburg (1984)
1 mile	Edinburg (1984)

Database Summary TWDB Master Drainage Plan - SE(1)



Databases Searched	Distance Searched	# Mapped	# Not Mapped	Total
Federal - ASTM 1527-13/AAI Required				
National Priority List (NPL)	1	0	0	0
Delisted National Priority List (DNPL)	0.5	0	0	0
CERCLIS (CER)	0.5	0	0	0
CERCLIS NFRAP (CER NFRAP)	0.5	0	1	1
RCRA CORRACTS (RCRA COR)	1	0	0	0
RCRA non-CORRACTS TSD (RCRA TSD)	0.5	0	0	0
RCRA Generators (RCRA GEN)	0.25	0	0	0
Federal Brownfields (FED BWN)	0.5	0	0	0
Federal Institutional Control (FED IC)	0.5	0	0	0
Federal Engineering Control (FED EC)	0.5	0	0	0
ERNS List (ERNS)	0.25	0	3	3
State - ASTM 1527-13/AAI Required				
State/Tribal Equivalent NPL (ST NPL)	1	0	0	0
State/Tribal Equivalent CERCLIS (ST CER)	0.5	0	0	0
State/Tribal Disposal or Landfill (SWLF)	0.5	0	0	0
State/Tribal Leaking Storage Tank (LPST)	0.5	1	0	1
State/Tribal Storage Tank (PST)	0.25	3	19	22
State/Tribal Institutional Control (ST IC)	0.25	0	0	0
State/Tribal Engineering Control (ST EC)	0.5	0	0	0
State/Tribal Voluntary Cleanup (VCP)	0.5	0	0	0
State/Tribal Brownfield (ST BWN)	0.5	0	0	0
State/Tribal Hazardous Waste (HW)	0.25	2	0	2
Non-ASTM/AAI Required Databases				
RCRA (RCRA)	0.25	1	0	1
Dry Cleaners (DRYC)	0.25	0	0	0
Total Sites Found		7	23	30

Summary Map - 0.25 Mile Radius



Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, IFC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2013

TWDB Master Drainage Plan - SE(1)

- | | | | |
|--|--|--|---|
| ● Single Site | ● Cluster Site | Large Tract | ■ Cluster Site with Large Tract |
| | | | <i>RCRA COR, RCRA TSD, CER, LPST, NPL, ST NPL, SWLF</i> |
| ● Single Site | ● Cluster Site | Large Tract | ■ Cluster Site with Large Tract |
| | | | <i>RCRA GEN, ST & FED BWN, ST & FED EC, ST & FED IC, DNPL, CER NFRAP, PST, VCP, ST CER</i> |
| ● Single Site | ● Cluster Site | Large Tract | ■ Cluster Site with Large Tract |
| | | | <i>ERNS, HW, RCRA, DRYC</i> |

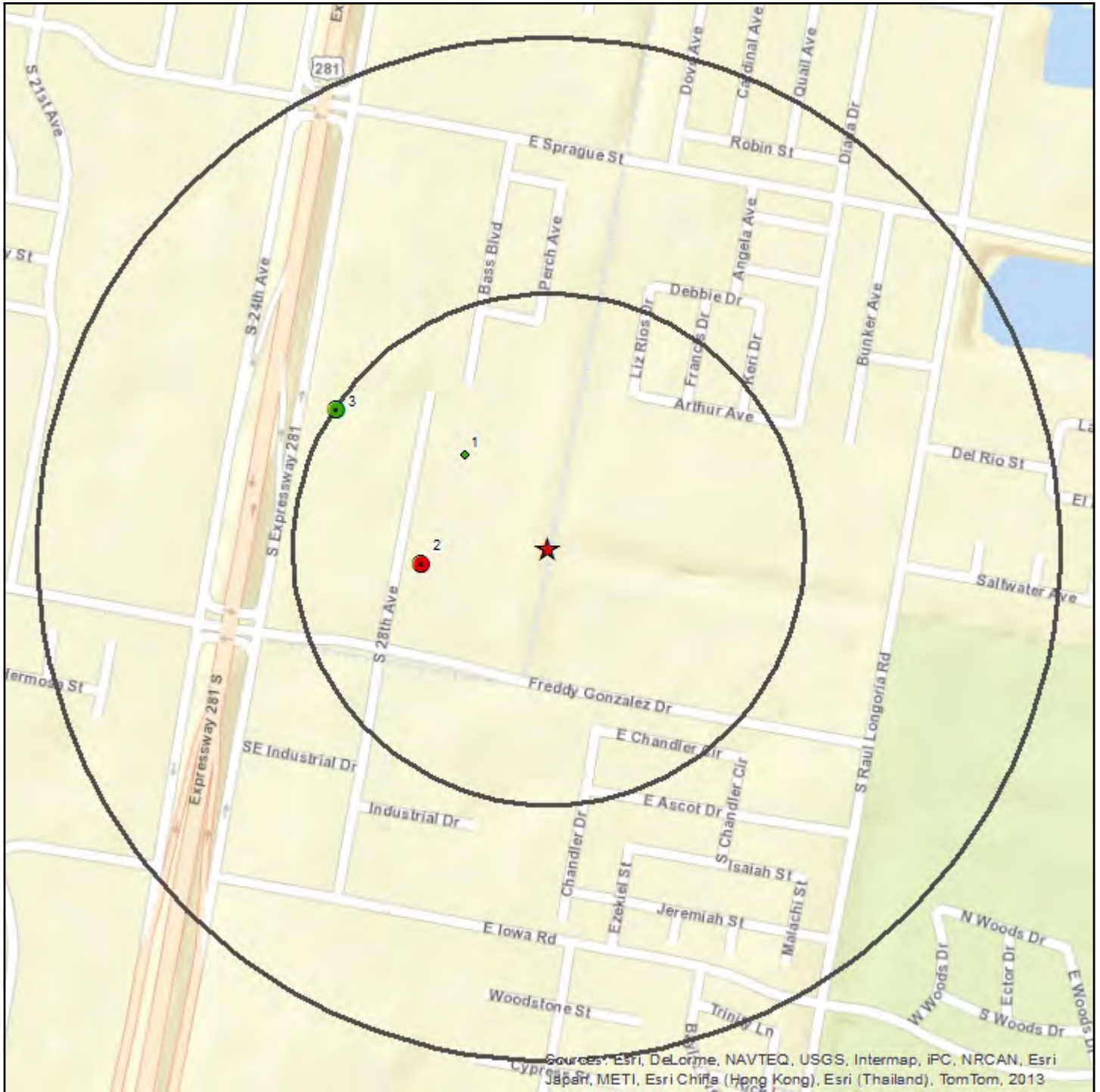
- ★ Target Property
- Search Buffer

1 : 4,500
 1 inch = 0.071 miles
 1 inch = 375 feet
 1 centimeter = 0.045 kilometers
 1 centimeter = 45 meters



Lambert Conformal Conic Projection
 1983 North American Datum
 First Standard Parallel: 33° 00' North
 Second Standard Parallel: 45° 00' North
 Central Meridian: 96° 00' West
 Latitude of Origin: 39° 00' North

Summary Map - 0.5 Mile Radius



Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2013

TWDB Master Drainage Plan - SE(1)

- | | | | |
|--|---|--|--|
| ● Single Site | ● Cluster Site | ■ Large Tract | ● Cluster Site with Large Tract |
| ● Single Site | ● Cluster Site | ■ Large Tract | ● Cluster Site with Large Tract |
| ● Single Site | ● Cluster Site | ■ Large Tract | ● Cluster Site with Large Tract |
- RCRA COR, RCRA TSD, CER, LPST, NPL, ST NPL, SWLF
● RCRA GEN, ST & FED BWN, ST & FED EC, ST & FED IC, DNPL, CER NFRAP, PST, VCP, ST CER
● ERNS, HW, RCRA, DRYC

- ★ Target Property
- Search Buffer

1 : 9,000
 1 inch = 0.142 miles
 1 inch = 750 feet
 1 centimeter = 0.090 kilometers
 1 centimeter = 90 meters

Lambert Conformal Conic Projection
 1983 North American Datum
 First Standard Parallel: 33° 00' 00" North
 Second Standard Parallel: 45° 00' 00" North
 Central Meridian: 96° 00' 00" West
 Latitude of Origin: 39° 00' 00" North



Summary Map - 1 Mile Radius



Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, iFC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2013

TWDB Master Drainage Plan - SE(1)

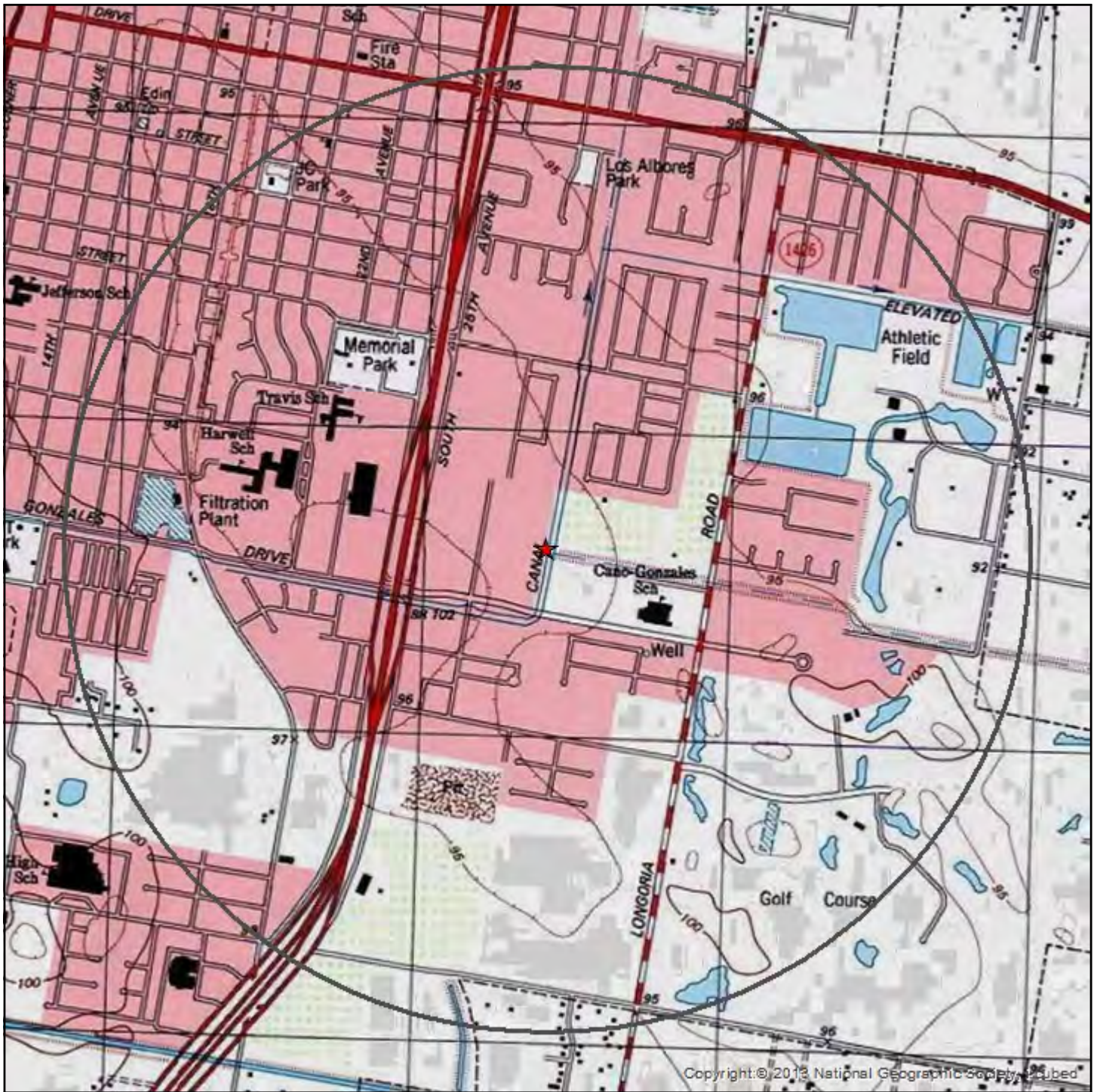
- | | | | | |
|-------------|--------------|-------------|-------------------------------|-----------------|
| Single Site | Cluster Site | Large Tract | Cluster Site with Large Tract | Target Property |
| Single Site | Cluster Site | Large Tract | Cluster Site with Large Tract | Search Buffer |
| Single Site | Cluster Site | Large Tract | Cluster Site with Large Tract | |
- RCRA COR, RCRA TSD, CER, LPST, NPL, ST NPL, SWLF
 RCRA GEN, ST & FED BWN, ST & FED EC, ST & FED IC, DNPL, CER NFRAP, PST, VCP, ST CER
 ERNS, HW, RCRA, DRYC

1 : 19,000
 1 inch = 0.300 miles
 1 inch = 1583 feet
 1 centimeter = 0.190 kilometers
 1 centimeter = 190 meters

Lambert Conformal Conic Projection
 1983 North American Datum
 First Standard Parallel: 33° 00' North
 Second Standard Parallel: 45° 00' North
 Central Meridian: 96° 00' West
 Latitude of Origin: 39° 00' North



Topographic Overlay Map - 1 Mile Radius



Copyright: © 2013 National Geographic Society, Inc.

TWDB Master Drainage Plan - SE(1)

- ★ Target Property
- Search Buffer

Target Property Quad Name
Edinburg (1984)

1 : 19,000
 1 inch = 0.300 miles
 1 inch = 1583 feet
 1 centimeter = 0.190 kilometers
 1 centimeter = 190 meters

Lambert Conformal Conic Projection
 1983 North American Datum
 First Standard Parallel: 33° 00' North
 Second Standard Parallel: 45° 00' North
 Central Meridian: 96° 00' West
 Latitude of Origin: 39° 00' North



Current Imagery Overlay Map - 0.5 Mile Radius



Source: Esri, DigitalGlobe, GeoEye, Earthstar, USDA, USGS, AeroGRID, IGN, JCF, swisstopo, and the GIS User Community

TWDB Master Drainage Plan - SE(1)

- | | | | | |
|--|---|--|--|---|
| ● Single Site | ● Cluster Site | ■ Large Tract | ■ Cluster Site with Large Tract | ★ Target Property |
| ● Single Site | ● Cluster Site | ■ Large Tract | ■ Cluster Site with Large Tract | Search Buffer |
| ● Single Site | ● Cluster Site | ■ Large Tract | ■ Cluster Site with Large Tract | |

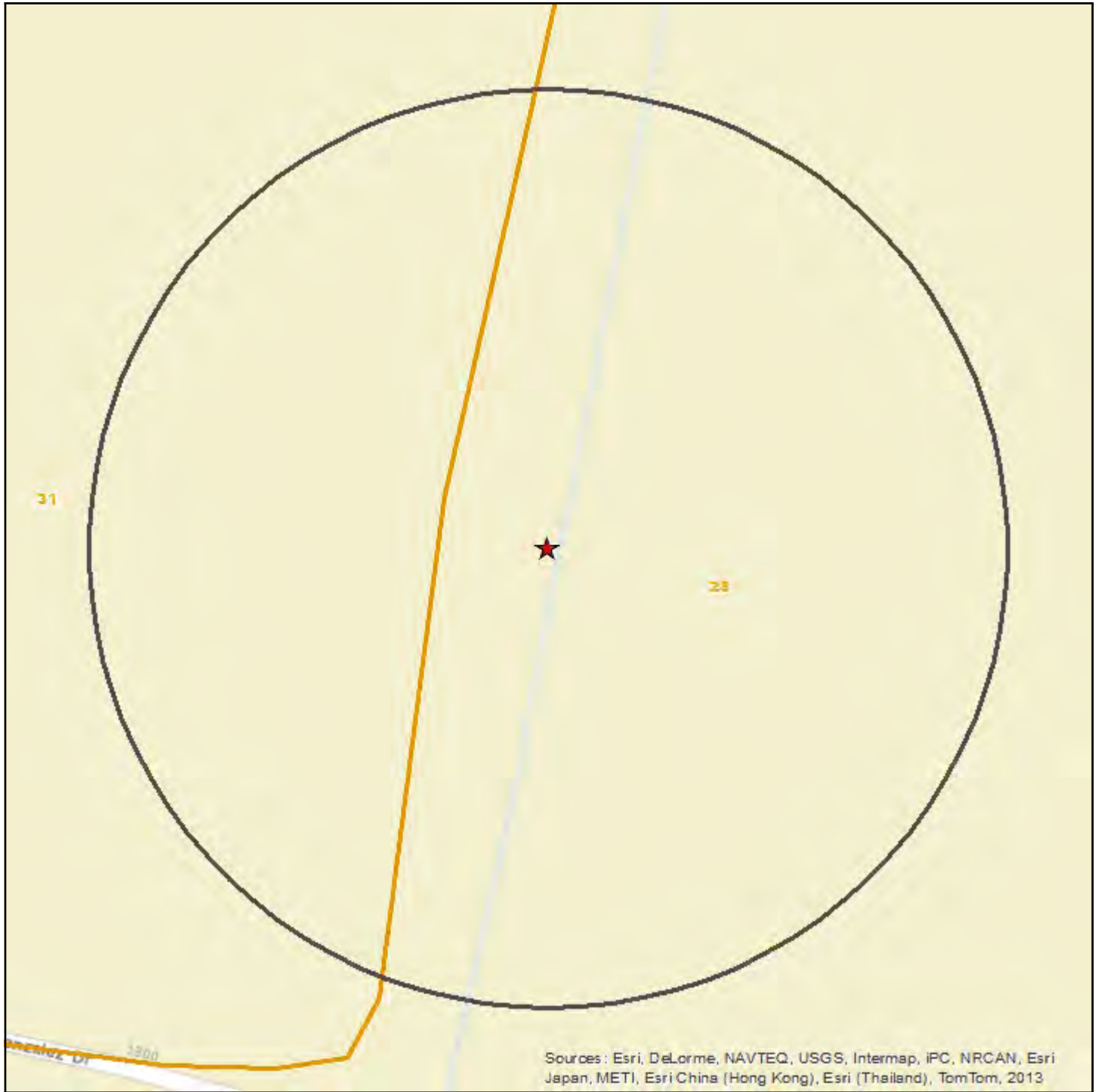
RCRA COR, RCRA TSD, CER, LPST, NPL, ST NPL, SWLF
 RCRA GEN, ST & FED BWN, ST & FED EC, ST & FED IC, DNPL, CER NFRAP, PST, VCP, ST CER
 ERNS, HW, RCRA, DRYC

1 : 9,000
 1 inch = 0.142 miles
 1 inch = 750 feet
 1 centimeter = 0.090 kilometers
 1 centimeter = 90 meters

Lambert Conformal Conic Projection
 1983 North American Datum
 First Standard Parallel: 33° 00' 00" North
 Second Standard Parallel: 45° 00' 00" North
 Central Meridian: 96° 00' 00" West
 Latitude of Origin: 39° 00' 00" North



Soil Survey Map - 0.1 Mile Radius



Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, IFC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2013

TWDB Master Drainage Plan - SE(1)

- | | | | | |
|-------------|--------------|-------------|-------------------------------|-----------------|
| Single Site | Cluster Site | Large Tract | Cluster Site with Large Tract | Target Property |
| Single Site | Cluster Site | Large Tract | Cluster Site with Large Tract | Search Buffer |
| Single Site | Cluster Site | Large Tract | Cluster Site with Large Tract | Soils Boundary |
- RCRA COR, RCRA TSD, CER, LPST, NPL, ST NPL, SWLF*
- RCRA GEN, ST & FED BWN, ST & FED EC, ST & FED IC, DNPL, CER NFRAP, PST, VCP, ST CER*
- ERNS, HW, RCRA, DRYC*

1 : 2,000
 1 inch = 0.032 miles
 1 inch = 167 feet
 1 centimeter = 0.020 kilometers
 1 centimeter = 20 meters



Lambert Conformal Conic Projection
 1983 North American Datum
 First Standard Parallel: 33° 00' North
 Second Standard Parallel: 45° 00' North
 Central Meridian: 96° 00' West
 Latitude of Origin: 39° 00' North

Soils TWDB Master Drainage Plan - SE(1)**Soils Types Found**

Target Property	28
Within 0.1 miles of Target Property	28, 31

Soil Type Descriptions**28 - Hidalgo sandy clay loam, 0 to 1 percent slopes**

Hydric Status 0

Minimum Depth to Bedrock

Hidalgo (80 percent)

Hydrologic Group	Moderately low runoff potential
Soil Drainage Class	Well drained
Corrosion Potential - Uncoated Steel	High
Depth to Restrictive Feature	

Horizon	Soil Texture	Upper Boundary	Lower Boundary	AASHTO	Unified
H1	Sandy clay loam	0 cm	43 cm	A-6	CL, SC
H2	Sandy clay loam	43 cm	71 cm	A-6	CL, SC
H3	Sandy clay loam	71 cm	203 cm	A-6, A-7-6	CL, SC

Unnamed, minor components (20 percent)**31 - Hidalgo-Urban land complex, 0 to 3 percent slopes**

Hydric Status 0

Minimum Depth to Bedrock

Hidalgo (50 percent)

Hydrologic Group	Moderately low runoff potential
Soil Drainage Class	Well drained
Corrosion Potential - Uncoated Steel	High
Depth to Restrictive Feature	

Horizon	Soil Texture	Upper Boundary	Lower Boundary	AASHTO	Unified
H1	Fine sandy loam	0 cm	43 cm	A-4, A-6	SC, SC-SM, SM
H2	Sandy clay loam	43 cm	71 cm	A-6	CL, SC
H3	Sandy clay loam	71 cm	203 cm	A-6, A-7-6	CL, SC

Urban land (30 percent)

Horizon	Soil Texture	Upper Boundary	Lower Boundary	AASHTO	Unified
H1	Variable	0 cm	102 cm		

Unnamed, minor components (20 percent)

Soils Descriptions TWDB Master Drainage Plan - SE(1)**AASHTO Classification Definitions**

A-1, A-1-a, A-1-b	Granular materials (35% or less passing No. 200 sieve), stone fragments, gravel and sand
A-2, A-2-4, A-2-5, A-2-6, A-2-7	Granular materials (35% or less passing No. 200 sieve), silty or clayey gravel and sand
A-3	Granular materials (35% or less passing No. 200 sieve), fine sand
A-4	Silt-Clay materials (more than 35% passing No. 200 sieve), silty soils
A-5	Silt-Clay materials (more than 35% passing No. 200 sieve), silty soils
A-6	Silt-Clay materials (more than 35% passing No. 200 sieve), clayey soils
A-7, A-7-5, A-7-6	Silt-Clay materials (more than 35% passing No. 200 sieve), clayey soils
A-8	Silt-Clay materials (more than 35% passing No. 200 sieve), clayey soils

Unified Classification Definitions

CH	Fine-grained soils, silts and clays (liquid limit is 50% or more), Fat Clay
CL, CL-A (proposed), CL-K (proposed), CL-ML, CL-O (proposed), CL-T (proposed)	Fine-grained soils, silts and clays (liquid limit is less than 50%), Lean Clay
GC, GC-GM	Coarse-grained soils, Gravels, gravel with fines, Clayey Gravel
GM	Coarse-grained soils, Gravels, gravel with fines, Silty Gravel
GP, GP-GC, GP-GM	Coarse-grained soils, Gravels, clean gravels, Poorly Graded Gravel
GW, GW-GC, GW-GM	Coarse-grained soils, Gravels, clean gravels, Well-Graded Gravel
MH, MH-A, MH-K, MH-O, MH-T	Fine-grained soils, silts and clays (liquid limit is 50% or more), Elastic Silt
ML, ML-A (proposed), ML-K (proposed), ML-O (proposed), ML-T (proposed)	Fine-grained soils, silts and clays (liquid limit is less than 50%), Silt
OH, OH-T (proposed)	Fine-grained soils, silts and clays (liquid limit is 50% or more), Organic Clay or Organic Silt
OL	Fine-grained soils, silts and clays (liquid limit is less than 50%), Organic Clay or Organic Silt
PT	Highly organic soils, Peat
SC, SC-SM	Coarse-grained soils, Sands, sands with fines, Clayey Sand
SM	Coarse-grained soils, Sands, sands with fines, Silty Sand
SP, SP-SC, SP-SM	Coarse-grained soils, Sands, clean sands, Poorly Graded Sand
SW, SW-SC, SW-SM	Coarse-grained soils, Sands, clean sands, Well-Graded Sand

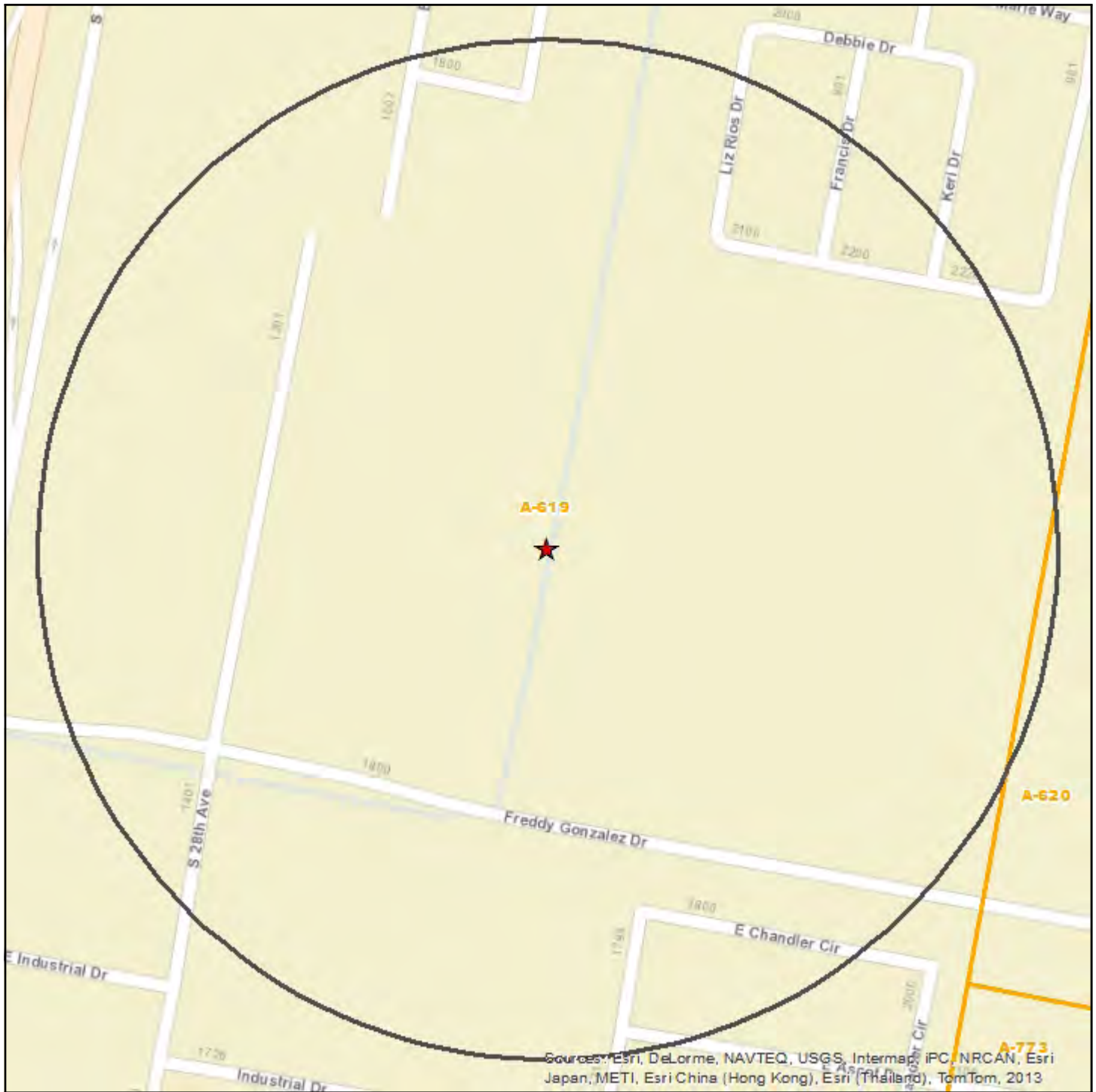
Source

Natural Resources Conservation Service, Soil Survey Geographic (SSURGO) Database.

Disclaimer

This Soils Survey from Banks Environmental Data, Inc. has searched Natural Resources Conservation Service (NRCS) and the Soil Survey Geographic Database (SSURGO). All soil data presented on the map and in the details section are based on information obtained from NRCS. Although Banks performs quality assurance and quality control on all data, inaccuracies of the data and mapped locations could possibly be traced to the source. Banks Environmental Data, Inc. cannot fully guarantee the accuracy of the SSURGO database maintained by NRCS.

Water & Oil/Gas Wells Map - 0.25 Mile Radius



Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2013

TWDB Master Drainage Plan - SE(1)

- Single Water Well
- Water Well Cluster
- Single Oil/Gas/Other Well
- Oil/Gas/Other Well Cluster
- Water/Oil/Gas/Other Well Cluster

- ★ Target Property
- Search Buffer
- Texas Land Survey

1 : 4,500
 1 inch = 0.071 miles
 1 inch = 375 feet
 1 centimeter = 0.045 kilometers
 1 centimeter = 45 meters



Lambert Conformal Conic Projection
 1983 North American Datum
 First Standard Parallel: 33° 00' North
 Second Standard Parallel: 45° 00' North
 Central Meridian: 96° 00' West
 Latitude of Origin: 39° 00' North

This well scan searched for state and federal wells currently digitized in our geospatial database. No wells were found, but more wells could exist within the search area.

Source

U.S. Geological Survey, Texas Water Development Board (GW and Submitted Driller's Report), Texas Commission of Environmental Quality (PWS), Railroad Commission of Texas (Production Data)

Disclaimer

This well scan from Banks Environmental Data, Inc. has included a digital search of state and federal wells currently digitized in our geospatial database. Since this scan includes only well data that is currently mapped in our geospatial database, more wells could exist within the search area. For a complete well search or to locate more details, please contact Banks to obtain a full Water Well Report or Oil & Gas Well/Pipeline Search Report. More detailed individual well records can also be obtained from Banks for an additional cost, please reference a Well ID # from this well scan.

All well locations are based on information obtained from state and federal sources. Although Banks performs quality assurance and quality control on all data, inaccuracies of the records and mapped locations could possibly be traced to the specific regulatory authority or individual well driller. Banks Environmental Data, Inc. cannot fully guarantee the accuracy of the data or well location(s) of the maps and records maintained by the state and federal agencies.

Mapped Sites Summary TWDB Master Drainage Plan - SE(1)

Database	Distance from Target Property	Map ID	Facility Site Name	Facility Site Address	Site Details Page #
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*Sites are sorted by database tier, database, and distance from the target site.

LPST	0.12 miles W	2	SOUTH TEXAS CONCRETE	1420 S 28TH ST 1420 S 26TH ST, EDINBURG, TX 78539	18
PST	0.12 miles W	2	SOUTH-TEX CONCRETE	1420 S 28TH AVE, EDINBURG, TX 78542	19
PST	0.12 miles W	2	SOUTH TX CONCRETE	1420 S 28TH AVE, EDINBURG, TX 78542	20
PST	0.12 miles W	2	ALAMO CONCRETE PRODUCTS PLT 88	1420 S 28TH AVE, EDINBURG, TX 78542	21
HW	0.12 miles NW	1	RYDER PIE NATIONWIDE	1302 S 28TH AVE STE A, EDINBURG, TX 78542	22
HW	0.25 miles NW	3	HOLT CAT	1320 S 25TH AVE, EDINBURG, TX 78542	23
RCRA	0.25 miles NW	3	HOLT CAT	1320 S 25TH AVENUE, EDINBURG, TX 78540	24

End of Mapped Sites Summary Section

Unmapped Sites Summary TWDB Master Drainage Plan - SE(1)

Database	Facility Site Name	Facility Site Address	Site Details Page #
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*Sites are sorted by database tier and database.

CER NFRAP	ILLINI HELICOPTER	P.O. BOX 1601, EDINBURG, TX 78539	26
ERNS		US 281 NORTH AND, EDINBURG, TX	27
ERNS		FREEDIE GONZALEZ, EDINBURG, TX	28
ERNS		ROUTE 7 BOX 980, EDINBURG, TX 78541	29
PST	TNT GROCERY	TX 78537	30
PST	ALANIZ GROCERY	TX 78539	31
PST	FFP 680	RT 2, EDINBURG, TX 78539	32
PST	HELDT BROTHERS TRUCKS	281, EDINBURG, TX 78539	33
PST	MC ALLEN PRODUCTION UNIT OFFICE	EDINBURG, TX 78539	34
PST	SUN-UP THE FOOD STORE	RT 2, EDINBURG, TX 78539	35
PST	J & C 2	US HWY 281, EDINBURG, TX 78539	36
PST	M & R DRIVE INN	TX 78539	37
PST	OTTO WAGNER SR	RT 3 D, EDINBURG, TX 78539	38
PST	RON WILSHER	RT 7, EDINBURG, TX 78539	39
PST	ALICE SPECIALTY	HWY 281, EDINBURG, TX 78539	40
PST	J A M DISTRIBUTING COMPANY	HWY 281, EDINBURG, TX 78539	41
PST	EDINBURG WELL SERVICE	RR 3, EDINBURG, TX 78539	42
PST	LUNAS DRIVE IN 2	RR 7 BOX 11500, EDINBURG, TX 78541	43
PST	HOLCOMB FLYING SER	RT 3 A, EDINBURG, TX 78539	44
PST	L & E DRIVE INN	TX 78543	45
PST	DOUBLE F QUICK STOP	TX 78549	46
PST	WESTSIDE KOUNTRY STORE	TX 78572	47
PST	HERNANDEZ GROC	TX 78572	48

End of Unmapped Sites Summary Section

Mapped Sites Details: LPST (MapID 2) TWDB Master Drainage Plan - SE(1)



LPST - State/Tribal Leaking Storage Tank

Map ID #2	LPST - State/Tribal Leaking Storage Tank	Source: TCEQ	
LPST ID: 114780	Facility ID: 0029482	Banks ID: 114780	
SOUTH TEXAS CONCRETE 1420 S 28TH ST 1420 S 26TH ST, EDINBURG, TX 78539		Rel. Loc.: 0.12 miles W Elevation: 95.96 feet (-1.37)	
Contact: DIRK FOX			
Status:	Final concurrence issued, case close		
Leak Discovery Date:	9/26/1999		
Damage Description:	gw impacted, no apparent threats or impacts to receptors		
Leak Closure Date:			
Facility Contact Name:			
Facility Contact Phone:			
Facility Owner Name:	SOUTH-TEX CONCRETE		
Facility Contact Name:	Dirk Fox		
Facility Contact Phone:	956-381-9886		
Leak Substance:			
Tank #	#1	#2	#3
Status:	REMOVED FROM GROUND	REMOVED FROM GROUND	REMOVED FROM GROUND
Capacity:	1000	1000	1000
Comments:			
Install Date:	1/1/1984	1/1/1984	1/1/1984
Closure Certification Date:			
Above or Below Ground Tank:	below	below	below
Unit ID:			
Construction Material:	Steel	Steel	Steel
Piping Material:	Steel		
Tank Contents:	GASOLINE	GASOLINE	DIESEL
Automatic Tank Gauge:			
Inventory Control:			

End of LPST Sites Section

Mapped Sites Details: PST (MapID 2) TWDB Master Drainage Plan - SE(1)



PST - State/Tribal Storage Tank

Map ID #2	PST - State/Tribal Storage Tank			Source: TCEQ
Facility #: 0029482	TCEQ Customer ID: 064188			Banks ID: 0029482
SOUTH-TEX CONCRETE 1420 S 28TH AVE, EDINBURG, TX 78542 Contact: DIRK FOX				Rel. Loc.: 0.12 miles W Elevation: 95.96 feet (-1.37)
Facility Owner Name:	SOUTH-TEX CONCRETE			
Facility Owner Address:				
Facility Owner City:	EDINBURG			
Facility Owner State:	TX			
Facility Owner Zip:	78539			
Facility Contact Name:	Dirk Fox			
Facility Contact Phone:	956-381-9886			
Number of ASTs:	0			
Number of USTs:	0			
Total Number of Tanks:				
Tank #	#1	#2	#3	
Status:	REMOVED FROM GROUND	REMOVED FROM GROUND	REMOVED FROM GROUND	
Capacity:	1000	1000	1000	
Comments:				
Install Date:	1/1/1984	1/1/1984	1/1/1984	
Closure Certification Date:				
Above or Below Ground Tank:	below	below	below	
Unit ID:				
Construction Material:	Steel	Steel	Steel	
Piping Material:		Steel	Steel	
Tank Contents:	GASOLINE	GASOLINE	DIESEL	
Automatic Tank Gauge:				
Inventory Control:				

Mapped Sites Details: PST (MapID 2) TWDB Master Drainage Plan - SE(1)

Map ID #2	PST - State/Tribal Storage Tank		Source: TCEQ
Facility #: 0078610	TCEQ Customer ID: 121396		Banks ID: 0078610
SOUTH TX CONCRETE 1420 S 28TH AVE, EDINBURG, TX 78542 Contact: RUBEN PAALACIOS			Rel. Loc.: 0.12 miles W Elevation: 95.96 feet (-1.37)
Facility Owner Name:	THOMAS PETROLEUM LLC		
Facility Owner Address:			
Facility Owner City:	VICTORIA		
Facility Owner State:	TX		
Facility Owner Zip:	77902		
Facility Contact Name:	W L THOMAS		
Facility Contact Phone:	361-582-5123		
Number of ASTs:	3		
Number of USTs:	0		
Total Number of Tanks:			
Tank #	#1	#2	#3
Status:			
Capacity:	4000	10000	9200
Comments:			
Install Date:	5/14/2006	5/14/2006	5/14/2006
Closure Certification Date:			
Above or Below Ground Tank:	above	above	above
Unit ID:	208440	208441	208442
Construction Material:	Steel	Steel	Steel
Piping Material:			
Tank Contents:	GASOLINE	DIESEL	DIESEL
Automatic Tank Gauge:			
Inventory Control:			

Mapped Sites Details: PST (MapID 2) TWDB Master Drainage Plan - SE(1)

Map ID #2	PST - State/Tribal Storage Tank		Source: TCEQ
Facility #: 0078815	TCEQ Customer ID: 121934		Banks ID: 0078815
ALAMO CONCRETE PRODUCTS PLT 88 1420 S 28TH AVE, EDINBURG, TX 78542 Contact: GILBERT ZAMORA			Rel. Loc.: 0.12 miles W Elevation: 95.96 feet (-1.37)
Facility Owner Name:	ALAMO CONCRETE PRODUCTS LTD		
Facility Owner Address:			
Facility Owner City:	SAN ANTONIO		
Facility Owner State:	TX		
Facility Owner Zip:	782654210		
Facility Contact Name:	WALTER D SCOTT III		
Facility Contact Phone:	210-215-4554		
Number of ASTs:	1		
Number of USTs:	0		
Total Number of Tanks:			
Tank #	#1	#2	
Status:			
Capacity:	11722	11722	
Comments:			
Install Date:	7/6/2007	7/6/2007	
Closure Certification Date:			
Above or Below Ground Tank:	above	above	
Unit ID:	208965	208966	
Construction Material:	Steel	Steel	
Piping Material:			
Tank Contents:	DIESEL	DIESEL	
Automatic Tank Gauge:			
Inventory Control:			

End of PST Sites Section

Mapped Sites Details: HW (MapID 1) TWDB Master Drainage Plan - SE(1)**HW - State/Tribal Hazardous Waste**

Map ID #1	HW - State/Tribal Hazardous Waste	Source: TCEQ
Register #: 40572	EPA ID: FLD007922578	Banks ID: 40572
RYDER PIE NATIONWIDE 1302 S 28TH AVE STE A, EDINBURG, TX 78542 Contact: RAY PARTON		Rel. Loc.: 0.12 miles NW Elevation: 94.37 feet (-2.96)
Status:	ACTIVE	
Waste Description:		
Location Description:	1302 S 28th Ave, Ste A, Edinburg, TX	
Additional State ID:	16989	
Permit Number:		
Business Type:	Unknown	
Facility Type:		
Facility Owner Name:	RYDER	
Facility Owner Phone:	1-904-3533111	
Facility Contact Name:		
Facility Contact Phone:		
Company Name:		
Operator Address:		

Mapped Sites Details: HW (MapID 3) TWDB Master Drainage Plan - SE(1)

Map ID #3	HW - State/Tribal Hazardous Waste	Source: TCEQ			
Register #: 85099	EPA ID: TXR000002956	Banks ID: 85099			
HOLT CAT 1320 S 25TH AVE, EDINBURG, TX 78542 Contact: JENNIFER MCNEW		Rel. Loc.: 0.25 miles NW Elevation: 95.79 feet (-1.54)			
Status:	INACTIVE				
Waste Description:					
Location Description:	1320 S 25th Avenue, Edinburg, TX				
Additional State ID:	105568				
Permit Number:					
Business Type:	Corporation				
Facility Type:					
Facility Owner Name:	HOLT COMPANY OF TEXAS				
Facility Owner Phone:	1-210-6488838				
Facility Contact Name:					
Facility Contact Phone:					
Company Name:	HOLT COMPANY OF TEXAS				
Operator Address:	PO BOX 207916, SAN ANTONIO, TX 78220				
Waste ID	Waste Code	Waste Description	Disposal Method	Storage Method	Total Annual Waste (lbs)
159361	0001203H	Spent solvent from engine parts degreasing and cleaning - non-hazardous; 1/1/93;			
159362	0002296H	Ethylene glycol based antifreeze from on road truck radiators - flammable; 5/1/9			
207536	0003310H	Solvent soaked absorbent pads. Used for solvent spill clean-up and wiping down p			
207537	0004310H	Spent parts washer filters. generated from the filtering of parts washer solvent			

End of HW Sites Section

Mapped Sites Details: RCRA (MapID 3) TWDB Master Drainage Plan - SE(1)



RCRA - RCRA

Map ID #3	RCRA - RCRA	Source: EPA	
EPA Handler ID: TXR000002956	Handler Sequence Number: 7	Banks ID: TXR000002956	
HOLT CAT		Rel. Loc.: 0.25 miles NW	
1320 S 25TH AVENUE, EDINBURG, TX 78540		Elevation: 95.79 feet (-1.54)	
Contact: PETER L DONAHOE JR			
Owner Name:	HOLT CAT		
Number of Owners:	1		
Operator Name:	HOLT CAT		
Number of Operators:	1		
Mailing Address:	PO BOX 207916, SAN ANTONIO, TX 78220		
Contact Name:	PETER L DONAHOE JR		
Contact Address:	PO BOX 207916, SAN ANTONIO, TX 78220		
Contact Phone:	210-648-8366		
Contact Email Address:			
Government Performance and Results Act (GPRA) Permit:	The facility does not exist on the Operating/Post-Closure Permit Baseline.		
Government Performance and Results Act (GPRA) Corrective Action:	No		
Workload Legend: L=Land Disposal I=Incineration B=Boiler/Industrial Furnace S=Storage T=Treatment			
Permit Workload:	-----		
Closure Workload:	-----		
Post-Closure Workload:	-----		
Subject to Corrective Action:	No		
Subject to Corrective Action 3004:	No		
Subject to Corrective Action Non-TSDF:	No		
Corrective Action Workload:	No		
Generator Status:	Not a Generator		
Nuclear Mixed Waste Handler:	No		
Onsite Burner Exemption:	No		
Furnace Exemption:	No		
Underground Injection Activity:	No		
NAIC Description 1:	General Automotive Repair		
NAIC Description 2:			
NAIC Description 3:			
NAIC Description 4:			
Federal Generator Class:	Not a Generator, Verified		
State Generator Class:			
Environmental Controls in Place:	No		
Institutional Controls in Place:	No		
Groundwater Controls in Place:	No		
Significant Non-Compliance:	No		
Unaddressed Significant Non-Complier:	No		
Addressed Significant Non-Complier:	No		
Significant Non-Complier with Compliance Schedule:	No		
Enforcement Description	Responsible Enforcement Agency	Enforcement Date	Penalty Description
Evaluation Description	Responsible Agency	Evaluation Date	Violation Found
COMPLIANCE EVALUATION INSPECTION ON-SITE	State	11/8/2004	
Violation Description	Violation Determined By	Violation Date	Actual Resolution Date
			Scheduled Resolution Date
Hazardous Waste Description			
IGNITABLE WASTE			

Continued from Previous Page

TETRACHLOROETHYLENE

THE FOLLOWING SPENT HALOGENATED SOLVENTS USED IN DEGREASING: TETRACHLOROETHYLENE, TRICHLOROETHYLENE, METHYLENE CHLORIDE, 1,1,1-TRICHLOROETHANE, CARBON TETRACHLORIDE AND CHLORINATED FLUOROCARBONS; ALL SPENT SOLVENT MIXTURES/BLENDS USED IN DEGREASING CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

THE FOLLOWING SPENT HALOGENATED SOLVENTS: TETRACHLOROETHYLENE, METHYLENE CHLORIDE, TRICHLOROETHYLENE, 1,1,1-TRICHLOROETHANE, CHLOROBENZENE, 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE, ORTHO-DICHLOROBENZENE, TRICHLOROFLUOROMETHANE, AND 1,1,2, TRICHLOROETHANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

TRICHLOROETHYLENE

End of RCRA Sites Section



CER NFRAP - CERCLIS NFRAP

CER NFRAP - CERCLIS NFRAP

Source: EPA

Site ID: 0603061

EPA ID: TXD981047871

Banks ID: 0603061

ILLINI HELICOPTER

P.O. BOX 1601, EDINBURG, TX 78539

Contact:

National Priority List Status: Not on the NPL
Facility Type: Not a federal facility

Aliases:

Additional Info: <http://cfpub.epa.gov/supercpad/cursites/calinfo.cfm?id=0603061>

Action	Start Date	Completion Date
DISCOVERY		1/1/1985 12:00:00 AM
PRELIMINARY ASSESSMENT	3/1/1986	3/1/1986 12:00:00 AM
ARCHIVE SITE		3/1/1986 12:00:00 AM

End of CER NFRAP Sites Section

Unmapped Sites Details: ERNS (MapID) TWDB Master Drainage Plan - SE(1)



ERNS - ERNS List

ERNS - ERNS List

Source: EPA/National Response Center

NRC Report #: 191516

Secondary ID: NA

Banks ID: 191516

US 281 NORTH AND, EDINBURG, TX

Contact:

Responsible Party:	BUCK'S TRUCK SALES
Incident Location:	
Incident Date/Time:	5/9/1993 12:00 AM
Cause of Incident:	DUMPING
Description of Incident:	CALLER STATES THAT THERE IS MAT'L BEING DUMPED INTO THE SOIL
Incident Type:	FIXED
Additional Information:	DUMPING MAT'L NEXT TO FENCE
Any Fatalities:	Unknown
Number of Fatalities:	
Remedial Action Taken:	NONE
Medium Affected:	WATER
Medium Description:	UNKNOWN SEWER
Materials Spilled:	WASTE OIL, OIL: DIESEL
Railroad Involved:	
Pipeline Type Involved:	UNKNOWN
Source:	UNAVAILABLE

Unmapped Sites Details: ERNS (MapID) TWDB Master Drainage Plan - SE(1)



ERNS - ERNS List

Source: EPA/National Response Center

NRC Report #: 821179

Secondary ID: NA

Banks ID: 821179

FREEDIE GONZALEZ, EDINBURG, TX

Contact:

Responsible Party:**Incident Location:** US HWY 281 NORTHBOUND**Incident Date/Time:** 12/15/2006 3:45 PM**Cause of Incident:** TRANSPORT ACCIDENT**Description of Incident:** THE CALLER IS REPORTING A VEHICLE THAT STRUCK ANOTHER VEHICLE RESULTING IN ONE VEHICLE GETTING TRAPPED UNDERNEATH THE TRACTOR TRAILER. THE CALLER STATED THAT THE INDIVIDUAL IN THE PASSENGER VEHICLE WAS INJURED DUE TO THE TRANSPORT ACCIDENT.**Incident Type:** MOBILE**Additional Information:** THE CALLER HAD NO ADDITIONAL INFORMATION**Any Fatalities:** No**Number of Fatalities:****Remedial Action Taken:** WRECK HAS BEEN CLEARED**Medium Affected:** NON-RELEASE (N/A)**Medium Description:** TRANSPORT ACCIDENT**Materials Spilled:****Railroad Involved:****Pipeline Type Involved:****Source:** TELEPHONE

Unmapped Sites Details: ERNS (MapID) TWDB Master Drainage Plan - SE(1)**ERNS - ERNS List**

Source: EPA/National Response Center

NRC Report #: 812479

Secondary ID: NA

Banks ID: 812479

ROUTE 7 BOX 980, EDINBURG, TX 78541

Contact:

Responsible Party: NB EXPRESS

Incident Location:

Incident Date/Time: 9/24/2006 7:00 AM

Cause of Incident: NATURAL PHENOMENON

Description of Incident: THE CALLER IS REPORTING THAT DUE TO HEAVY RAIN, THERE WAS A RELEASE OF MATERIALS ONTO THE GROUND AND INTO STANDING WATER FROM CAR PARTS.

Incident Type: FIXED

Additional Information: THE CALLER HAD NO ADDITIONAL INFORMATION

Any Fatalities: No

Number of Fatalities:

Remedial Action Taken: NONE

Medium Affected: WATER

Medium Description: LAND>STANDING WATER

Materials Spilled: UNKNOWN OIL

Railroad Involved:

Pipeline Type Involved:

Source: TELEPHONE

End of ERNS Sites Section

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - SE(1)



PST - State/Tribal Storage Tank

PST - State/Tribal Storage Tank

Source: TCEQ

Facility #: 0011113

TCEQ Customer ID: 045335

Banks ID: 0011113

TNT GROCERY

TX 78537

Contact: B CANTRELL

Facility Owner Name: B CANTRELL OIL COMPANY

Facility Owner Address:

Facility Owner City: RIO HONDO

Facility Owner State: TX

Facility Owner Zip: 78583

Facility Contact Name: TED VEGA

Facility Contact Phone: 956-748-2368

Number of ASTs: 0

Number of USTs: 0

Total Number of Tanks:

Tank #	#1	#2
Status:	REMOVED FROM GROUND	REMOVED FROM GROUND
Capacity:	8000	8000
Comments:		
Install Date:	1/1/1975	1/1/1975
Closure Certification Date:		
Above or Below Ground Tank:	below	below
Unit ID:		
Construction Material:	Steel	Steel
Piping Material:	Steel	Steel
Tank Contents:	GASOLINE	GASOLINE
Automatic Tank Gauge:		
Inventory Control:		

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - SE(1)



PST - State/Tribal Storage Tank

Source: TCEQ

Facility #: 0011107

TCEQ Customer ID: 045329

Banks ID: 0011107

ALANIZ GROCERY

TX 78539

Contact:

Facility Owner Name: B CANTRELL OIL COMPANY

Facility Owner Address:

Facility Owner City: RIO HONDO

Facility Owner State: TX

Facility Owner Zip: 78583

Facility Contact Name: TED VEGA

Facility Contact Phone: 956-748-2368

Number of ASTs: 0

Number of USTs: 0

Total Number of Tanks:

Tank #	#1	#2
Status:	REMOVED FROM GROUND	REMOVED FROM GROUND
Capacity:	8000	8000
Comments:		
Install Date:	1/1/1981	1/1/1981
Closure Certification Date:		
Above or Below Ground Tank:	below	below
Unit ID:		
Construction Material:	Steel	Steel
Piping Material:	Steel	Steel
Tank Contents:	GASOLINE	GASOLINE
Automatic Tank Gauge:		
Inventory Control:		

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - SE(1)



PST - State/Tribal Storage Tank

Source: TCEQ

Facility #: 0018450

TCEQ Customer ID: 072830

Banks ID: 0018450

FFP 680

RT 2, EDINBURG, TX 78539

Contact:

Facility Owner Name: FFP OPERATING PARTNERS LP

Facility Owner Address: 2801 GLENDA ST

Facility Owner City: FORT WORTH

Facility Owner State: TX

Facility Owner Zip: 761174326

Facility Contact Name: MARK LIPSCOMB

Facility Contact Phone: 817-838-4701

Number of ASTs: 0

Number of USTs: 0

Total Number of Tanks:

Tank #	#1	#2	#3
Status:	REMOVED FROM GROUND	REMOVED FROM GROUND	REMOVED FROM GROUND
Capacity:	8000	4000	4000
Comments:			
Install Date:	1/1/1977	1/1/1977	1/1/1977
Closure Certification Date:			
Above or Below Ground Tank:	below	below	below
Unit ID:			
Construction Material:	Steel	Steel	Steel
Piping Material:	Steel	Steel	Steel
Tank Contents:	GASOLINE	GASOLINE	GASOLINE

Automatic Tank Gauge:

Inventory Control:

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - SE(1)



PST - State/Tribal Storage Tank

Source: TCEQ

Facility #: 0021265

TCEQ Customer ID: 058006

Banks ID: 0021265

HELDT BROTHERS TRUCKS

281, EDINBURG, TX 78539

Contact: O B HEAD

Facility Owner Name:	HELDT BROS TRUCKS INC
Facility Owner Address:	917 S JOHNSON ST
Facility Owner City:	ALICE
Facility Owner State:	TX
Facility Owner Zip:	783325661
Facility Contact Name:	
Facility Contact Phone:	512-383-1623
Number of ASTs:	0
Number of USTs:	0

Total Number of Tanks:

Tank #	#1	#2
Status:	REMOVED FROM GROUND	REMOVED FROM GROUND
Capacity:	8000	8000
Comments:		
Install Date:	1/1/1970	1/1/1970
Closure Certification Date:		
Above or Below Ground Tank:	below	below
Unit ID:		
Construction Material:		
Piping Material:	Steel	Steel
Tank Contents:	GASOLINE	DIESEL
Automatic Tank Gauge:		
Inventory Control:		

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - SE(1)



PST - State/Tribal Storage Tank

Source: TCEQ

Facility #: 0034676

TCEQ Customer ID: 067146

Banks ID: 0034676

MC ALLEN PRODUCTION UNIT OFFICE

EDINBURG, TX 78539

Contact: J R ABLE

Facility Owner Name: SHELL WESTERN E & P INC

Facility Owner Address:

Facility Owner City: HOUSTON

Facility Owner State: TX

Facility Owner Zip: 77001

Facility Contact Name: J R ABLE

Facility Contact Phone: 713-870-3443

Number of ASTs: 0

Number of USTs: 0

Total Number of Tanks:

Tank # #1

Status: REMOVED FROM GROUND

Capacity: 10000

Comments:

Install Date: 1/1/1976

Closure Certification Date:

Above or Below Ground Tank: below

Unit ID:

Construction Material: FRP (fiberglass-reinforced plastic)

Piping Material: Steel

Tank Contents: GASOLINE

Automatic Tank Gauge:

Inventory Control:

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - SE(1)



PST - State/Tribal Storage Tank

Source: TCEQ

Facility #: 0043072

TCEQ Customer ID: 071887

Banks ID: 0043072

SUN-UP THE FOOD STORE

RT 2, EDINBURG, TX 78539

Contact: JOSE LUIS SALINAS

Facility Owner Name: JOSE LUIS SALINAS

Facility Owner Address:

Facility Owner City: EDINBURG

Facility Owner State: TX

Facility Owner Zip: 78539

Facility Contact Name:

Facility Contact Phone: 512-383-0551

Number of ASTs: 0000

Number of USTs: 0003

Total Number of Tanks:

Tank #	#1	#2	#3
Status:	IN USE	IN USE	IN USE
Capacity:	8000	8000	4000
Comments:			
Install Date:	1/1/1966	1/1/1966	1/1/1966
Closure Certification Date:			
Above or Below Ground Tank:	below	below	below
Unit ID:			
Construction Material:	Steel	Steel	Steel
Piping Material:	Steel	Steel	Steel
Tank Contents:	GASOLINE	GASOLINE	GASOLINE

Automatic Tank Gauge:

Inventory Control:

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - SE(1)



PST - State/Tribal Storage Tank

Source: TCEQ

Facility #: 0045144

TCEQ Customer ID: 045652

Banks ID: 0045144

J & C 2

US HWY 281, EDINBURG, TX 78539

Contact: JOE OCHOA

Facility Owner Name: JOSE OCHOA

Facility Owner Address:

Facility Owner City: EDINBURG

Facility Owner State: TX

Facility Owner Zip: 78540

Facility Contact Name: JOSE OCHOA

Facility Contact Phone: 956-383-6197

Number of ASTs: 0000

Number of USTs: 0003

Total Number of Tanks:

Tank #	#1	#2	#3
Status:	IN USE	IN USE	IN USE
Capacity:	5400	5400	7200
Comments:			
Install Date:	1/1/1987	1/1/1987	1/1/1987
Closure Certification Date:			
Above or Below Ground Tank:	below	below	below
Unit ID:			
Construction Material:	Composite (steel w/external FRP cladding)	Composite (steel w/external FRP cladding)	Composite (steel w/external FRP cladding)
Piping Material:	FRP (fiberglass-reinforced plastic)	FRP (fiberglass-reinforced plastic)	FRP (fiberglass-reinforced plastic)
Tank Contents:	GASOLINE	GASOLINE	DIESEL
Automatic Tank Gauge:			
Inventory Control:			

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - SE(1)



PST - State/Tribal Storage Tank

Source: TCEQ

Facility #: 0046156

TCEQ Customer ID: 045375

Banks ID: 0046156

M & R DRIVE INN

TX 78539

Contact:

Facility Owner Name: B CANTRELL OIL COMPANY

Facility Owner Address:

Facility Owner City: RIO HONDO

Facility Owner State: TX

Facility Owner Zip: 78583

Facility Contact Name: TED VEGA

Facility Contact Phone: 956-748-2368

Number of ASTs: 0

Number of USTs: 0

Total Number of Tanks:

Tank #	#1	#2
Status:	REMOVED FROM GROUND	REMOVED FROM GROUND
Capacity:	8000	8000
Comments:		
Install Date:	1/1/1986	1/1/1986
Closure Certification Date:		
Above or Below Ground Tank:	below	below
Unit ID:		
Construction Material:	Steel	Steel
Piping Material:	FRP (fiberglass-reinforced plastic)	FRP (fiberglass-reinforced plastic)
Tank Contents:	GASOLINE	GASOLINE
Automatic Tank Gauge:		
Inventory Control:		

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - SE(1)



PST - State/Tribal Storage Tank

Source: TCEQ

Facility #: 0051533

TCEQ Customer ID: 060113

Banks ID: 0051533

OTTO WAGNER SR

RT 3 D, EDINBURG, TX 78539

Contact:

Facility Owner Name: BROWNIES OIL CO INC

Facility Owner Address:

Facility Owner City: MCALLEN

Facility Owner State: TX

Facility Owner Zip: 78502

Facility Contact Name:

Facility Contact Phone: 2106863791

Number of ASTs: 0

Number of USTs: 0

Total Number of Tanks:

Tank # #1

Status:

Capacity: 1900

Comments:

Install Date: 1/1/1974

Closure Certification Date:

Above or Below Ground Tank: above

Unit ID: 157445

Construction Material: Steel

Piping Material:

Tank Contents: DIESEL

Automatic Tank Gauge:

Inventory Control:

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - SE(1)



PST - State/Tribal Storage Tank

Source: TCEQ

Facility #: 0058911

TCEQ Customer ID: 089290

Banks ID: 0058911

RON WILSHER

RT 7, EDINBURG, TX 78539

Contact: RON WILSHER

Facility Owner Name:	WILSHER RON
Facility Owner Address:	2201 W MONTE CRISTO
Facility Owner City:	EDINBURG
Facility Owner State:	TX
Facility Owner Zip:	78539
Facility Contact Name:	RON WILSHER
Facility Contact Phone:	5123833442
Number of ASTs:	0001
Number of USTs:	0000

Total Number of Tanks:

Tank #	#1
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Status:

Capacity:	3000
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Comments:

Install Date:	1/1/1990
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Closure Certification Date:

Above or Below Ground Tank:	above
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Unit ID:	163733
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Construction Material:	Steel
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Piping Material:

Tank Contents:	DIESEL
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Automatic Tank Gauge:

Inventory Control:

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - SE(1)



PST - State/Tribal Storage Tank

Source: TCEQ

Facility #: 0061448

TCEQ Customer ID: 037635

Banks ID: 0061448

ALICE SPECIALTY
 HWY 281, EDINBURG, TX 78539
 Contact: WAYNE J BALDWIN

Facility Owner Name: ALICE SPECIALITY COMPANY INC
Facility Owner Address:
Facility Owner City: ALICE
Facility Owner State: TX
Facility Owner Zip: 78333
Facility Contact Name: Wayne Baldwin
Facility Contact Phone: 512-664-6515
Number of ASTs: 0
Number of USTs: 0

Total Number of Tanks:

Tank #	#A3	#A4	#A5
Status:			
Capacity:	8820	1350	1170
Comments:			
Install Date:	1/1/1987	1/1/1987	1/1/1987
Closure Certification Date:			
Above or Below Ground Tank:	above	above	above
Unit ID:	165348	165349	165350
Construction Material:	Steel	Steel	Steel
Piping Material:			
Tank Contents:	DIESEL	GASOLINE	DIESEL
Automatic Tank Gauge:			
Inventory Control:			

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - SE(1)



PST - State/Tribal Storage Tank

Source: TCEQ

Facility #: 0067050

TCEQ Customer ID: 101253

Banks ID: 0067050

J A M DISTRIBUTING COMPANY

HWY 281, EDINBURG, TX 78539

Contact: JERRY SMITH

Facility Owner Name:	J A M DISTRIBUTING COMPANY
Facility Owner Address:	7010 MYKAWA RD
Facility Owner City:	HOUSTON
Facility Owner State:	TX
Facility Owner Zip:	770331132
Facility Contact Name:	DAN GREENWOOD
Facility Contact Phone:	713-844-7750
Number of ASTs:	0004
Number of USTs:	0000

Total Number of Tanks:

Tank #	#10561	#11717141	#12717142
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Status:

Capacity:	6000	10000	10000
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Comments:

Install Date:	1/1/1995	8/9/1995	8/9/1995
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Closure Certification Date:

Above or Below Ground Tank:	above	above	above
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Unit ID:	175528	175529	175530
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Construction Material:	Steel	Steel	Steel
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Piping Material:

Tank Contents:	DIESEL	DIESEL	DIESEL
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Automatic Tank Gauge:

Inventory Control:

Tank #	#9827
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Status:

Capacity:	6000
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Comments:

Install Date:	1/1/1995
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Closure Certification Date:

Above or Below Ground Tank:	above
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Unit ID:	175527
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Construction Material:	Fiberglass
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Piping Material:

Tank Contents:	DIESEL
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Automatic Tank Gauge:

Inventory Control:

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - SE(1)



PST - State/Tribal Storage Tank

Source: TCEQ

Facility #: 0068255

TCEQ Customer ID: 103085

Banks ID: 0068255

EDINBURG WELL SERVICE

RR 3, EDINBURG, TX 78539

Contact: GEORGE GELLERSEN

Facility Owner Name:	DAWSON WELL SERVICING INC
Facility Owner Address:	6 DESTA DR, STE 4400
Facility Owner City:	MIDLAND
Facility Owner State:	TX
Facility Owner Zip:	76902
Facility Contact Name:	FRANK CASTANEDA
Facility Contact Phone:	830-277-1451
Number of ASTs:	0
Number of USTs:	0

Total Number of Tanks:

Tank #	#J
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Status:

Capacity:	6000
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Comments:

Install Date:	12/21/1995
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Closure Certification Date:

Above or Below Ground Tank:	above
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Unit ID:	178881
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Construction Material:	Steel
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Piping Material:

Tank Contents:	DIESEL
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Automatic Tank Gauge:

Inventory Control:

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - SE(1)



PST - State/Tribal Storage Tank

Source: TCEQ

Facility #: 0074043

TCEQ Customer ID: 112895

Banks ID: 0074043

LUNAS DRIVE IN 2

RR 7 BOX 11500, EDINBURG, TX 78541

Contact: HECTOR LUNA

Facility Owner Name: VICTORIA MARTINEZ

Facility Owner Address:

Facility Owner City: EDINBURG

Facility Owner State: TX

Facility Owner Zip: 78540

Facility Contact Name: VICTORIA MARTINEZ

Facility Contact Phone: 956-451-2021

Number of ASTs: 0000

Number of USTs: 0001

Total Number of Tanks:

Tank # #1

Status: IN USE

Capacity: 10000

Comments:

Install Date: 7/1/1996

Closure Certification Date:

Above or Below Ground Tank: below

Unit ID:

Construction Material:

Piping Material: FRP (fiberglass-reinforced plastic)

Tank Contents: GASOLINE

Automatic Tank Gauge:

Inventory Control:

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - SE(1)



PST - State/Tribal Storage Tank

Source: TCEQ

Facility #: 0051935

TCEQ Customer ID: 082576

Banks ID: 0051935

HOLCOMB FLYING SER

RT 3 A, EDINBURG, TX 78539

Contact: BEN HOLCOMB

Facility Owner Name:	HOLCOMB FLYING SERVICE INC
Facility Owner Address:	1613 EAST AVE
Facility Owner City:	WELLINGTON
Facility Owner State:	TX
Facility Owner Zip:	79095
Facility Contact Name:	BEN HOLCOMB
Facility Contact Phone:	5128423630
Number of ASTs:	0001
Number of USTs:	0000

Total Number of Tanks:

Tank #	#1
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Status:

Capacity:	12000
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Comments:

Install Date:	8/31/1989
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Closure Certification Date:

Above or Below Ground Tank:	above
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Unit ID:	158325
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Construction Material:	Steel
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Piping Material:

Tank Contents:	DIESEL
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Automatic Tank Gauge:

Inventory Control:

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - SE(1)



PST - State/Tribal Storage Tank

Source: TCEQ

Facility #: 0046093

TCEQ Customer ID: 045369

Banks ID: 0046093

L & E DRIVE INN

TX 78543

Contact: MIKE IRBY

Facility Owner Name:	VALLEY ASSETS HOLDING INC
Facility Owner Address:	2909 HILLCROFT ST, STE 300
Facility Owner City:	HOUSTON
Facility Owner State:	TX
Facility Owner Zip:	770575843
Facility Contact Name:	ORLANDO SALDIVAR
Facility Contact Phone:	956-748-2311
Number of ASTs:	0000
Number of USTs:	0002

Total Number of Tanks:

Tank #	#1	#2
Status:	IN USE	IN USE
Capacity:	6000	6000
Comments:		
Install Date:	5/26/1988	5/26/1988
Closure Certification Date:		
Above or Below Ground Tank:	below	below

Unit ID:

Construction Material:	Composite (steel w/external FRP cladding)	Composite (steel w/external FRP cladding)
Piping Material:	FRP (fiberglass-reinforced plastic)	FRP (fiberglass-reinforced plastic)
Tank Contents:	GASOLINE	GASOLINE
Automatic Tank Gauge:		
Inventory Control:		

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - SE(1)



PST - State/Tribal Storage Tank

Source: TCEQ

Facility #: 0046149

TCEQ Customer ID: 045370

Banks ID: 0046149

DOUBLE F QUICK STOP

TX 78549

Contact: ALBERT MENDOZA

Facility Owner Name:	VALLEY ASSETS HOLDING INC	
Facility Owner Address:	2909 HILLCROFT ST, STE 300	
Facility Owner City:	HOUSTON	
Facility Owner State:	TX	
Facility Owner Zip:	770575843	
Facility Contact Name:	ORLANDO SALDIVAR	
Facility Contact Phone:	956-748-2311	
Number of ASTs:	0000	
Number of USTs:	0002	
Total Number of Tanks:		
Tank #	#1	#2
Status:	TEMP OUT OF SERVICE	TEMP OUT OF SERVICE
Capacity:	6000	6000
Comments:		
Install Date:	11/9/1986	11/9/1986
Closure Certification Date:		
Above or Below Ground Tank:	below	below
Unit ID:		
Construction Material:	Composite (steel w/external FRP cladding)	Composite (steel w/external FRP cladding)
Piping Material:	FRP (fiberglass-reinforced plastic)	FRP (fiberglass-reinforced plastic)
Tank Contents:	GASOLINE	GASOLINE
Automatic Tank Gauge:		
Inventory Control:		

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - SE(1)



PST - State/Tribal Storage Tank

Source: TCEQ

Facility #: 0011132

TCEQ Customer ID: 045350

Banks ID: 0011132

WESTSIDE KOUNTRY STORE

TX 78572

Contact: B CANTRELL

Facility Owner Name: B CANTRELL OIL COMPANY

Facility Owner Address:

Facility Owner City: RIO HONDO

Facility Owner State: TX

Facility Owner Zip: 78583

Facility Contact Name: TED VEGA

Facility Contact Phone: 956-748-2368

Number of ASTs: 0

Number of USTs: 0

Total Number of Tanks:

Tank #	#1	#2	#3
Status:	REMOVED FROM GROUND	REMOVED FROM GROUND	REMOVED FROM GROUND
Capacity:	8000	4000	4000
Comments:			
Install Date:	1/1/1985	1/1/1985	1/1/1985
Closure Certification Date:			
Above or Below Ground Tank:	below	below	below
Unit ID:			
Construction Material:	Steel	Steel	Steel
Piping Material:	FRP (fiberglass-reinforced plastic)	FRP (fiberglass-reinforced plastic)	FRP (fiberglass-reinforced plastic)
Tank Contents:	GASOLINE	GASOLINE	GASOLINE

Automatic Tank Gauge:

Inventory Control:

Tank #	#4
Status:	REMOVED FROM GROUND
Capacity:	4000
Comments:	
Install Date:	1/1/1985
Closure Certification Date:	
Above or Below Ground Tank:	below
Unit ID:	
Construction Material:	Steel
Piping Material:	FRP (fiberglass-reinforced plastic)
Tank Contents:	DIESEL

Automatic Tank Gauge:

Inventory Control:

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - SE(1)**PST - State/Tribal Storage Tank****Source: TCEQ****Facility #: 0011140****TCEQ Customer ID: 045356****Banks ID: 0011140**

HERNANDEZ GROC

TX 78572

Contact: BOB CANTRELL

Facility Owner Name: B CANTRELL OIL COMPANY**Facility Owner Address:****Facility Owner City:** RIO HONDO**Facility Owner State:** TX**Facility Owner Zip:** 78583**Facility Contact Name:** TED VEGA**Facility Contact Phone:** 956-748-2368**Number of ASTs:** 0**Number of USTs:** 0**Total Number of Tanks:**

Tank #	#1	#2
Status:	REMOVED FROM GROUND	REMOVED FROM GROUND
Capacity:	8000	8000
Comments:		
Install Date:	1/1/1985	1/1/1985
Closure Certification Date:		
Above or Below Ground Tank:	below	below
Unit ID:		
Construction Material:	Steel	Steel
Piping Material:	Steel	Steel
Tank Contents:	GASOLINE	GASOLINE

Automatic Tank Gauge:**Inventory Control:****End of PST Sites Section**

Dataset Descriptions and Sources TWDB Master Drainage Plan - SE(1)



Dataset	Source	Dataset Description	Update Schedule	Data Requested	Data Obtained	Data Updated	Source Updated
NPL -- National Priority List	EPA	NPL is the list of high priority hazardous waste sites in the United States eligible for long-term remedial action financed under the federal Superfund program and CERCLIS. Also known as Superfund sites, the EPA will only add sites to the NPL list based upon completion of the Hazard Ranking System (HRS) screening, public solicitation of comments about the proposed site, and after all comments have been addressed.	Quarterly	07/18/2013	11/05/2013	11/05/2013	10/25/2013
DNPL -- Delisted National Priority List	EPA	DNPL is a list of all sites that have been deleted from the EPA NPL list. These sites are taken off the NPL list usually due to no further response or remedial action being required on them. Notices to delete NPL sites are published in the Federal Register and become effective unless the EPA receives significant adverse or critical comments during the 30-day public comment period.	Quarterly	07/18/2013	11/05/2013	11/05/2013	10/25/2013
CER -- CERCLIS	EPA	CERCLIS sites come from the Comprehensive Environmental Response, Compensation, and Liability Act, a federal law designed to clean up abandoned hazardous waste sites. These sites are either proposed, listed or under review currently to be a part of the National Priority List.	Quarterly	07/18/2013	11/05/2013	11/05/2013	10/25/2013
CER NFRAP -- CERCLIS NFRAP	EPA	CERCLIS sites designated 'No Further Remedial Action Planned' NFRAP have been removed from CERCLIS. NFRAP sites may be sites where, following an initial investigation, no contamination was found, contamination was removed quickly without the site being placed on the NPL, or the contamination was not serious enough to require Federal Superfund action or NPL consideration.	Quarterly	07/18/2013	11/05/2013	11/05/2013	10/25/2013
RCRA COR -- RCRA CORRACTS	EPA	These sites are registered hazardous waste generators or handlers that fall under the Resource Conservation and Recovery Act (RCRA), and subject to corrective action activity.	Quarterly	11/19/2013	11/19/2013	11/19/2013	11/14/2013
RCRA TSD -- RCRA non-CORRACTS TSD	EPA	This database lists all treatment, storage and disposal of hazardous material sites that fall under the Resource Conservation and Recovery Act (RCRA). All hazardous waste TSD facilities are required to notify EPA of their existence.	Quarterly	11/19/2013	11/19/2013	11/19/2013	11/14/2013
RCRA GEN -- RCRA Generators	EPA	The EPA regulates all Hazardous Waste Generators subject to the Resource Conservation and Recovery Act (RCRA). They are classified by the quantity of hazardous waste generated. A Small Quantity Generator (SQG) generates between 100kg and 1,000 kg of waste per month. A Large Quantity Generator (LQG) generates over 1,000 kg of waste per month. A Conditionally Exempt SQG (CEG) generates less than 100 kg of waste per month.	Quarterly	11/19/2013	11/19/2013	11/19/2013	11/14/2013
FED BWN -- Federal Brownfields	EPA	A listing of sites that assist the EPA in collecting, tracking, and updating information of sites in relation to the Small Business Liability Relief and Brownfields Revitalization Act. These sites are real property that is either abandoned or underutilized where redevelopment or expansion is complicated by real or perceived environmental contamination.	Quarterly	11/05/2013	11/12/2013	11/12/2013	11/05/2013
FED IC -- Federal Institutional Control	EPA	This is a listing of Brownfield Management System (BMS) sites that have had Institutional Controls (ICs) placed on them. ICs are administrative restrictions, such as legal controls, that help minimize the potential for human exposure to known contamination by ensuring appropriate land or resource use. ICs are meant to supplement Engineering Controls and will rarely be the sole remedy at a site. ICs are a type of Activity and Use Limitation (AUL).	Quarterly	11/05/2013	11/12/2013	11/12/2013	11/05/2013
FED EC -- Federal Engineering Control	EPA	This is a listing of Brownfield Management System (BMS) sites that have had Engineering Controls (ECs) placed on them. ECs are physical methods or modifications put into place on a site to reduce or eliminate the possibility of human exposure to known contamination. ECs are a type of Activity and Use Limitation (AUL).	Quarterly	11/05/2013	11/12/2013	11/12/2013	11/05/2013

Dataset Descriptions and Sources TWDB Master Drainage Plan - SE(1)



Dataset	Source	Dataset Description	Update Schedule	Data Requested	Data Obtained	Data Updated	Source Updated
ERNS -- ERNS List	EPA/National Response Center	ERNS is a national database used to store information on unauthorized releases of oil and hazardous substances that have been reported to the National Response Center since 2001. The NRC is the sole federal point of contact for reporting oil and chemical spills. Prior to 2001 this information was maintained by the EPA.	Annually	01/11/2013	01/18/2013	01/18/2013	12/31/2012
ST NPL -- State/Tribal Equivalent NPL	TCEQ	This database contains sites determined by the TCEQ that may constitute an imminent and substantial endangerment to public health and safety or to the environment due to a release or threatened release of hazardous substances into the environment.	Quarterly	11/05/2013	11/06/2013	11/06/2013	11/06/2013
ST CER -- State/Tribal Equivalent CERCLIS	NA	This database is not currently available from this state. If this state does make this database available in the future, Banks Environmental Data will obtain it for reporting purposes.	NA	N/A	N/A	N/A	N/A
SWLF -- State/Tribal Disposal or Landfill	TCEQ	The SWLF database contains records of municipal solid waste facilities that may accept various types of municipal solid waste for processing or disposal, depending on the type of facility. A Municipal Solid Waste facility may also accept certain special wastes and non-hazardous industrial solid wastes if approved by the TCEQ executive director.	Quarterly	01/07/2014	01/07/2014	01/07/2014	01/03/2014
SWLF -- State/Tribal Disposal or Landfill	TCEQ	This database is a listing of closed and abandoned municipal solid waste landfills. The sites included are either unauthorized (UNUM_) or permitted (PERMAPP_).	NA	N/A	N/A	N/A	N/A
LPST -- State/Tribal Leaking Storage Tank	TCEQ	This database contains information on leaking storage tanks, equipment failures, compliance, and releases in the state.	Quarterly	11/08/2013	11/08/2013	11/08/2013	11/07/2013
LPST -- State/Tribal Leaking Storage Tank	EPA	The Tribal LUST database (maintained by EPA Region 6) provides information on leaking underground storage tank on tribal lands in Louisiana, Arkansas, Oklahoma, New Mexico and Tribal Nations.	Quarterly	10/28/2013	10/30/2013	10/30/2013	10/30/2013
PST -- State/Tribal Storage Tank	TCEQ	This database contains information on above and underground storage tanks, compliance, and releases in the state.	Quarterly	11/08/2013	11/08/2013	11/08/2013	11/07/2013
PST -- State/Tribal Storage Tank	EPA	The Tribal UST database (maintained by EPA Region 6) provides underground storage tank information on tribal lands in Louisiana, Arkansas, Oklahoma, New Mexico and Tribal Nations.	Quarterly	10/28/2013	10/30/2013	10/30/2013	10/30/2013
ST IC -- State/Tribal Institutional Control	TCEQ	This database includes Voluntary Cleanup Program (VCP) or Innocent Operator Program (IOP) sites that have been remediated and have had Institutional Controls (ICs) placed on them. ICs are administrative restrictions, such as legal controls, that help minimize the potential for human exposure to known contamination by ensuring appropriate land or resource use.	Quarterly	11/13/2013	11/18/2013	11/18/2013	11/04/2013
ST IC -- State/Tribal Institutional Control	RRC	The Railroad Commission of Texas Voluntary Cleanup Program provides an incentive to remediate Oil & Gas related pollution by participants as long as they did not cause or contribute to the contamination.	Quarterly	11/08/2013	11/13/2013	11/18/2013	11/13/2013
ST EC -- State/Tribal Engineering Control	TCEQ	This database includes Voluntary Cleanup Program (VCP) or Innocent Operator Program (IOP) sites that have been remediated and have had Engineering Controls (ECs) placed on them. ECs are physical methods or modifications put into place on a site to reduce or eliminate the possibility of human exposure to known contamination.	Quarterly	11/13/2013	11/18/2013	11/18/2013	11/04/2013

Dataset Descriptions and Sources TWDB Master Drainage Plan - SE(1)



Dataset	Source	Dataset Description	Update Schedule	Data Requested	Data Obtained	Data Updated	Source Updated
VCP -- State/Tribal Voluntary Cleanup	TCEQ	This database contains sites from both the Voluntary Cleanup Program (VCP) and the Innocent Operator Program (IOP). The VCP records contain information on contaminated sites that private parties have cleaned up through assistance from the State in the form of administrative, technical, and legal incentives. The IOP records are sites that have received certificates from the State acknowledging that their property is contaminated as a result of a release or migration of contaminants from a source or sources not located on the property, and they did not cause or contribute to the source or sources of contamination.	Quarterly	11/13/2013	11/18/2013	11/18/2013	11/04/2013
VCP -- State/Tribal Voluntary Cleanup	RRC	The Railroad Commission of Texas Voluntary Cleanup Program provides an incentive to remediate Oil & Gas related pollution by participants as long as they did not cause or contribute to the contamination.	Quarterly	11/08/2013	11/13/2013	11/18/2013	11/13/2013
ST BWN -- State/Tribal Brownfield	TCEQ	Brownfield sites are former industrial properties that lie dormant or underutilized due to liability associated with real or perceived contamination. In Texas, the TCEQ, in close partnership with the EPA and other federal, state, and local redevelopment agencies, and stakeholders, is facilitating cleanup, transferability, and revitalization of Brownfield's through the development of regulatory, tax, and technical assistance tools.	Quarterly	11/18/2013	11/18/2013	11/19/2013	11/04/2013
ST BWN -- State/Tribal Brownfield	RRC	The Railroad Commission of Texas' Voluntary Cleanup Program (RRC-VCP) provides an incentive to remediate Oil & Gas related pollution by participants as long as they did not cause or contribute to the contamination. Applicants to the program receive a release of liability to the state in exchange for a successful cleanup.	Quarterly	11/08/2013	11/13/2013	11/19/2013	11/13/2013
HW -- State/Tribal Hazardous Waste	TCEQ	This database contains information on facilities which store, process, or dispose of hazardous waste as maintained by the Industrial and Hazardous Waste Permits section of the TCEQ.	Quarterly	11/08/2013	11/13/2013	11/13/2013	10/05/2013
RCRA -- RCRA	EPA	This database lists all sites that fall under the Resource Conservation and Recovery Act (RCRA) and are not classifiable as treatment, storage, disposers of hazardous material, hazardous waste generator or subject to corrective action activity.	Quarterly	11/19/2013	11/19/2013	11/19/2013	11/14/2013
DRYC -- Dry Cleaners	TCEQ	Dry Cleaner data houses both the DCRP Program information and PERC information released by the TCEQ. The DCRP database contains records funded for state-lead clean up of dry cleaner related contaminated sites. The DCRP administers the Dry Cleaning Facility Release Fund to assist with remediation of contamination caused by dry cleaning solvents. There are two listings from this program: LIST#1 - A historic listing of any facility that registered with the DCRP indicating whether or not the facility has used Perchloroethylene (PERC) in the past. LIST#2 - A Prioritization list of dry cleaner sites Facilities on this list will be investigated in order to determine the existence and or extent of possible contamination. Facilities which are not current on their DCRP payments get dropped from the program. Banks Environmental Data DOES NOT REMOVE these listings from our database so that we may present a more complete historical listing of facilities that may or may not have used PERC in the past.	Quarterly	11/05/2013	11/06/2013	11/07/2013	11/06/2013

Disclaimer TWDB Master Drainage Plan - SE(1)

The Banks Environmental Data Regulatory Database Report was prepared based upon data obtained from State, Tribal, and Federal sources known to Banks Environmental Data at the time the data was obtained. Great care has been taken by Banks in obtaining the best available data from the best available sources. However, there is a possibility that there are sources of data applicable or pertaining to this report's target property, and/or surrounding properties, to which Banks does not have access or has not accessed. Furthermore, although Banks Environmental Data performs quality assurance and quality control on all data, including data it obtains, Banks recognizes that inaccuracies in data from these sources may, and do, exist; accordingly, inaccurate data may have been used or relied upon in the preparation of this report. Even though Banks Environmental Data performs a thorough and diligent search to locate and fix any inaccuracies in the data relied upon in the preparation of this report and this report, Banks cannot guarantee or warrant the accuracy of the locations, information, data, or report. The purchaser of this report accepts this report "as is" and assumes all risk related to any potential inaccuracy contained in the report or not reported in it, whether due to a reliance by Banks Environmental Data on inaccurate data, or for any other reason [including but not limited to the negligence or express negligence of Banks Environmental Data]. If this report is being used for the Records Review section of a Phase I Site Assessment according to the ASTM 1527-13, for EPA's All Appropriate Inquiry, or for any other purpose (public or private), all liability and responsibility is assumed by the Environmental Professional or other individual or entity acquiring the report.

Prepared for:

RABA KISTNER, INC-HOUSTON
3602 Westchase
Houston, TX 77042



Regulatory Database Report

ASTM E1527-13/AAI Compliant

TWDB Master Drainage Plan - NE

TX

Hidalgo County

ES-108904

Thursday, January 09, 2014

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Geographic Summary TWDB Master Drainage Plan - NE**Location**

Hidalgo, TX

Coordinates

Longitude & Latitude in Degrees Minutes Seconds	-98° 6' 46", 26° 19' 53"
Longitude & Latitude in Decimal Degrees	-98.112873°, 26.331437°
X and Y in UTM	588533.15, 2912693.27 (Zone 14)

Elevation

Target Property lies 69.72 feet above sea level.

Zip Codes Searched

Search Distance	Zip Codes
Target Property	78542, 78516, 78537, 78538, 78539, 78543, 78549, 78558, 78589
0.25 miles	78542, 78516, 78537, 78538, 78539, 78543, 78549, 78558, 78589
0.5 miles	78542, 78516, 78537, 78538, 78539, 78543, 78549, 78558, 78589
1 mile	78542, 78516, 78537, 78538, 78539, 78543, 78549, 78558, 78589

Topos Searched

Search Distance	Topo Name
Target Property	La Blanca (1984)
0.25 miles	La Blanca (1984)
0.5 miles	La Blanca (1984)
1 mile	Edinburg (1984), La Blanca (1984)

Database Summary TWDB Master Drainage Plan - NE



Databases Searched	Distance Searched	# Mapped	# Not Mapped	Total
Federal - ASTM 1527-13/AAI Required				
National Priority List (NPL)	1	0	0	0
Delisted National Priority List (DNPL)	0.5	0	0	0
CERCLIS (CER)	0.5	0	0	0
CERCLIS NFRAP (CER NFRAP)	0.5	0	2	2
RCRA CORRACTS (RCRA COR)	1	0	0	0
RCRA non-CORRACTS TSD (RCRA TSD)	0.5	0	0	0
RCRA Generators (RCRA GEN)	0.25	0	0	0
Federal Brownfields (FED BWN)	0.5	0	0	0
Federal Institutional Control (FED IC)	0.5	0	0	0
Federal Engineering Control (FED EC)	0.5	0	0	0
ERNS List (ERNS)	0.25	0	1	1
State - ASTM 1527-13/AAI Required				
State/Tribal Equivalent NPL (ST NPL)	1	0	0	0
State/Tribal Equivalent CERCLIS (ST CER)	0.5	0	0	0
State/Tribal Disposal or Landfill (SWLF)	0.5	0	0	0
State/Tribal Leaking Storage Tank (LPST)	0.5	0	1	1
State/Tribal Storage Tank (PST)	0.25	1	12	13
State/Tribal Institutional Control (ST IC)	0.25	0	0	0
State/Tribal Engineering Control (ST EC)	0.5	0	0	0
State/Tribal Voluntary Cleanup (VCP)	0.5	0	0	0
State/Tribal Brownfield (ST BWN)	0.5	0	0	0
State/Tribal Hazardous Waste (HW)	0.25	0	0	0
Non-ASTM/AAI Required Databases				
RCRA (RCRA)	0.25	0	0	0
Dry Cleaners (DRYC)	0.25	0	0	0
Total Sites Found		1	16	17

Summary Map - 0.25 Mile Radius



Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2013

TWDB Master Drainage Plan - NE

- | | | | | |
|--|---|--|--|--|
| ● Single Site | ● Cluster Site | ■ Large Tract | ■ Cluster Site with Large Tract | ★ Target Property |
| ● Single Site | ● Cluster Site | ■ Large Tract | ■ Cluster Site with Large Tract | Search Buffer |
| ● Single Site | ● Cluster Site | ■ Large Tract | ■ Cluster Site with Large Tract | |
- RCRA COR, RCRA TSD, CER, LPST, NPL, ST NPL, SWLF*
- RCRA GEN, ST & FED BWN, ST & FED EC, ST & FED IC, DNPL, CER NFRAP, PST, VCP, ST CER*
- ERNS, HW, RCRA, DRYC*

1 : 4,500
 1 inch = 0.071 miles
 1 inch = 375 feet
 1 centimeter = 0.045 kilometers
 1 centimeter = 45 meters



Lambert Conformal Conic Projection
 1983 North American Datum
 First Standard Parallel: 33° 00' 00" North
 Second Standard Parallel: 45° 00' 00" North
 Central Meridian: 96° 00' 00" West
 Latitude of Origin: 39° 00' 00" North

Summary Map - 0.5 Mile Radius



Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2013

TWDB Master Drainage Plan - NE

- | | | | | |
|-------------|--------------|-------------|-------------------------------|-----------------|
| Single Site | Cluster Site | Large Tract | Cluster Site with Large Tract | Target Property |
| Single Site | Cluster Site | Large Tract | Cluster Site with Large Tract | Search Buffer |
| Single Site | Cluster Site | Large Tract | Cluster Site with Large Tract | |

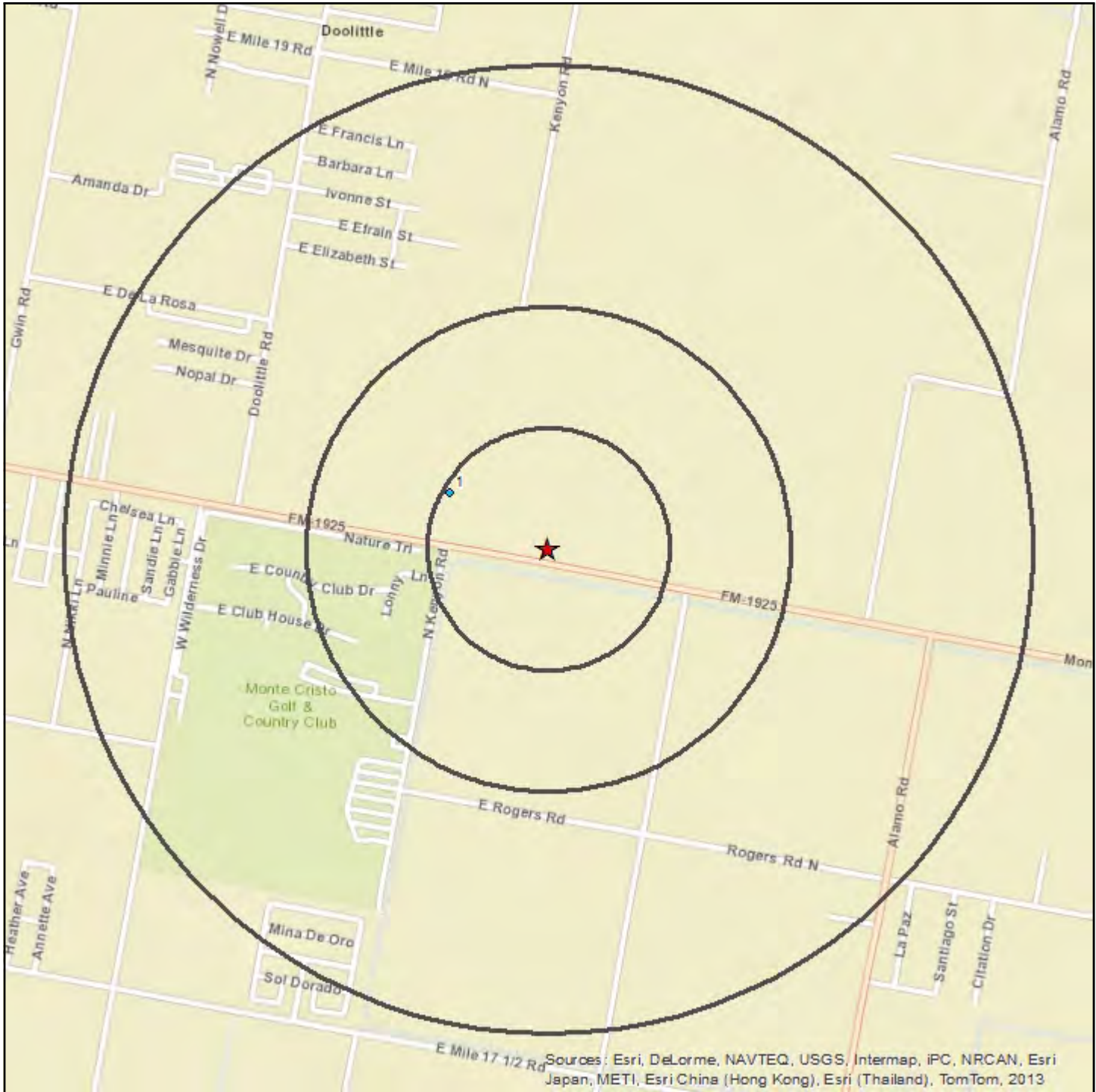
RCRA COR, RCRA TSD, CER, LPST, NPL, ST NPL, SWLF
 RCRA GEN, ST & FED BWN, ST & FED EC, ST & FED IC, DNPL, CER NFRAP, PST, VCP, ST CER
 ERNS, HW, RCRA, DRYC

1 : 9,000
 1 inch = 0.142 miles
 1 inch = 750 feet
 1 centimeter = 0.090 kilometers
 1 centimeter = 90 meters



Lambert Conformal Conic Projection
 1983 North American Datum
 First Standard Parallel: 33° 00' North
 Second Standard Parallel: 45° 00' North
 Central Meridian: 96° 00' West
 Latitude of Origin: 39° 00' North

Summary Map - 1 Mile Radius



Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2013

TWDB Master Drainage Plan - NE

- | | | | |
|-------------|--------------|-------------|-------------------------------|
| Single Site | Cluster Site | Large Tract | Cluster Site with Large Tract |
| Single Site | Cluster Site | Large Tract | Cluster Site with Large Tract |
| Single Site | Cluster Site | Large Tract | Cluster Site with Large Tract |
- RCRA COR, RCRA TSD, CER, LPST, NPL, ST NPL, SWLF
 RCRA GEN, ST & FED BWN, ST & FED EC, ST & FED IC, DNPL, CER NFRAP, PST, VCP, ST CER
 ERNS, HW, RCRA, DRYC

- Target Property
- Search Buffer

1 : 19,000
 1 inch = 0.300 miles
 1 inch = 1583 feet
 1 centimeter = 0.190 kilometers
 1 centimeter = 190 meters

Lambert Conformal Conic Projection
 1983 North American Datum
 First Standard Parallel: 33° 00' North
 Second Standard Parallel: 45° 00' North
 Central Meridian: 96° 00' West
 Latitude of Origin: 39° 00' North





Topographic Overlay Map - 1 Mile Radius



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TWDB Master Drainage Plan - NE

-  Target Property
-  Search Buffer

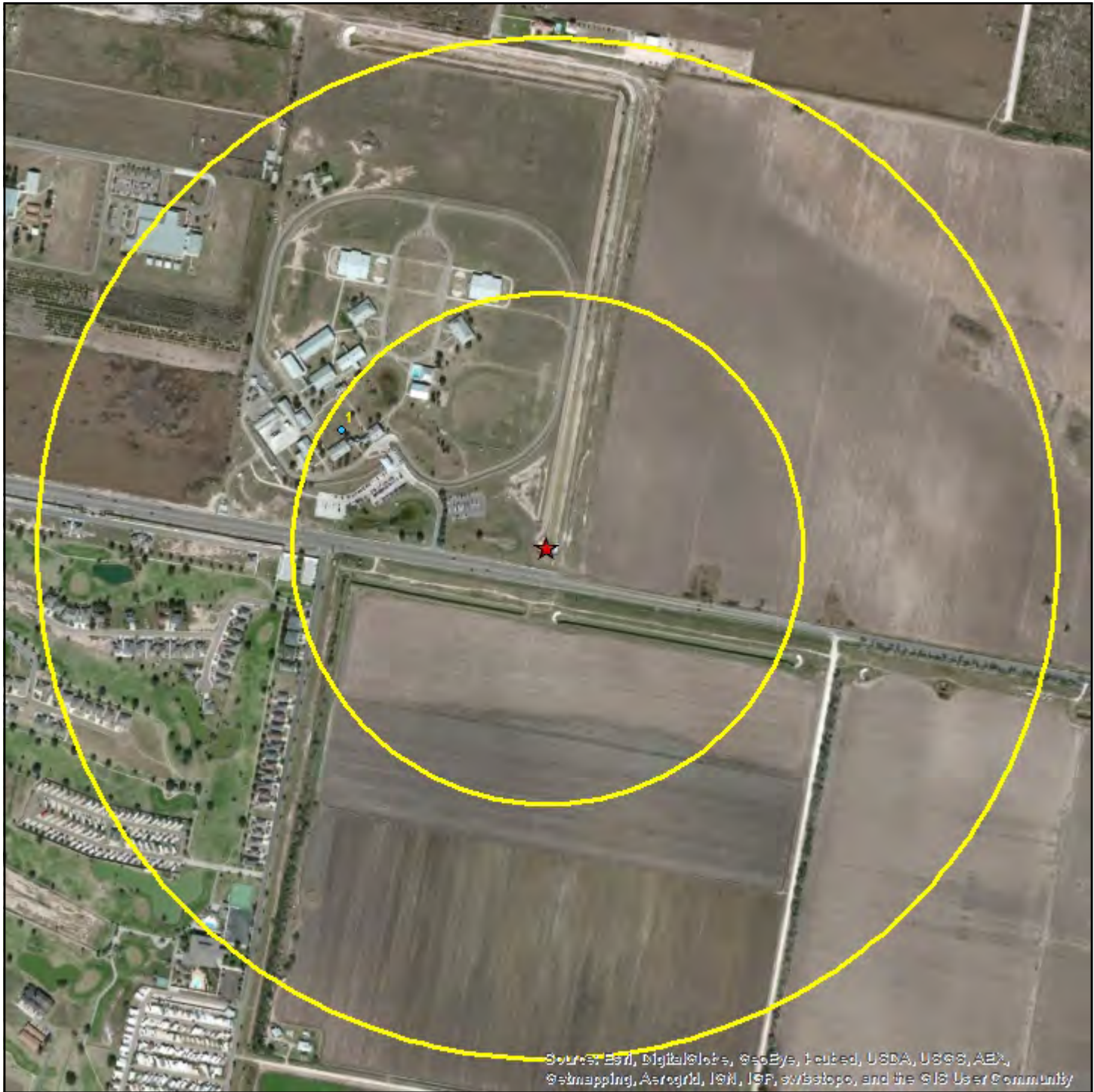
Target Property Quad Name
La Blanca (1984)

1 : 19,000
 1 inch = 0.300 miles
 1 inch = 1583 feet
 1 centimeter = 0.190 kilometers
 1 centimeter = 190 meters

Lambert Conformal Conic Projection
 1983 North American Datum
 First Standard Parallel: 33° 00' North
 Second Standard Parallel: 45° 00' North
 Central Meridian: 96° 00' West
 Latitude of Origin: 39° 00' North



Current Imagery Overlay Map - 0.5 Mile Radius



Source: Esri, DigitalGlobe, GeoEye, Earthstar, USDA, USGS, Aero, Swisstopo, and the GIS User Community

TWDB Master Drainage Plan - NE

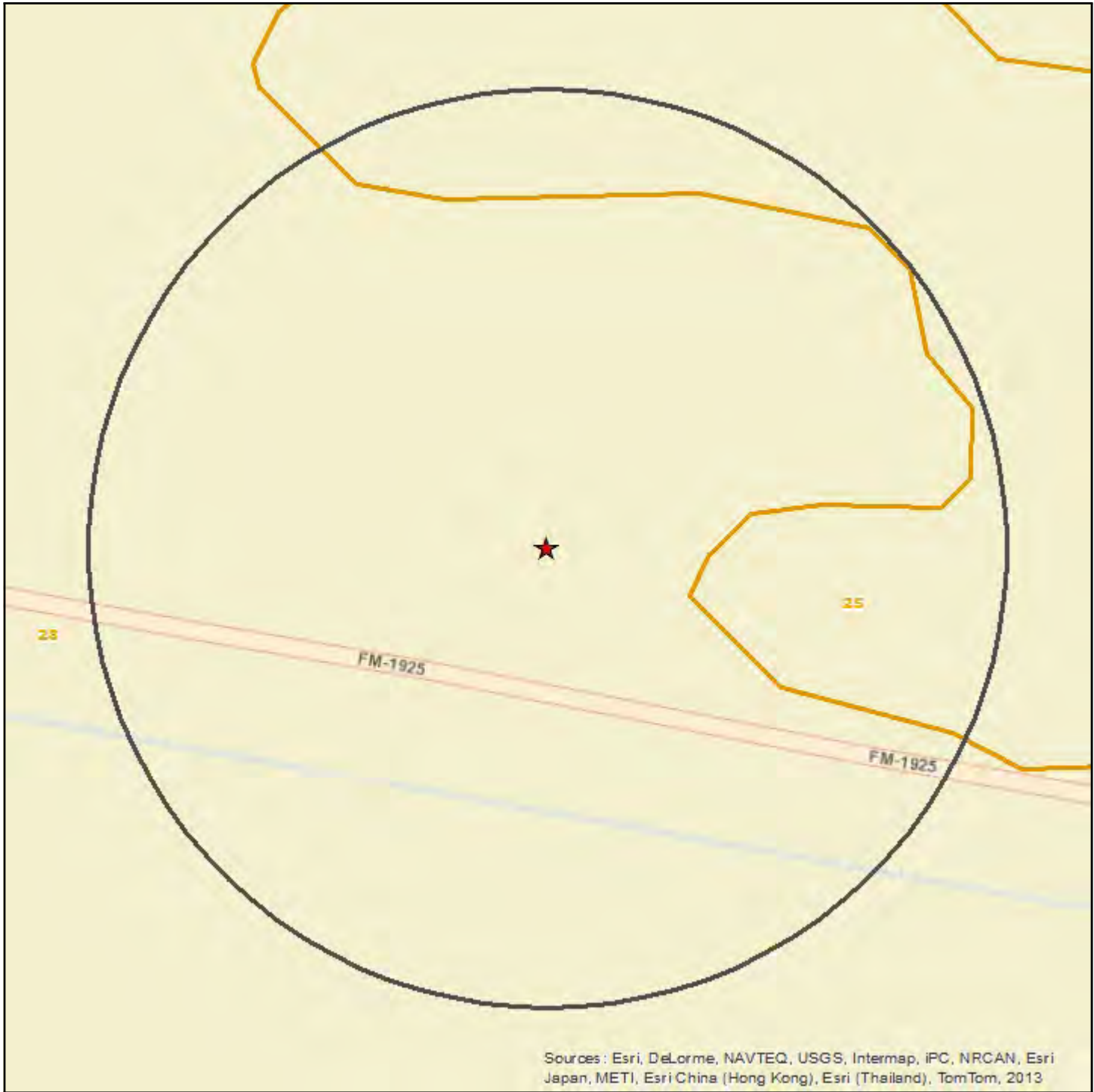
- | | | | | |
|--|---|--|--|---|
| ● Single Site | ● Cluster Site | ■ Large Tract | ■ Cluster Site with Large Tract | ★ Target Property |
| ● Single Site | ● Cluster Site | ■ Large Tract | ■ Cluster Site with Large Tract | Search Buffer |
| ● Single Site | ● Cluster Site | ■ Large Tract | ■ Cluster Site with Large Tract | |
- RCRA COR, RCRA TSD, CER, LPST, NPL, ST NPL, SWLF*
RCRA GEN, ST & FED BWN, ST & FED EC, ST & FED IC, DNPL, CER NFRAP, PST, VCP, ST CER
ERNS, HW, RCRA, DRYC

1 : 9,000
 1 inch = 0.142 miles
 1 inch = 750 feet
 1 centimeter = 0.090 kilometers
 1 centimeter = 90 meters



Lambert Conformal Conic Projection
 1983 North American Datum
 First Standard Parallel: 33° 00' North
 Second Standard Parallel: 45° 00' North
 Central Meridian: 96° 00' West
 Latitude of Origin: 39° 00' North

Soil Survey Map - 0.1 Mile Radius



Sources : Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2013

TWDB Master Drainage Plan - NE

- | | | | |
|--|--------------|-------------|-------------------------------|
| Single Site | Cluster Site | Large Tract | Cluster Site with Large Tract |
| <i>RCRA COR, RCRA TSD, CER, LPST, NPL, ST NPL, SWLF</i> | | | |
| Single Site | Cluster Site | Large Tract | Cluster Site with Large Tract |
| <i>RCRA GEN, ST & FED BWN, ST & FED EC, ST & FED IC, DNPL, CER NFRAP, PST, VCP, ST CER</i> | | | |
| Single Site | Cluster Site | Large Tract | Cluster Site with Large Tract |
| <i>ERNS, HW, RCRA, DRYC</i> | | | |

- Target Property
- Search Buffer
- Soils Boundary

1 : 2,000
 1 inch = 0.032 miles
 1 inch = 167 feet
 1 centimeter = 0.020 kilometers
 1 centimeter = 20 meters

Lambert Conformal Conic Projection
 1983 North American Datum
 First Standard Parallel: 33° 00' North
 Second Standard Parallel: 45° 00' North
 Central Meridian: 96° 00' West
 Latitude of Origin: 39° 00' North



Soils TWDB Master Drainage Plan - NE



Soils Types Found

Target Property	28
Within 0.1 miles of Target Property	28, 25

Soil Type Descriptions

25 - Hidalgo fine sandy loam, 0 to 1 percent slopes

Hydric Status	0
Minimum Depth to Bedrock	

Hidalgo (80 percent)

Hydrologic Group	Moderately low runoff potential
Soil Drainage Class	Well drained
Corrosion Potential - Uncoated Steel	High
Depth to Restrictive Feature	

Horizon	Soil Texture	Upper Boundary	Lower Boundary	AASHTO	Unified
H1	Fine sandy loam	0 cm	43 cm	A-4, A-6	SC, SC-SM, SM
H2	Sandy clay loam	43 cm	71 cm	A-6	CL, SC
H3	Sandy clay loam	71 cm	203 cm	A-6, A-7-6	CL, SC

Unnamed, minor components (20 percent)

28 - Hidalgo sandy clay loam, 0 to 1 percent slopes

Hydric Status	0
Minimum Depth to Bedrock	

Hidalgo (80 percent)

Hydrologic Group	Moderately low runoff potential
Soil Drainage Class	Well drained
Corrosion Potential - Uncoated Steel	High
Depth to Restrictive Feature	

Horizon	Soil Texture	Upper Boundary	Lower Boundary	AASHTO	Unified
H1	Sandy clay loam	0 cm	43 cm	A-6	CL, SC
H2	Sandy clay loam	43 cm	71 cm	A-6	CL, SC
H3	Sandy clay loam	71 cm	203 cm	A-6, A-7-6	CL, SC

Unnamed, minor components (20 percent)

Soils Descriptions TWDB Master Drainage Plan - NE**AASHTO Classification Definitions**

A-1, A-1-a, A-1-b	Granular materials (35% or less passing No. 200 sieve), silt fragments, gravel and sand
A-2, A-2-4, A-2-5, A-2-6, A-2-7	Granular materials (35% or less passing No. 200 sieve), silty or clayey gravel and sand
A-3	Granular materials (35% or less passing No. 200 sieve), fine sand
A-4	Silt-Clay materials (more than 35% passing No. 200 sieve), silty soils
A-5	Silt-Clay materials (more than 35% passing No. 200 sieve), silty soils
A-6	Silt-Clay materials (more than 35% passing No. 200 sieve), clayey soils
A-7, A-7-5, A-7-6	Silt-Clay materials (more than 35% passing No. 200 sieve), clayey soils
A-8	Silt-Clay materials (more than 35% passing No. 200 sieve), clayey soils

Unified Classification Definitions

CH	Fine-grained soils, silts and clays (liquid limit is 50% or more), Fat Clay
CL, CL-A (proposed), CL-K (proposed), CL-ML, CL-O (proposed), CL-T (proposed)	Fine-grained soils, silts and clays (liquid limit is less than 50%), Lean Clay
GC, GC-GM	Coarse-grained soils, Gravels, gravel with fines, Clayey Gravel
GM	Coarse-grained soils, Gravels, gravel with fines, Silty Gravel
GP, GP-GC, GP-GM	Coarse-grained soils, Gravels, clean gravels, Poorly Graded Gravel
GW, GW-GC, GW-GM	Coarse-grained soils, Gravels, clean gravels, Well-Graded Gravel
MH, MH-A, MH-K, MH-O, MH-T	Fine-grained soils, silts and clays (liquid limit is 50% or more), Elastic Silt
ML, ML-A (proposed), ML-K (proposed), ML-O (proposed), ML-T (proposed)	Fine-grained soils, silts and clays (liquid limit is less than 50%), Silt
OH, OH-T (proposed)	Fine-grained soils, silts and clays (liquid limit is 50% or more), Organic Clay or Organic Silt
OL	Fine-grained soils, silts and clays (liquid limit is less than 50%), Organic Clay or Organic Silt
PT	Highly organic soils, Peat
SC, SC-SM	Coarse-grained soils, Sands, sands with fines, Clayey Sand
SM	Coarse-grained soils, Sands, sands with fines, Silty Sand
SP, SP-SC, SP-SM	Coarse-grained soils, Sands, clean sands, Poorly Graded Sand
SW, SW-SC, SW-SM	Coarse-grained soils, Sands, clean sands, Well-Graded Sand

Source

Natural Resources Conservation Service, Soil Survey Geographic (SSURGO) Database.

Disclaimer

This Soils Survey from Banks Environmental Data, Inc. has searched Natural Resources Conservation Service (NRCS) and the Soil Survey Geographic Database (SSURGO). All soil data presented on the map and in the details section are based on information obtained from NRCS. Although Banks performs quality assurance and quality control on all data, inaccuracies of the data and mapped locations could possibly be traced to the source. Banks Environmental Data, Inc. cannot fully guarantee the accuracy of the SSURGO database maintained by NRCS.

Water & Oil/Gas Wells Map - 0.25 Mile Radius



TWDB Master Drainage Plan - NE

- Single Water Well
- Water Well Cluster
- Single Oil/Gas/Other Well
- Oil/Gas/Other Well Cluster
- Water/Oil/Gas/Other Well Cluster

- ★ Target Property
- Search Buffer
- Texas Land Survey

1 : 4,500
 1 inch = 0.071 miles
 1 inch = 375 feet
 1 centimeter = 0.045 kilometers
 1 centimeter = 45 meters



Lambert Conformal Conic Projection
 1983 North American Datum
 First Standard Parallel: 33° 00' North
 Second Standard Parallel: 45° 00' North
 Central Meridian: 96° 00' West
 Latitude of Origin: 39° 00' North

This well scan searched for state and federal wells currently digitized in our geospatial database. No wells were found, but more wells could exist within the search area.

Source

U.S. Geological Survey, Texas Water Development Board (GW and Submitted Driller's Report), Texas Commission of Environmental Quality (PWS), Railroad Commission of Texas (Production Data)

Disclaimer

This well scan from Banks Environmental Data, Inc. has included a digital search of state and federal wells currently digitized in our geospatial database. Since this scan includes only well data that is currently mapped in our geospatial database, more wells could exist within the search area. For a complete well search or to locate more details, please contact Banks to obtain a full Water Well Report or Oil & Gas Well/Pipeline Search Report. More detailed individual well records can also be obtained from Banks for an additional cost, please reference a Well ID # from this well scan.

All well locations are based on information obtained from state and federal sources. Although Banks performs quality assurance and quality control on all data, inaccuracies of the records and mapped locations could possibly be traced to the specific regulatory authority or individual well driller. Banks Environmental Data, Inc. cannot fully guarantee the accuracy of the data or well location(s) of the maps and records maintained by the state and federal agencies.

Mapped Sites Summary TWDB Master Drainage Plan - NE



Database	Distance from Target Property	Map ID	Facility Site Name	Facility Site Address	Site Details Page #
----------	-------------------------------	--------	--------------------	-----------------------	---------------------

*Sites are sorted by database tier, database, and distance from the target site.

PST	0.23 miles NW	1	EVINS REGIONAL JUVENILE CENTER	3801 E MONTE CRISTO RD, EDINBURG, TX 78542	18
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End of Mapped Sites Summary Section

Unmapped Sites Summary TWDB Master Drainage Plan - NE

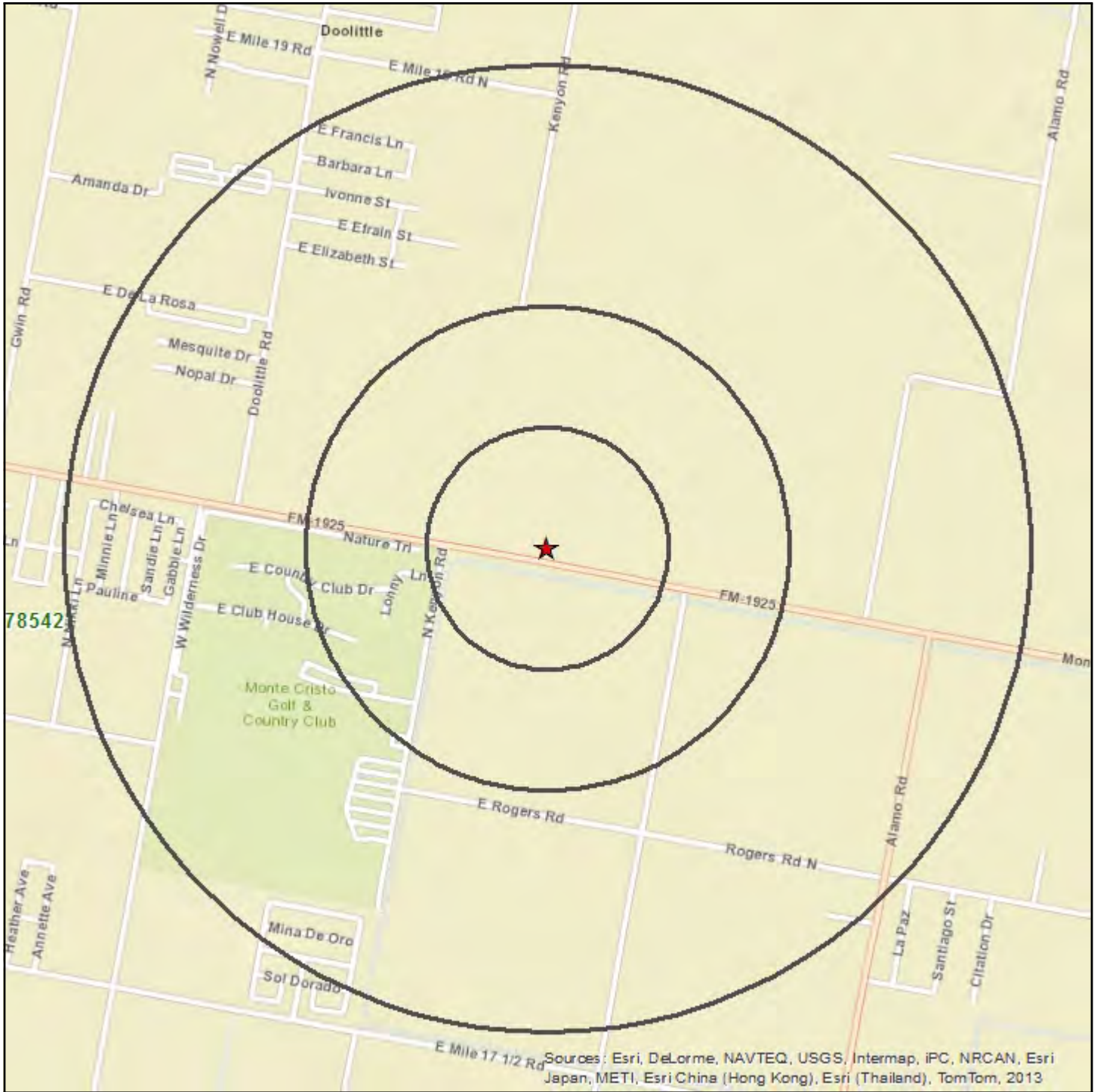
Database	Facility Site Name	Facility Site Address	Site Details Page #
----------	--------------------	-----------------------	---------------------

*Sites are sorted by database tier and database.

CER NFRAP	ILLINI HELICOPTER	P.O. BOX 1601, EDINBURG, TX 78539	19
CER NFRAP	MARTIN FARM & RANCH	ROUTE 4 BOX 473, EDINBURG, TX 78539	20
ERNS		ROUTE 7 BOX 980, EDINBURG, TX 78541	21
LPST	1925 DRIVE IN	W MONTE CRISTO RD, EDINBURG, TX 78539	22
PST	ALANIZ GROCERY	TX 78539	23
PST	FFP 680	RT 2, EDINBURG, TX 78539	24
PST	MC ALLEN PRODUCTION UNIT OFFICE	EDINBURG, TX 78539	25
PST	1925 DRIVE IN	MONTE CRISTO, EDINBURG, TX 78539	26
PST	SUN-UP THE FOOD STORE	RT 2, EDINBURG, TX 78539	27
PST	M & R DRIVE INN	TX 78539	28
PST	OTTO WAGNER SR	RT 3 D, EDINBURG, TX 78539	29
PST	RON WILSHER	RT 7, EDINBURG, TX 78539	30
PST	EDINBURG WELL SERVICE	RR 3, EDINBURG, TX 78539	31
PST	LUNAS DRIVE IN 2	RR 7 BOX 11500, EDINBURG, TX 78541	32
PST	WESTSIDE KOUNTRY STORE	TX 78572	33
PST	HERNANDEZ GROC	TX 78572	34

End of Unmapped Sites Summary Section

Zip Code Map - 1 Mile Radius



TWDB Master Drainage Plan - NE

- Target Property
- Search Buffer
- Zip Code Boundary

1 : 19,000
 1 inch = 0.300 miles
 1 inch = 1583 feet
 1 centimeter = 0.190 kilometers
 1 centimeter = 190 meters



Lambert Conformal Conic Projection
 1983 North American Datum
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 Second Standard Parallel: 45° 00' North
 Central Meridian: 96° 00' West
 Latitude of Origin: 39° 00' North

Mapped Sites Details: PST (MapID 1) TWDB Master Drainage Plan - NE**PST - State/Tribal Storage Tank**

Map ID #1	PST - State/Tribal Storage Tank		Source: TCEQ
Facility #: 0055834	TCEQ Customer ID: 085618		Banks ID: 0055834
EVINS REGIONAL JUVENILE CENTER 3801 E MONTE CRISTO RD, EDINBURG, TX 78542 Contact: BELMA SALINAS			Rel. Loc.: 0.23 miles NW Elevation: 79.11 feet (+9.39)
Facility Owner Name:	TEXAS YOUTH COMMISSION		
Facility Owner Address:	6400 E HWY 290, STE 202		
Facility Owner City:	AUSTIN		
Facility Owner State:	TX		
Facility Owner Zip:	78723		
Facility Contact Name:	ART HINOJOSA		
Facility Contact Phone:	512-533-2733		
Number of ASTs:	0		
Number of USTs:	1		
Total Number of Tanks:			
Tank #	#1	#1A	#2
Status:	IN USE	REMOVED FROM GROUND	REMOVED FROM GROUND
Capacity:	2000	500	1000
Comments:			
Install Date:	3/1/1995	1/1/1986	1/1/1986
Closure Certification Date:			
Above or Below Ground Tank:	below	below	below
Unit ID:			
Construction Material:	FRP (fiberglass-reinforced plastic)	FRP (fiberglass-reinforced plastic)	FRP (fiberglass-reinforced plastic)
Piping Material:	FRP (fiberglass-reinforced plastic)	Steel	Steel
Tank Contents:	GASOLINE	DIESEL	GASOLINE
Automatic Tank Gauge:			
Inventory Control:			

End of PST Sites Section

CER NFRAP - CERCLIS NFRAP

CER NFRAP - CERCLIS NFRAP

Source: EPA

Site ID: 0603061

EPA ID: TXD981047871

Banks ID: 0603061

ILLINI HELICOPTER

P.O. BOX 1601, EDINBURG, TX 78539

Contact:

National Priority List Status: Not on the NPL**Facility Type:** Not a federal facility**Aliases:****Additional Info:** <http://cfpub.epa.gov/supercpad/cursites/calinfo.cfm?id=0603061>

Action	Start Date	Completion Date
DISCOVERY		1/1/1985 12:00:00 AM
PRELIMINARY ASSESSMENT	3/1/1986	3/1/1986 12:00:00 AM
ARCHIVE SITE		3/1/1986 12:00:00 AM

Unmapped Sites Details: CER NFRAP (MapID) TWDB Master Drainage Plan**CER NFRAP - CERCLIS NFRAP****Source: EPA****Site ID: 0603122****EPA ID: TXD981048499****Banks ID: 0603122**

MARTIN FARM & RANCH
 ROUTE 4 BOX 473, EDINBURG, TX 78539

Contact:

National Priority List Status: Not on the NPL
Facility Type: Not a federal facility

Aliases:**Additional Info:** <http://cfpub.epa.gov/supercpad/cursites/calinfo.cfm?id=0603122>

Action	Start Date	Completion Date
DISCOVERY		1/1/1985 12:00:00 AM
PRELIMINARY ASSESSMENT	3/1/1986	3/1/1986 12:00:00 AM
ARCHIVE SITE		3/1/1986 12:00:00 AM

End of CER NFRAP Sites Section

Unmapped Sites Details: ERNS (MapID) TWDB Master Drainage Plan - NE



ERNS - ERNS List

ERNS - ERNS List

Source: EPA/National Response Center

NRC Report #: 812479

Secondary ID: NA

Banks ID: 812479

ROUTE 7 BOX 980, EDINBURG, TX 78541

Contact:

Responsible Party:	NB EXPRESS
Incident Location:	
Incident Date/Time:	9/24/2006 7:00 AM
Cause of Incident:	NATURAL PHENOMENON
Description of Incident:	THE CALLER IS REPORTING THAT DUE TO HEAVY RAIN, THERE WAS A RELEASE OF MATERIALS ONTO THE GROUND AND INTO STANDING WATER FROM CAR PARTS.
Incident Type:	FIXED
Additional Information:	THE CALLER HAD NO ADDITIONAL INFORMATION
Any Fatalities:	No
Number of Fatalities:	
Remedial Action Taken:	NONE
Medium Affected:	WATER
Medium Description:	LAND>STANDING WATER
Materials Spilled:	UNKNOWN OIL
Railroad Involved:	
Pipeline Type Involved:	
Source:	TELEPHONE

End of ERNS Sites Section

Unmapped Sites Details: LPST (MapID) TWDB Master Drainage Plan - NE



LPST - State/Tribal Leaking Storage Tank

LPST - State/Tribal Leaking Storage Tank

Source: TCEQ

LPST ID: 118102

Facility ID: 0039314

Banks ID: 118102

1925 DRIVE IN

W MONTE CRISTO RD, EDINBURG, TX 78539

Contact: MIKE BROUGHTON

Status:	Final concurrence issued, case close	
Leak Discovery Date:	5/13/2009	
Damage Description:	no gw impacted, no apparent threats or impacts to receptors	
Leak Closure Date:		
Facility Contact Name:		
Facility Contact Phone:		
Facility Owner Name:	VISTA INDUSTRIES INC	
Facility Contact Name:	MIKE BROUGHTON	
Facility Contact Phone:	956-607-5661	
Leak Substance:		
Tank #	#1	#2
Status:	REMOVED FROM GROUND	REMOVED FROM GROUND
Capacity:		
Comments:		
Install Date:	1/1/1982	1/1/1982
Closure Certification Date:		
Above or Below Ground Tank:	below	below
Unit ID:		
Construction Material:	Steel	Steel
Piping Material:	FRP (fiberglass-reinforced plastic)	FRP (fiberglass-reinforced plastic)
Tank Contents:	GASOLINE	GASOLINE
Automatic Tank Gauge:		
Inventory Control:		

End of LPST Sites Section

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - NE



PST - State/Tribal Storage Tank

PST - State/Tribal Storage Tank

Source: TCEQ

Facility #: 0011107

TCEQ Customer ID: 045329

Banks ID: 0011107

ALANIZ GROCERY

TX 78539

Contact:

Facility Owner Name: B CANTRELL OIL COMPANY

Facility Owner Address:

Facility Owner City: RIO HONDO

Facility Owner State: TX

Facility Owner Zip: 78583

Facility Contact Name: TED VEGA

Facility Contact Phone: 956-748-2368

Number of ASTs: 0

Number of USTs: 0

Total Number of Tanks:

Tank #	#1	#2
Status:	REMOVED FROM GROUND	REMOVED FROM GROUND
Capacity:	8000	8000
Comments:		
Install Date:	1/1/1981	1/1/1981
Closure Certification Date:		
Above or Below Ground Tank:	below	below
Unit ID:		
Construction Material:	Steel	Steel
Piping Material:	Steel	Steel
Tank Contents:	GASOLINE	GASOLINE
Automatic Tank Gauge:		
Inventory Control:		

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - NE



PST - State/Tribal Storage Tank

Source: TCEQ

Facility #: 0018450

TCEQ Customer ID: 072830

Banks ID: 0018450

FFP 680

RT 2, EDINBURG, TX 78539

Contact:

Facility Owner Name: FFP OPERATING PARTNERS LP

Facility Owner Address: 2801 GLENDA ST

Facility Owner City: FORT WORTH

Facility Owner State: TX

Facility Owner Zip: 761174326

Facility Contact Name: MARK LIPSCOMB

Facility Contact Phone: 817-838-4701

Number of ASTs: 0

Number of USTs: 0

Total Number of Tanks:

Tank #	#1	#2	#3
Status:	REMOVED FROM GROUND	REMOVED FROM GROUND	REMOVED FROM GROUND
Capacity:	8000	4000	4000
Comments:			
Install Date:	1/1/1977	1/1/1977	1/1/1977
Closure Certification Date:			
Above or Below Ground Tank:	below	below	below
Unit ID:			
Construction Material:	Steel	Steel	Steel
Piping Material:	Steel	Steel	Steel
Tank Contents:	GASOLINE	GASOLINE	GASOLINE

Automatic Tank Gauge:

Inventory Control:

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - NE**PST - State/Tribal Storage Tank****Source: TCEQ****Facility #: 0034676****TCEQ Customer ID: 067146****Banks ID: 0034676**

MC ALLEN PRODUCTION UNIT OFFICE

EDINBURG, TX 78539

Contact: J R ABLE

Facility Owner Name: SHELL WESTERN E & P INC**Facility Owner Address:****Facility Owner City:** HOUSTON**Facility Owner State:** TX**Facility Owner Zip:** 77001**Facility Contact Name:** J R ABLE**Facility Contact Phone:** 713-870-3443**Number of ASTs:** 0**Number of USTs:** 0**Total Number of Tanks:****Tank #** #1**Status:** REMOVED FROM GROUND**Capacity:** 10000**Comments:****Install Date:** 1/1/1976**Closure Certification Date:****Above or Below Ground Tank:** below**Unit ID:****Construction Material:** FRP (fiberglass-reinforced plastic)**Piping Material:** Steel**Tank Contents:** GASOLINE**Automatic Tank Gauge:****Inventory Control:**

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - NE



PST - State/Tribal Storage Tank

Source: TCEQ

Facility #: 0039314

TCEQ Customer ID: 076215

Banks ID: 0039314

1925 DRIVE IN

MONTE CRISTO, EDINBURG, TX 78539

Contact: HECTOR LUNA

Facility Owner Name: VISTA INDUSTRIES INC

Facility Owner Address:

Facility Owner City: MCALLEN

Facility Owner State: TX

Facility Owner Zip: 78502

Facility Contact Name: MIKE BROUGHTON

Facility Contact Phone: 956-607-5661

Number of ASTs: 0

Number of USTs: 0

Total Number of Tanks:

Tank #	#1	#2
Status:	REMOVED FROM GROUND	REMOVED FROM GROUND
Capacity:		
Comments:		
Install Date:	1/1/1982	1/1/1982
Closure Certification Date:		
Above or Below Ground Tank:	below	below
Unit ID:		
Construction Material:	Steel	Steel
Piping Material:	FRP (fiberglass-reinforced plastic)	FRP (fiberglass-reinforced plastic)
Tank Contents:	GASOLINE	GASOLINE
Automatic Tank Gauge:		
Inventory Control:		

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - NE



PST - State/Tribal Storage Tank

Source: TCEQ

Facility #: 0043072

TCEQ Customer ID: 071887

Banks ID: 0043072

SUN-UP THE FOOD STORE

RT 2, EDINBURG, TX 78539

Contact: JOSE LUIS SALINAS

Facility Owner Name: JOSE LUIS SALINAS

Facility Owner Address:

Facility Owner City: EDINBURG

Facility Owner State: TX

Facility Owner Zip: 78539

Facility Contact Name:

Facility Contact Phone: 512-383-0551

Number of ASTs: 0000

Number of USTs: 0003

Total Number of Tanks:

Tank #	#1	#2	#3
Status:	IN USE	IN USE	IN USE
Capacity:	8000	8000	4000
Comments:			
Install Date:	1/1/1966	1/1/1966	1/1/1966
Closure Certification Date:			
Above or Below Ground Tank:	below	below	below
Unit ID:			
Construction Material:	Steel	Steel	Steel
Piping Material:	Steel	Steel	Steel
Tank Contents:	GASOLINE	GASOLINE	GASOLINE

Automatic Tank Gauge:

Inventory Control:

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - NE



PST - State/Tribal Storage Tank

Source: TCEQ

Facility #: 0046156

TCEQ Customer ID: 045375

Banks ID: 0046156

M & R DRIVE INN

TX 78539

Contact:

Facility Owner Name: B CANTRELL OIL COMPANY

Facility Owner Address:

Facility Owner City: RIO HONDO

Facility Owner State: TX

Facility Owner Zip: 78583

Facility Contact Name: TED VEGA

Facility Contact Phone: 956-748-2368

Number of ASTs: 0

Number of USTs: 0

Total Number of Tanks:

Tank #	#1	#2
Status:	REMOVED FROM GROUND	REMOVED FROM GROUND
Capacity:	8000	8000
Comments:		
Install Date:	1/1/1986	1/1/1986
Closure Certification Date:		
Above or Below Ground Tank:	below	below
Unit ID:		
Construction Material:	Steel	Steel
Piping Material:	FRP (fiberglass-reinforced plastic)	FRP (fiberglass-reinforced plastic)
Tank Contents:	GASOLINE	GASOLINE
Automatic Tank Gauge:		
Inventory Control:		

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - NE**PST - State/Tribal Storage Tank****Source: TCEQ****Facility #: 0051533****TCEQ Customer ID: 060113****Banks ID: 0051533**

OTTO WAGNER SR

RT 3 D, EDINBURG, TX 78539

Contact:

Facility Owner Name: BROWNIES OIL CO INC**Facility Owner Address:****Facility Owner City:** MCALLEN**Facility Owner State:** TX**Facility Owner Zip:** 78502**Facility Contact Name:****Facility Contact Phone:** 2106863791**Number of ASTs:** 0**Number of USTs:** 0**Total Number of Tanks:****Tank #** #1**Status:****Capacity:** 1900**Comments:****Install Date:** 1/1/1974**Closure Certification Date:****Above or Below Ground Tank:** above**Unit ID:** 157445**Construction Material:** Steel**Piping Material:****Tank Contents:** DIESEL**Automatic Tank Gauge:****Inventory Control:**

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - NE**PST - State/Tribal Storage Tank****Source: TCEQ****Facility #: 0058911****TCEQ Customer ID: 089290****Banks ID: 0058911**

RON WILSHER

RT 7, EDINBURG, TX 78539

Contact: RON WILSHER

Facility Owner Name:	WILSHER RON
Facility Owner Address:	2201 W MONTE CRISTO
Facility Owner City:	EDINBURG
Facility Owner State:	TX
Facility Owner Zip:	78539
Facility Contact Name:	RON WILSHER
Facility Contact Phone:	5123833442
Number of ASTs:	0001
Number of USTs:	0000

Total Number of Tanks:**Tank #** #1**Status:****Capacity:** 3000**Comments:****Install Date:** 1/1/1990**Closure Certification Date:****Above or Below Ground Tank:** above**Unit ID:** 163733**Construction Material:** Steel**Piping Material:****Tank Contents:** DIESEL**Automatic Tank Gauge:****Inventory Control:**

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - NE**PST - State/Tribal Storage Tank****Source: TCEQ****Facility #: 0068255****TCEQ Customer ID: 103085****Banks ID: 0068255**

EDINBURG WELL SERVICE

RR 3, EDINBURG, TX 78539

Contact: GEORGE GELLERSEN

Facility Owner Name:	DAWSON WELL SERVICING INC
Facility Owner Address:	6 DESTA DR, STE 4400
Facility Owner City:	MIDLAND
Facility Owner State:	TX
Facility Owner Zip:	76902
Facility Contact Name:	FRANK CASTANEDA
Facility Contact Phone:	830-277-1451
Number of ASTs:	0
Number of USTs:	0

Total Number of Tanks:

Tank #	#J
Status:	
Capacity:	6000
Comments:	
Install Date:	12/21/1995
Closure Certification Date:	
Above or Below Ground Tank:	above
Unit ID:	178881
Construction Material:	Steel
Piping Material:	
Tank Contents:	DIESEL
Automatic Tank Gauge:	
Inventory Control:	

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - NE**PST - State/Tribal Storage Tank****Source: TCEQ****Facility #: 0074043****TCEQ Customer ID: 112895****Banks ID: 0074043**

LUNAS DRIVE IN 2

RR 7 BOX 11500, EDINBURG, TX 78541

Contact: HECTOR LUNA

Facility Owner Name: VICTORIA MARTINEZ**Facility Owner Address:****Facility Owner City:** EDINBURG**Facility Owner State:** TX**Facility Owner Zip:** 78540**Facility Contact Name:** VICTORIA MARTINEZ**Facility Contact Phone:** 956-451-2021**Number of ASTs:** 0000**Number of USTs:** 0001**Total Number of Tanks:****Tank #** #1**Status:** IN USE**Capacity:** 10000**Comments:****Install Date:** 7/1/1996**Closure Certification Date:****Above or Below Ground Tank:** below**Unit ID:****Construction Material:****Piping Material:** FRP (fiberglass-reinforced plastic)**Tank Contents:** GASOLINE**Automatic Tank Gauge:****Inventory Control:**

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - NE



PST - State/Tribal Storage Tank

Source: TCEQ

Facility #: 0011132

TCEQ Customer ID: 045350

Banks ID: 0011132

WESTSIDE KOUNTRY STORE

TX 78572

Contact: B CANTRELL

Facility Owner Name: B CANTRELL OIL COMPANY

Facility Owner Address:

Facility Owner City: RIO HONDO

Facility Owner State: TX

Facility Owner Zip: 78583

Facility Contact Name: TED VEGA

Facility Contact Phone: 956-748-2368

Number of ASTs: 0

Number of USTs: 0

Total Number of Tanks:

Tank #	#1	#2	#3
Status:	REMOVED FROM GROUND	REMOVED FROM GROUND	REMOVED FROM GROUND
Capacity:	8000	4000	4000
Comments:			
Install Date:	1/1/1985	1/1/1985	1/1/1985
Closure Certification Date:			
Above or Below Ground Tank:	below	below	below
Unit ID:			
Construction Material:	Steel	Steel	Steel
Piping Material:	FRP (fiberglass-reinforced plastic)	FRP (fiberglass-reinforced plastic)	FRP (fiberglass-reinforced plastic)
Tank Contents:	GASOLINE	GASOLINE	GASOLINE

Automatic Tank Gauge:

Inventory Control:

Tank #	#4
Status:	REMOVED FROM GROUND
Capacity:	4000
Comments:	
Install Date:	1/1/1985
Closure Certification Date:	
Above or Below Ground Tank:	below
Unit ID:	
Construction Material:	Steel
Piping Material:	FRP (fiberglass-reinforced plastic)
Tank Contents:	DIESEL

Automatic Tank Gauge:

Inventory Control:

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - NE**PST - State/Tribal Storage Tank****Source: TCEQ****Facility #: 0011140****TCEQ Customer ID: 045356****Banks ID: 0011140**

HERNANDEZ GROC

TX 78572

Contact: BOB CANTRELL

Facility Owner Name: B CANTRELL OIL COMPANY**Facility Owner Address:****Facility Owner City:** RIO HONDO**Facility Owner State:** TX**Facility Owner Zip:** 78583**Facility Contact Name:** TED VEGA**Facility Contact Phone:** 956-748-2368**Number of ASTs:** 0**Number of USTs:** 0**Total Number of Tanks:**

Tank #	#1	#2
Status:	REMOVED FROM GROUND	REMOVED FROM GROUND
Capacity:	8000	8000
Comments:		
Install Date:	1/1/1985	1/1/1985
Closure Certification Date:		
Above or Below Ground Tank:	below	below
Unit ID:		
Construction Material:	Steel	Steel
Piping Material:	Steel	Steel
Tank Contents:	GASOLINE	GASOLINE
Automatic Tank Gauge:		
Inventory Control:		

End of PST Sites Section

Dataset Descriptions and Sources *TWDB Master Drainage Plan - NE*



Dataset	Source	Dataset Description	Update Schedule	Data Requested	Data Obtained	Data Updated	Source Updated
NPL -- National Priority List	EPA	NPL is the list of high priority hazardous waste sites in the United States eligible for long-term remedial action financed under the federal Superfund program and CERCLIS. Also known as Superfund sites, the EPA will only add sites to the NPL list based upon completion of the Hazard Ranking System (HRS) screening, public solicitation of comments about the proposed site, and after all comments have been addressed.	Quarterly	07/18/2013	11/05/2013	11/05/2013	10/25/2013
DNPL -- Delisted National Priority List	EPA	DNPL is a list of all sites that have been deleted from the EPA NPL list. These sites are taken off the NPL list usually due to no further response or remedial action being required on them. Notices to delete NPL sites are published in the Federal Register and become effective unless the EPA receives significant adverse or critical comments during the 30-day public comment period.	Quarterly	07/18/2013	11/05/2013	11/05/2013	10/25/2013
CER -- CERCLIS	EPA	CERCLIS sites come from the Comprehensive Environmental Response, Compensation, and Liability Act, a federal law designed to clean up abandoned hazardous waste sites. These sites are either proposed, listed or under review currently to be a part of the National Priority List.	Quarterly	07/18/2013	11/05/2013	11/05/2013	10/25/2013
CER NFRAP -- CERCLIS NFRAP	EPA	CERCLIS sites designated 'No Further Remedial Action Planned' NFRAP have been removed from CERCLIS. NFRAP sites may be sites where, following an initial investigation, no contamination was found, contamination was removed quickly without the site being placed on the NPL, or the contamination was not serious enough to require Federal Superfund action or NPL consideration.	Quarterly	07/18/2013	11/05/2013	11/05/2013	10/25/2013
RCRA COR -- RCRA CORRACTS	EPA	These sites are registered hazardous waste generators or handlers that fall under the Resource Conservation and Recovery Act (RCRA), and subject to corrective action activity.	Quarterly	11/19/2013	11/19/2013	11/19/2013	11/14/2013
RCRA TSD -- RCRA non-CORRACTS TSD	EPA	This database lists all treatment, storage and disposal of hazardous material sites that fall under the Resource Conservation and Recovery Act (RCRA). All hazardous waste TSD facilities are required to notify EPA of their existence.	Quarterly	11/19/2013	11/19/2013	11/19/2013	11/14/2013
RCRA GEN -- RCRA Generators	EPA	The EPA regulates all Hazardous Waste Generators subject to the Resource Conservation and Recovery Act (RCRA). They are classified by the quantity of hazardous waste generated. A Small Quantity Generator (SQG) generates between 100kg and 1,000 kg of waste per month. A Large Quantity Generator (LQG) generates over 1,000 kg of waste per month. A Conditionally Exempt SQG (CEG) generates less than 100 kg of waste per month.	Quarterly	11/19/2013	11/19/2013	11/19/2013	11/14/2013
FED BWN -- Federal Brownfields	EPA	A listing of sites that assist the EPA in collecting, tracking, and updating information of sites in relation to the Small Business Liability Relief and Brownfields Revitalization Act. These sites are real property that is either abandoned or underutilized where redevelopment or expansion is complicated by real or perceived environmental contamination.	Quarterly	11/05/2013	11/12/2013	11/12/2013	11/05/2013
FED IC -- Federal Institutional Control	EPA	This is a listing of Brownfield Management System (BMS) sites that have had Institutional Controls (ICs) placed on them. ICs are administrative restrictions, such as legal controls, that help minimize the potential for human exposure to known contamination by ensuring appropriate land or resource use. ICs are meant to supplement Engineering Controls and will rarely be the sole remedy at a site. ICs are a type of Activity and Use Limitation (AUL).	Quarterly	11/05/2013	11/12/2013	11/12/2013	11/05/2013
FED EC -- Federal Engineering Control	EPA	This is a listing of Brownfield Management System (BMS) sites that have had Engineering Controls (ECs) placed on them. ECs are physical methods or modifications put into place on a site to reduce or eliminate the possibility of human exposure to known contamination. ECs are a type of Activity and Use Limitation (AUL).	Quarterly	11/05/2013	11/12/2013	11/12/2013	11/05/2013

Dataset Descriptions and Sources TWDB Master Drainage Plan - NE



Dataset	Source	Dataset Description	Update Schedule	Data Requested	Data Obtained	Data Updated	Source Updated
ERNS -- ERNS List	EPA/National Response Center	ERNS is a national database used to store information on unauthorized releases of oil and hazardous substances that have been reported to the National Response Center since 2001. The NRC is the sole federal point of contact for reporting oil and chemical spills. Prior to 2001 this information was maintained by the EPA.	Annually	01/11/2013	01/18/2013	01/18/2013	12/31/2012
ST NPL -- State/Tribal Equivalent NPL	TCEQ	This database contains sites determined by the TCEQ that may constitute an imminent and substantial endangerment to public health and safety or to the environment due to a release or threatened release of hazardous substances into the environment.	Quarterly	11/05/2013	11/06/2013	11/06/2013	11/06/2013
ST CER -- State/Tribal Equivalent CERCLIS	NA	This database is not currently available from this state. If this state does make this database available in the future, Banks Environmental Data will obtain it for reporting purposes.	NA	N/A	N/A	N/A	N/A
SWLF -- State/Tribal Disposal or Landfill	TCEQ	The SWLF database contains records of municipal solid waste facilities that may accept various types of municipal solid waste for processing or disposal, depending on the type of facility. A Municipal Solid Waste facility may also accept certain special wastes and non-hazardous industrial solid wastes if approved by the TCEQ executive director.	Quarterly	01/07/2014	01/07/2014	01/07/2014	01/03/2014
SWLF -- State/Tribal Disposal or Landfill	TCEQ	This database is a listing of closed and abandoned municipal solid waste landfills. The sites included are either unauthorized (UNUM_) or permitted (PERMAPP_).	NA	N/A	N/A	N/A	N/A
LPST -- State/Tribal Leaking Storage Tank	TCEQ	This database contains information on leaking storage tanks, equipment failures, compliance, and releases in the state.	Quarterly	11/08/2013	11/08/2013	11/08/2013	11/07/2013
LPST -- State/Tribal Leaking Storage Tank	EPA	The Tribal LUST database (maintained by EPA Region 6) provides information on leaking underground storage tank on tribal lands in Louisiana, Arkansas, Oklahoma, New Mexico and Tribal Nations.	Quarterly	10/28/2013	10/30/2013	10/30/2013	10/30/2013
PST -- State/Tribal Storage Tank	TCEQ	This database contains information on above and underground storage tanks, compliance, and releases in the state.	Quarterly	11/08/2013	11/08/2013	11/08/2013	11/07/2013
PST -- State/Tribal Storage Tank	EPA	The Tribal UST database (maintained by EPA Region 6) provides underground storage tank information on tribal lands in Louisiana, Arkansas, Oklahoma, New Mexico and Tribal Nations.	Quarterly	10/28/2013	10/30/2013	10/30/2013	10/30/2013
ST IC -- State/Tribal Institutional Control	TCEQ	This database includes Voluntary Cleanup Program (VCP) or Innocent Operator Program (IOP) sites that have been remediated and have had Institutional Controls (ICs) placed on them. ICs are administrative restrictions, such as legal controls, that help minimize the potential for human exposure to known contamination by ensuring appropriate land or resource use.	Quarterly	11/13/2013	11/18/2013	11/18/2013	11/04/2013
ST IC -- State/Tribal Institutional Control	RRC	The Railroad Commission of Texas Voluntary Cleanup Program provides an incentive to remediate Oil & Gas related pollution by participants as long as they did not cause or contribute to the contamination.	Quarterly	11/08/2013	11/13/2013	11/18/2013	11/13/2013
ST EC -- State/Tribal Engineering Control	TCEQ	This database includes Voluntary Cleanup Program (VCP) or Innocent Operator Program (IOP) sites that have been remediated and have had Engineering Controls (ECs) placed on them. ECs are physical methods or modifications put into place on a site to reduce or eliminate the possibility of human exposure to known contamination.	Quarterly	11/13/2013	11/18/2013	11/18/2013	11/04/2013

Dataset Descriptions and Sources *TWDB Master Drainage Plan - NE*



Dataset	Source	Dataset Description	Update Schedule	Data Requested	Data Obtained	Data Updated	Source Updated
VCP -- State/Tribal Voluntary Cleanup	TCEQ	This database contains sites from both the Voluntary Cleanup Program (VCP) and the Innocent Operator Program (IOP). The VCP records contain information on contaminated sites that private parties have cleaned up through assistance from the State in the form of administrative, technical, and legal incentives. The IOP records are sites that have received certificates from the State acknowledging that their property is contaminated as a result of a release or migration of contaminants from a source or sources not located on the property, and they did not cause or contribute to the source or sources of contamination.	Quarterly	11/13/2013	11/18/2013	11/18/2013	11/04/2013
VCP -- State/Tribal Voluntary Cleanup	RRC	The Railroad Commission of Texas Voluntary Cleanup Program provides an incentive to remediate Oil & Gas related pollution by participants as long as they did not cause or contribute to the contamination.	Quarterly	11/08/2013	11/13/2013	11/18/2013	11/13/2013
ST BWN -- State/Tribal Brownfield	TCEQ	Brownfield sites are former industrial properties that lie dormant or underutilized due to liability associated with real or perceived contamination. In Texas, the TCEQ, in close partnership with the EPA and other federal, state, and local redevelopment agencies, and stakeholders, is facilitating cleanup, transferability, and revitalization of Brownfield's through the development of regulatory, tax, and technical assistance tools.	Quarterly	11/18/2013	11/18/2013	11/19/2013	11/04/2013
ST BWN -- State/Tribal Brownfield	RRC	The Railroad Commission of Texas' Voluntary Cleanup Program (RRC-VCP) provides an incentive to remediate Oil & Gas related pollution by participants as long as they did not cause or contribute to the contamination. Applicants to the program receive a release of liability to the state in exchange for a successful cleanup.	Quarterly	11/08/2013	11/13/2013	11/19/2013	11/13/2013
HW -- State/Tribal Hazardous Waste	TCEQ	This database contains information on facilities which store, process, or dispose of hazardous waste as maintained by the Industrial and Hazardous Waste Permits section of the TCEQ.	Quarterly	11/08/2013	11/13/2013	11/13/2013	10/05/2013
RCRA -- RCRA	EPA	This database lists all sites that fall under the Resource Conservation and Recovery Act (RCRA) and are not classifiable as treatment, storage, disposers of hazardous material, hazardous waste generator or subject to corrective action activity.	Quarterly	11/19/2013	11/19/2013	11/19/2013	11/14/2013
DRYC -- Dry Cleaners	TCEQ	Dry Cleaner data houses both the DCRP Program information and PERC information released by the TCEQ. The DCRP database contains records funded for state-lead clean up of dry cleaner related contaminated sites. The DCRP administers the Dry Cleaning Facility Release Fund to assist with remediation of contamination caused by dry cleaning solvents. There are two listings from this program: LIST#1 - A historic listing of any facility that registered with the DCRP indicating whether or not the facility has used Perchloroethylene (PERC) in the past. LIST#2 - A Prioritization list of dry cleaner sites Facilities on this list will be investigated in order to determine the existence and or extent of possible contamination. Facilities which are not current on their DCRP payments get dropped from the program. Banks Environmental Data DOES NOT REMOVE these listings from our database so that we may present a more complete historical listing of facilities that may or may not have used PERC in the past.	Quarterly	11/05/2013	11/06/2013	11/07/2013	11/06/2013

Disclaimer TWDB Master Drainage Plan - NE

The Banks Environmental Data Regulatory Database Report was prepared based upon data obtained from State, Tribal, and Federal sources known to Banks Environmental Data at the time the data was obtained. Great care has been taken by Banks in obtaining the best available data from the best available sources. However, there is a possibility that there are sources of data applicable or pertaining to this report's target property, and/or surrounding properties, to which Banks does not have access or has not accessed. Furthermore, although Banks Environmental Data performs quality assurance and quality control on all data, including data it obtains, Banks recognizes that inaccuracies in data from these sources may, and do, exist; accordingly, inaccurate data may have been used or relied upon in the preparation of this report. Even though Banks Environmental Data performs a thorough and diligent search to locate and fix any inaccuracies in the data relied upon in the preparation of this report and this report, Banks cannot guarantee or warrant the accuracy of the locations, information, data, or report. The purchaser of this report accepts this report "as is" and assumes all risk related to any potential inaccuracy contained in the report or not reported in it, whether due to a reliance by Banks Environmental Data on inaccurate data, or for any other reason [including but not limited to the negligence or express negligence of Banks Environmental Data]. If this report is being used for the Records Review section of a Phase I Site Assessment according to the ASTM 1527-13, for EPA's All Appropriate Inquiry, or for any other purpose (public or private), all liability and responsibility is assumed by the Environmental Professional or other individual or entity acquiring the report.

Prepared for:

RABA KISTNER, INC-HOUSTON
3602 Westchase
Houston, TX 77042



Regulatory Database Report

ASTM E 1527-13/AAI Compliant

TWDB Master Drainage Plan - NW

TX

Hidalgo County

PO #: 151915

ES-108904

Thursday, January 09, 2014

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Geographic Summary TWDB Master Drainage Plan - NW**Location**

Hidalgo, TX

Target location is 5 miles in length

Coordinates

Longitude & Latitude in Degrees Minutes Seconds NA

Longitude & Latitude in Decimal Degrees NA

X and Y in UTM NA

Elevation

NA

Zip Codes Searched

Search Distance	Zip Codes
Target Property	78541, 78504, 78538, 78539, 78560, 78563, 78572, 78595
0.25 miles	78541, 78504, 78538, 78539, 78560, 78563, 78572, 78595
0.5 miles	78541, 78504, 78538, 78539, 78560, 78563, 78572, 78595
1 mile	78541, 78504, 78538, 78539, 78560, 78563, 78572, 78595, 78542, 78516, 78537, 78538, 78539, 78543, 78549, 78558, 78589

Topos Searched

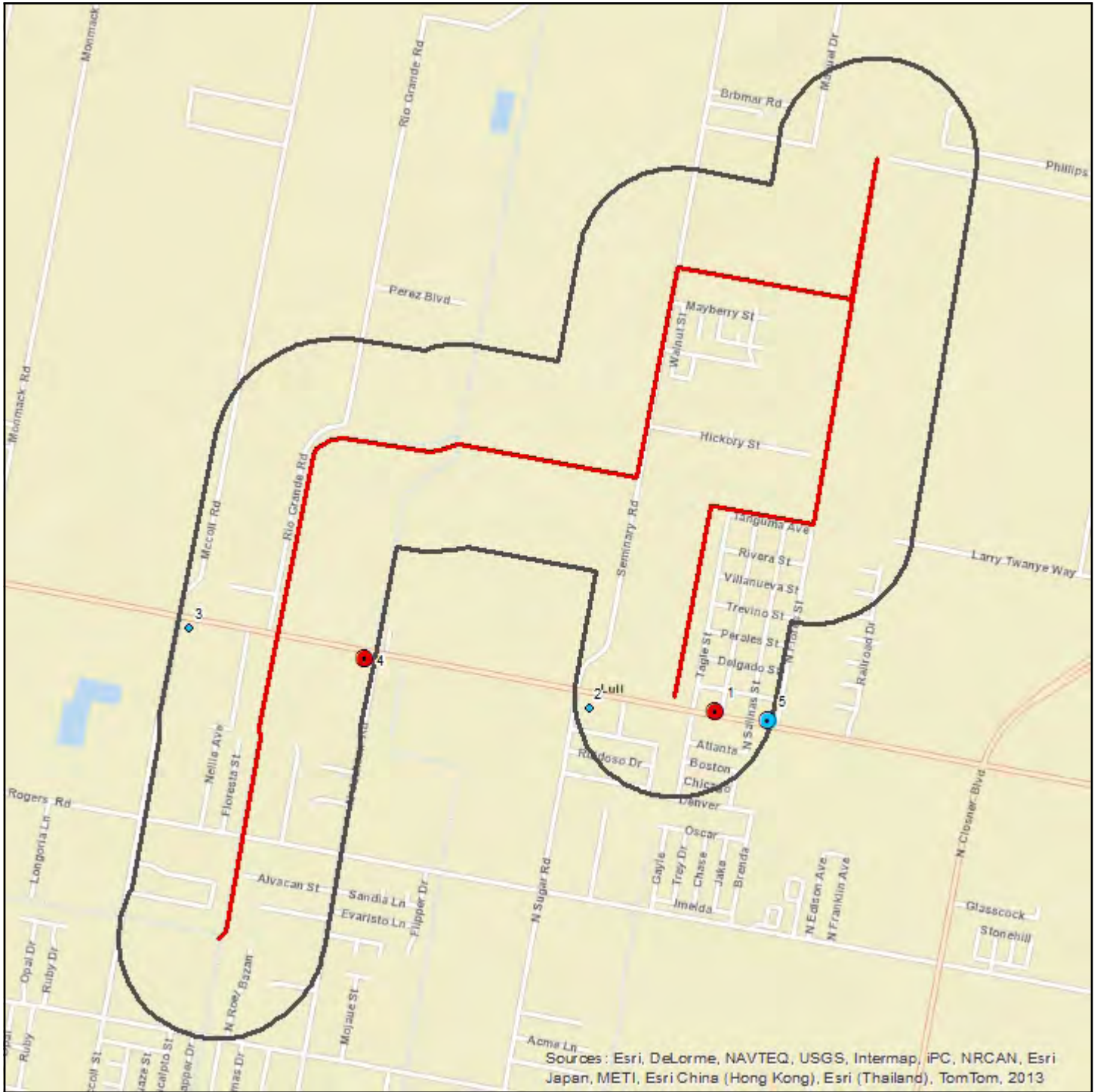
Search Distance	Topo Name
Target Property	Edinburg (1984)
0.25 miles	Edinburg (1984)
0.5 miles	Edinburg (1984)
1 mile	Edinburg (1984)

Database Summary TWDB Master Drainage Plan - NW



Databases Searched	Distance Searched	# Mapped	# Not Mapped	Total
Federal - ASTM 1527-13/AAI Required				
National Priority List (NPL)	1	0	0	0
Delisted National Priority List (DNPL)	0.5	0	0	0
CERCLIS (CER)	0.5	0	0	0
CERCLIS NFRAP (CER NFRAP)	0.5	0	2	2
RCRA CORRACTS (RCRA COR)	1	0	0	0
RCRA non-CORRACTS TSD (RCRA TSD)	0.5	0	0	0
RCRA Generators (RCRA GEN)	0.25	1	0	1
Federal Brownfields (FED BWN)	0.5	0	0	0
Federal Institutional Control (FED IC)	0.5	0	0	0
Federal Engineering Control (FED EC)	0.5	0	0	0
ERNS List (ERNS)	0.25	0	2	2
State - ASTM 1527-13/AAI Required				
State/Tribal Equivalent NPL (ST NPL)	1	0	0	0
State/Tribal Equivalent CERCLIS (ST CER)	0.5	0	0	0
State/Tribal Disposal or Landfill (SWLF)	0.5	0	1	1
State/Tribal Leaking Storage Tank (LPST)	0.5	3	1	4
State/Tribal Storage Tank (PST)	0.25	7	13	20
State/Tribal Institutional Control (ST IC)	0.25	0	0	0
State/Tribal Engineering Control (ST EC)	0.5	0	0	0
State/Tribal Voluntary Cleanup (VCP)	0.5	0	0	0
State/Tribal Brownfield (ST BWN)	0.5	0	0	0
State/Tribal Hazardous Waste (HW)	0.25	1	0	1
Non-ASTM/AAI Required Databases				
RCRA (RCRA)	0.25	0	0	0
Dry Cleaners (DRYC)	0.25	0	0	0
Total Sites Found		12	19	31

Summary Map - 0.25 Mile Buffer



Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2013

TWDB Master Drainage Plan - NW

- | | | | |
|--|---|---|--|
| ● Single Site | ● Cluster Site | ■ Large Tract | ● Cluster Site with Large Tract |
| <i>RCRA COR, RCRA TSD, CER, LPST, NPL, ST NPL, SWLF</i> | | | |
| ● Single Site | ● Cluster Site | ■ Large Tract | ● Cluster Site with Large Tract |
| <i>RCRA GEN, ST & FED BWN, ST & FED EC, ST & FED IC, DNPL, CER NFRAP, PST, VCP, ST CER</i> | | | |
| ● Single Site | ● Cluster Site | ■ Large Tract | ● Cluster Site with Large Tract |
| <i>ERNS, HW, RCRA, DRYC</i> | | | |

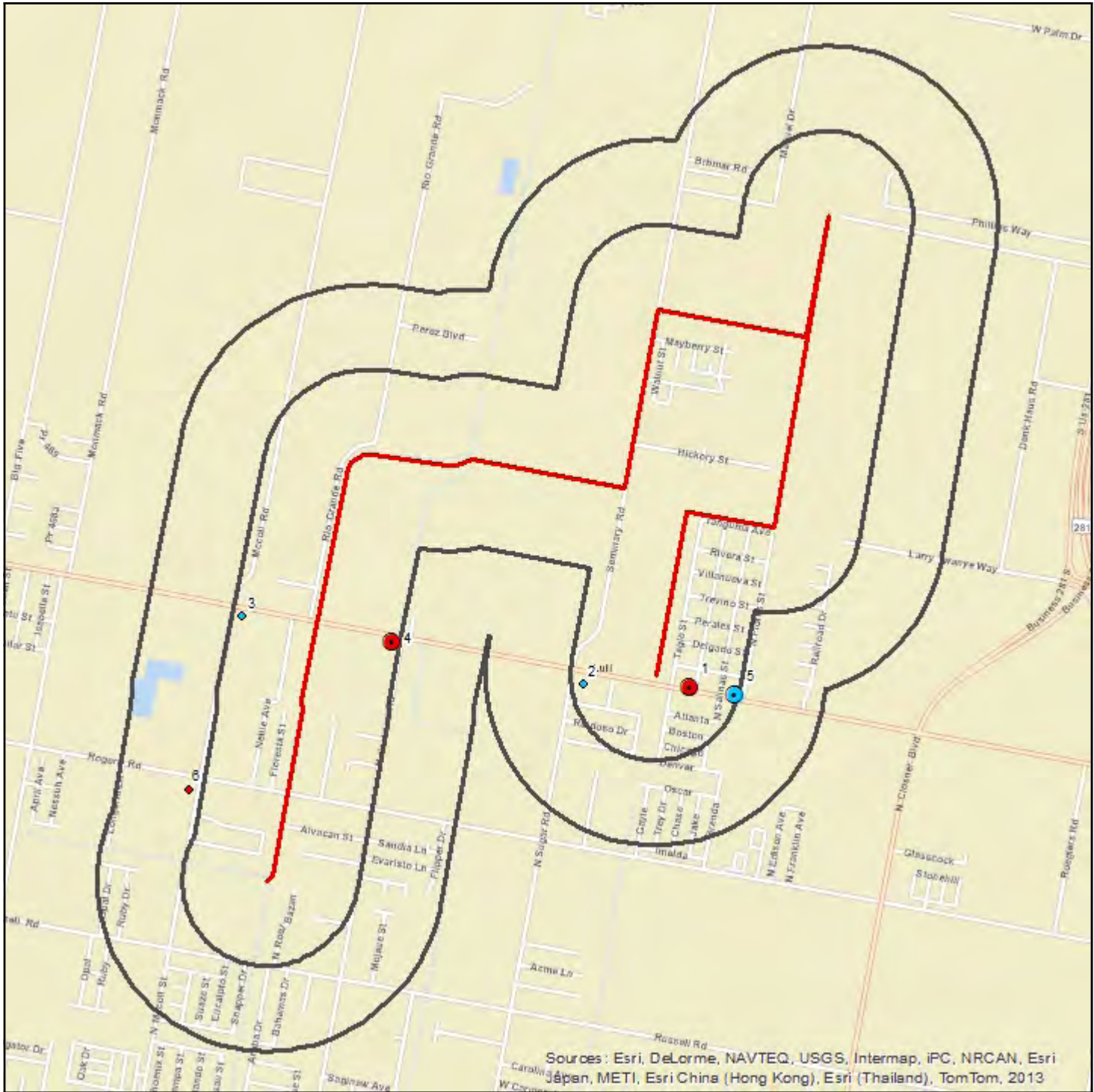
- Target Property
- Search Buffer

1 : 23,000
 1 inch = 0.363 miles
 1 inch = 1917 feet
 1 centimeter = 0.230 kilometers
 1 centimeter = 230 meters

Lambert Conformal Conic Projection
 1983 North American Datum
 First Standard Parallel: 33° 00' North
 Second Standard Parallel: 45° 00' North
 Central Meridian: 96° 00' West
 Latitude of Origin: 39° 00' North



Summary Map - 0.5 Mile Buffer



Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2013

TWDB Master Drainage Plan - NW

- | | | | |
|--|--|--|---|
| ● Single Site | ● Cluster Site | Large Tract | ● Cluster Site with Large Tract |
| ● Single Site | ● Cluster Site | Large Tract | ● Cluster Site with Large Tract |
| ● Single Site | ● Cluster Site | Large Tract | ● Cluster Site with Large Tract |
- RCRA COR, RCRA TSD, CER, LPST, NPL, ST NPL, SWLF
● RCRA GEN, ST & FED BWN, ST & FED EC, ST & FED IC, DNPL, CER NFRAP, PST, VCP, ST CER
● ERNS, HW, RCRA, DRYC

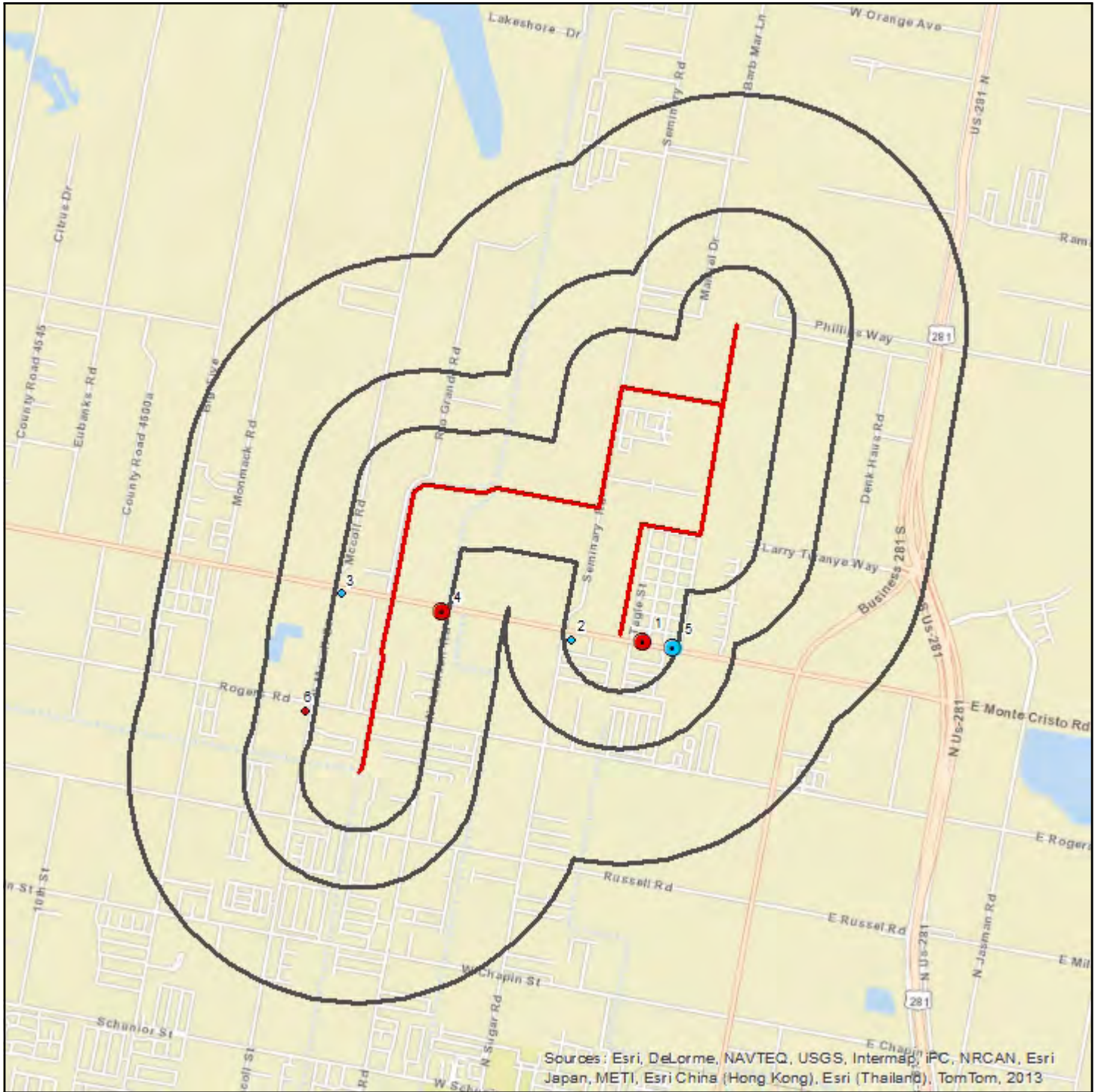
- Target Property
- Search Buffer

1 : 27,000
 1 inch = 0.426 miles
 1 inch = 2250 feet
 1 centimeter = 0.270 kilometers
 1 centimeter = 270 meters



Lambert Conformal Conic Projection
 1983 North American Datum
 First Standard Parallel: 33° 00' North
 Second Standard Parallel: 45° 00' North
 Central Meridian: 96° 00' West
 Latitude of Origin: 39° 00' North

Summary Map - 1 Mile Buffer



TWDB Master Drainage Plan - NW

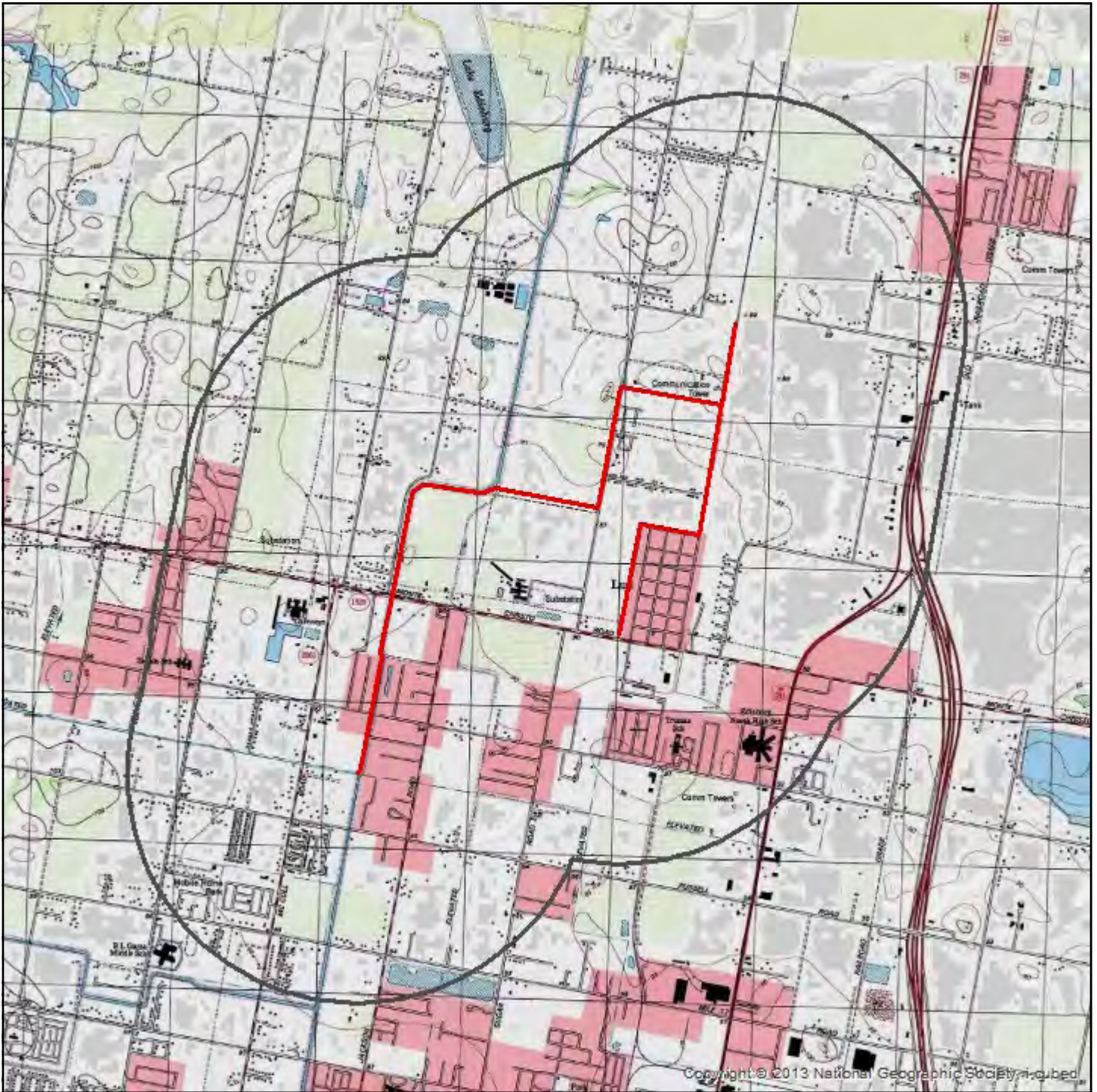
- | | | | | |
|--|---|--|--|--|
| ● Single Site | ● Cluster Site | ■ Large Tract | ● Cluster Site with Large Tract | — Target Property |
| ● Single Site | ● Cluster Site | ■ Large Tract | ● Cluster Site with Large Tract | Search Buffer |
| ● Single Site | ● Cluster Site | ■ Large Tract | ● Cluster Site with Large Tract | |
- RCRA COR, RCRA TSD, CER, LPST, NPL, ST NPL, SWLF
● RCRA GEN, ST & FED BWN, ST & FED EC, ST & FED IC, DNPL, CER NFRAP, PST, VCP, ST CER
● ERNS, HW, RCRA, DRYC

1 : 40,000
 1 inch = 0.631 miles
 1 inch = 3333 feet
 1 centimeter = 0.400 kilometers
 1 centimeter = 400 meters

Lambert Conformal Conic Projection
 1983 North American Datum
 First Standard Parallel: 33° 00' North
 Second Standard Parallel: 45° 00' North
 Central Meridian: 96° 00' West
 Latitude of Origin: 39° 00' North



Topographic Overlay Map - 1 Mile Buffer



TWDB Master Drainage Plan - NW

- Target Property
- Search Buffer

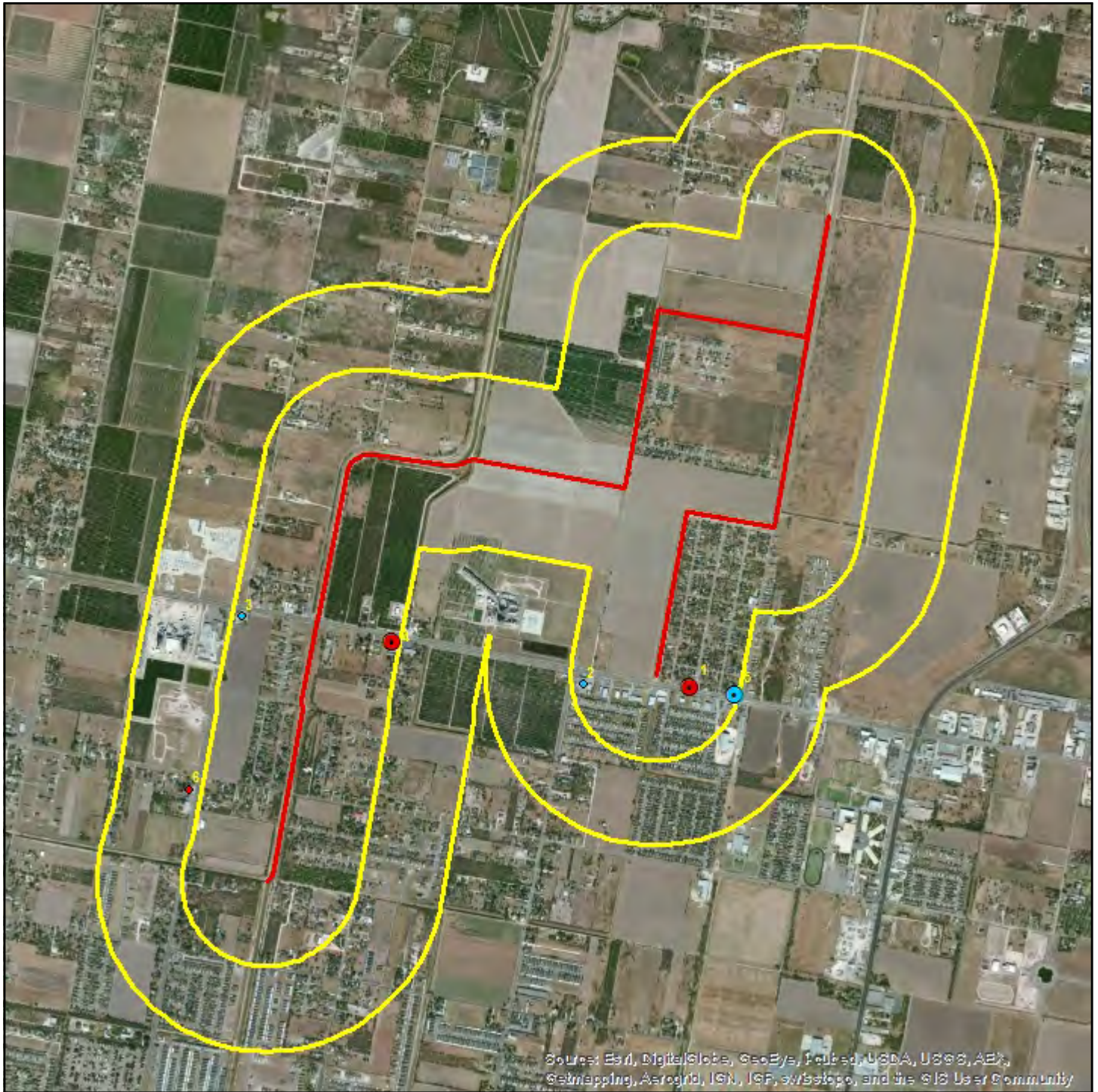
Target Property Quad Name
Edinburg (1984)

1 : 40,000
1 inch = 0.631 miles
1 inch = 3333 feet
1 centimeter = 0.400 kilometers
1 centimeter = 400 meters

Lambert Conformal Conic Projection
1983 North American Datum
First Standard Parallel: 33° 00' North
Second Standard Parallel: 45° 00' North
Central Meridian: 96° 00' West
Latitude of Origin: 39° 00' North



Current Imagery Overlay Map - 0.5 Mile Buffer



TWDB Master Drainage Plan - NW

- | | | | | |
|--|---|--|--|---|
| ● Single Site | ● Cluster Site | ■ Large Tract | ● Cluster Site with Large Tract | — Target Property |
| ● Single Site | ● Cluster Site | ■ Large Tract | ● Cluster Site with Large Tract | — Search Buffer |
| ● Single Site | ● Cluster Site | ■ Large Tract | ● Cluster Site with Large Tract | |
- RCRA COR, RCRA TSD, CER, LPST, NPL, ST NPL, SWLF*
RCRA GEN, ST & FED BWN, ST & FED EC, ST & FED IC, DNPL, CER NFRAP, PST, VCP, ST CER
ERNS, HW, RCRA, DRYC

1 : 27,000
 1 inch = 0.426 miles
 1 inch = 2250 feet
 1 centimeter = 0.270 kilometers
 1 centimeter = 270 meters



Lambert Conformal Conic Projection
 1983 North American Datum
 First Standard Parallel: 33° 00' North
 Second Standard Parallel: 45° 00' North
 Central Meridian: 96° 00' West
 Latitude of Origin: 39° 00' North

Soil Survey Map - 0.1 Mile Buffer



Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2013

TWDB Master Drainage Plan - NW

- | | | | |
|--|---|--|--|
| ● Single Site | ● Cluster Site | ■ Large Tract | ● Cluster Site with Large Tract |
| <i>RCRA COR, RCRA TSD, CER, LPST, NPL, ST NPL, SWLF</i> | | | |
| ● Single Site | ● Cluster Site | ■ Large Tract | ● Cluster Site with Large Tract |
| <i>RCRA GEN, ST & FED BWN, ST & FED EC, ST & FED IC, DNPL, CER NFRAP, PST, VCP, ST CER</i> | | | |
| ● Single Site | ● Cluster Site | ■ Large Tract | ● Cluster Site with Large Tract |
| <i>ERNS, HW, RCRA, DRYC</i> | | | |

- Target Property
- Search Buffer
- Soils Boundary

1 : 4,000
 1 inch = 0.063 miles
 1 inch = 333 feet
 1 centimeter = 0.040 kilometers
 1 centimeter = 40 meters

Lambert Conformal Conic Projection
 1983 North American Datum
 First Standard Parallel: 33° 00' North
 Second Standard Parallel: 45° 00' North
 Central Meridian: 96° 00' West
 Latitude of Origin: 39° 00' North



Soils TWDB Master Drainage Plan - NW**Soils Types Found**

Target Property 28, 26, 25, 52, 52, 30, 39, 52, 28, 31

Within 0.1 miles of Target Property 28, 26, 26, 25, 53, 52, 31, 54, 52, 30, 39, 25, 3, 31, 52, 60, 28, 52, 60, 31, 53

Soil Type Descriptions**25 - Hidalgo fine sandy loam, 0 to 1 percent slopes**

Hydric Status 0

Minimum Depth to Bedrock

Hidalgo (80 percent)

Hydrologic Group Moderately low runoff potential

Soil Drainage Class Well drained

Corrosion Potential - Uncoated Steel High

Depth to Restrictive Feature

Horizon	Soil Texture	Upper Boundary	Lower Boundary	AASHTO	Unified
H1	Fine sandy loam	0 cm	43 cm	A-4, A-6	SC, SC-SM, SM
H2	Sandy clay loam	43 cm	71 cm	A-6	CL, SC
H3	Sandy clay loam	71 cm	203 cm	A-6, A-7-6	CL, SC

Unnamed, minor components (20 percent)**26 - Hidalgo fine sandy loam, 1 to 3 percent slopes**

Hydric Status 0

Minimum Depth to Bedrock

Hidalgo (85 percent)

Hydrologic Group Moderately low runoff potential

Soil Drainage Class Well drained

Corrosion Potential - Uncoated Steel High

Depth to Restrictive Feature

Horizon	Soil Texture	Upper Boundary	Lower Boundary	AASHTO	Unified
H1	Fine sandy loam	0 cm	43 cm	A-4, A-6	SC, SC-SM, SM
H2	Sandy clay loam	43 cm	71 cm	A-6	CL, SC
H3	Sandy clay loam	71 cm	203 cm	A-6, A-7-6	CL, SC

Unnamed, minor components (15 percent)**28 - Hidalgo sandy clay loam, 0 to 1 percent slopes**

Hydric Status 0

Minimum Depth to Bedrock

Hidalgo (80 percent)

Hydrologic Group Moderately low runoff potential

Soil Drainage Class Well drained

Corrosion Potential - Uncoated Steel High

Depth to Restrictive Feature

Horizon	Soil Texture	Upper Boundary	Lower Boundary	AASHTO	Unified
H1	Sandy clay loam	0 cm	43 cm	A-6	CL, SC
H2	Sandy clay loam	43 cm	71 cm	A-6	CL, SC
H3	Sandy clay loam	71 cm	203 cm	A-6, A-7-6	CL, SC

Unnamed, minor components (20 percent)**3 - Brennan fine sandy loam, 0 to 1 percent slopes**

Hydric Status 0

Minimum Depth to Bedrock

Soils TWDB Master Drainage Plan - NW**Brennan (85 percent)**

Hydrologic Group	Moderately low runoff potential
Soil Drainage Class	Well drained
Corrosion Potential - Uncoated Steel	Moderate
Depth to Restrictive Feature	

Horizon	Soil Texture	Upper Boundary	Lower Boundary	AASHTO	Unified
H1	Fine sandy loam	0 cm	33 cm	A-2-4, A-4	SC, SC-SM, SM
H2	Sandy clay loam	33 cm	165 cm	A-2-4, A-2-6, A-4, A-6	CL, SC

Unnamed, minor components (15 percent)**30 - Hidalgo sandy clay loam, saline, 0 to 1 percent slopes**

Hydric Status	0
Minimum Depth to Bedrock	

Hidalgo (85 percent)

Hydrologic Group	Moderately low runoff potential
Soil Drainage Class	Well drained
Corrosion Potential - Uncoated Steel	High
Depth to Restrictive Feature	

Horizon	Soil Texture	Upper Boundary	Lower Boundary	AASHTO	Unified
H1	Sandy clay loam	0 cm	43 cm	A-6	CL, SC
H2	Sandy clay loam	43 cm	71 cm	A-2-6, A-6	CL, SC
H3	Sandy clay loam	71 cm	203 cm	A-6, A-7-6	CL, SC

Unnamed, minor components (15 percent)**31 - Hidalgo-Urban land complex, 0 to 3 percent slopes**

Hydric Status	0
Minimum Depth to Bedrock	

Hidalgo (50 percent)

Hydrologic Group	Moderately low runoff potential
Soil Drainage Class	Well drained
Corrosion Potential - Uncoated Steel	High
Depth to Restrictive Feature	

Horizon	Soil Texture	Upper Boundary	Lower Boundary	AASHTO	Unified
H1	Fine sandy loam	0 cm	43 cm	A-4, A-6	SC, SC-SM, SM
H2	Sandy clay loam	43 cm	71 cm	A-6	CL, SC
H3	Sandy clay loam	71 cm	203 cm	A-6, A-7-6	CL, SC

Urban land (30 percent)

Horizon	Soil Texture	Upper Boundary	Lower Boundary	AASHTO	Unified
H1	Variable	0 cm	102 cm		

Unnamed, minor components (20 percent)**39 - Mercedes clay, 0 to 1 percent slopes**

Hydric Status	0
Minimum Depth to Bedrock	

Mercedes (85 percent)

Hydrologic Group	High runoff potential
Soil Drainage Class	Moderately well drained
Corrosion Potential - Uncoated Steel	High
Depth to Restrictive Feature	

Soils TWDB Master Drainage Plan - NW

Horizon	Soil Texture	Upper Boundary	Lower Boundary	AASHTO	Unified
H1	Clay	0 cm	48 cm	A-7-6	CH
H2	Clay	48 cm	145 cm	A-7-6	CH
H3	Clay	145 cm	165 cm	A-7-6	CH, CL

Unnamed, minor components (15 percent)

52 - Raymondville clay loam, 0 to 1 percent slopes

Hydric Status 0

Minimum Depth to Bedrock

Raymondville (85 percent)

Hydrologic Group Moderately high runoff potential

Soil Drainage Class Moderately well drained

Corrosion Potential - Uncoated Steel High

Depth to Restrictive Feature

Horizon	Soil Texture	Upper Boundary	Lower Boundary	AASHTO	Unified
H1	Clay loam	0 cm	38 cm	A-6, A-7-6	CL
H2	Clay loam	38 cm	109 cm	A-6, A-7-6	CH, CL
H3	Clay	109 cm	165 cm	A-7-6	CH, CL

Unnamed, minor components (15 percent)

53 - Raymondville clay loam, saline, 0 to 1 percent slopes

Hydric Status 0

Minimum Depth to Bedrock

Raymondville (85 percent)

Hydrologic Group Moderately high runoff potential

Soil Drainage Class Moderately well drained

Corrosion Potential - Uncoated Steel High

Depth to Restrictive Feature

Horizon	Soil Texture	Upper Boundary	Lower Boundary	AASHTO	Unified
H1	Clay loam	0 cm	38 cm	A-6, A-7-6	CL
H2	Clay loam	38 cm	109 cm	A-6, A-7-6	CH, CL
H3	Clay	109 cm	165 cm	A-7-6	CH, CL

Unnamed, minor components (15 percent)

54 - Raymondville-Urban land complex, 0 to 1 percent slopes

Hydric Status 0

Minimum Depth to Bedrock

Raymondville (50 percent)

Hydrologic Group Moderately high runoff potential

Soil Drainage Class Moderately well drained

Corrosion Potential - Uncoated Steel High

Depth to Restrictive Feature

Horizon	Soil Texture	Upper Boundary	Lower Boundary	AASHTO	Unified
H1	Clay loam	0 cm	38 cm	A-6, A-7-6	CL
H2	Clay loam	38 cm	109 cm	A-6, A-7-6	CH, CL
H3	Clay	109 cm	165 cm	A-7-6	CH, CL

Urban land (30 percent)

Horizon	Soil Texture	Upper Boundary	Lower Boundary	AASHTO	Unified
H1	Variable	0 cm	102 cm		

Unnamed, minor components (20 percent)

Soils TWDB Master Drainage Plan - NW



60 - Rio clay loam	
Hydric Status	95
Minimum Depth to Bedrock	

Rio (87 percent)	
Hydrologic Group	Moderately high runoff potential when drained and high runoff potential undrained
Soil Drainage Class	Somewhat poorly drained
Corrosion Potential - Uncoated Steel	High
Depth to Restrictive Feature	

Horizon	Soil Texture	Upper Boundary	Lower Boundary	AASHTO	Unified
H1	Clay loam	0 cm	30 cm	A-6, A-7	CL
H2	Clay	30 cm	97 cm	A-7-6	CH, CL
H3	Clay loam	97 cm	160 cm	A-7-6	CL

Tiocano (8 percent)	
Hydrologic Group	
Soil Drainage Class	Somewhat poorly drained
Corrosion Potential - Uncoated Steel	
Depth to Restrictive Feature	

Unnamed, minor components (5 percent)	
--	--

Soils Descriptions TWDB Master Drainage Plan - NW**AASHTO Classification Definitions**

A-1, A-1-a, A-1-b	Granular materials (35% or less passing No. 200 sieve), silt fragments, gravel and sand
A-2, A-2-4, A-2-5, A-2-6, A-2-7	Granular materials (35% or less passing No. 200 sieve), silty or clayey gravel and sand
A-3	Granular materials (35% or less passing No. 200 sieve), fine sand
A-4	Silt-Clay materials (more than 35% passing No. 200 sieve), silty soils
A-5	Silt-Clay materials (more than 35% passing No. 200 sieve), silty soils
A-6	Silt-Clay materials (more than 35% passing No. 200 sieve), clayey soils
A-7, A-7-5, A-7-6	Silt-Clay materials (more than 35% passing No. 200 sieve), clayey soils
A-8	Silt-Clay materials (more than 35% passing No. 200 sieve), clayey soils

Unified Classification Definitions

CH	Fine-grained soils, silts and clays (liquid limit is 50% or more), Fat Clay
CL, CL-A (proposed), CL-K (proposed), CL-ML, CL-O (proposed), CL-T (proposed)	Fine-grained soils, silts and clays (liquid limit is less than 50%), Lean Clay
GC, GC-GM	Coarse-grained soils, Gravels, gravel with fines, Clayey Gravel
GM	Coarse-grained soils, Gravels, gravel with fines, Silty Gravel
GP, GP-GC, GP-GM	Coarse-grained soils, Gravels, clean gravels, Poorly Graded Gravel
GW, GW-GC, GW-GM	Coarse-grained soils, Gravels, clean gravels, Well-Graded Gravel
MH, MH-A, MH-K, MH-O, MH-T	Fine-grained soils, silts and clays (liquid limit is 50% or more), Elastic Silt
ML, ML-A (proposed), ML-K (proposed), ML-O (proposed), ML-T (proposed)	Fine-grained soils, silts and clays (liquid limit is less than 50%), Silt
OH, OH-T (proposed)	Fine-grained soils, silts and clays (liquid limit is 50% or more), Organic Clay or Organic Silt
OL	Fine-grained soils, silts and clays (liquid limit is less than 50%), Organic Clay or Organic Silt
PT	Highly organic soils, Peat
SC, SC-SM	Coarse-grained soils, Sands, sands with fines, Clayey Sand
SM	Coarse-grained soils, Sands, sands with fines, Silty Sand
SP, SP-SC, SP-SM	Coarse-grained soils, Sands, clean sands, Poorly Graded Sand
SW, SW-SC, SW-SM	Coarse-grained soils, Sands, clean sands, Well-Graded Sand

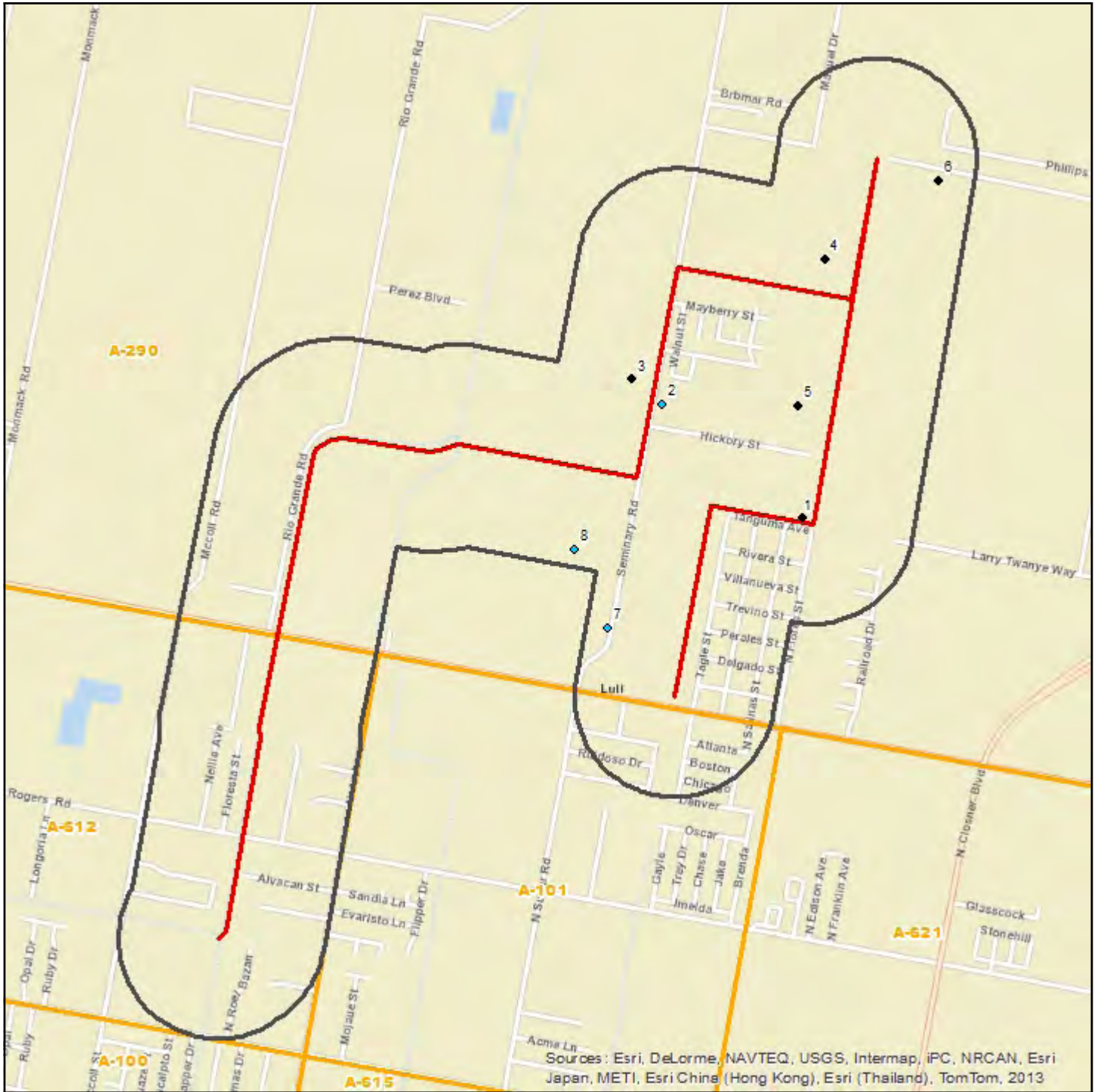
Source

Natural Resources Conservation Service, Soil Survey Geographic (SSURGO) Database.

Disclaimer

This Soils Survey from Banks Environmental Data, Inc. has searched Natural Resources Conservation Service (NRCS) and the Soil Survey Geographic Database (SSURGO). All soil data presented on the map and in the details section are based on information obtained from NRCS. Although Banks performs quality assurance and quality control on all data, inaccuracies of the data and mapped locations could possibly be traced to the source. Banks Environmental Data, Inc. cannot fully guarantee the accuracy of the SSURGO database maintained by NRCS.

Water & Oil/Gas Wells Map - 0.25 Mile Buffer



TWDB Master Drainage Plan - NW

- Single Water Well
- Water Well Cluster
- Single Oil/Gas/Other Well
- Oil/Gas/Other Well Cluster
- ◆ Water/Oil/Gas/Other Well Cluster

- Target Property
- Search Buffer
- Texas Land Survey

1 : 23,000
 1 inch = 0.363 miles
 1 inch = 1917 feet
 1 centimeter = 0.230 kilometers
 1 centimeter = 230 meters



Lambert Conformal Conic Projection
 1983 North American Datum
 First Standard Parallel: 33° 00' North
 Second Standard Parallel: 45° 00' North
 Central Meridian: 96° 00' West
 Latitude of Origin: 39° 00' North

Water & Oil/Gas Wells TWDB Master Drainage Plan - NW

Map ID	Well ID	Owner	Well Type	Elevation
1	42-215-00957-00		Plugged & Abandoned	85 ft
2	87-47-202	Baptist Seminary	Water: Domestic	96 ft
3	42-215-00956-00		Plugged & Abandoned	93 ft
4	42-215-30892-00		Plugged & Abandoned	84 ft
5	42-215-00958-00		Plugged & Abandoned	85 ft
6	42-215-30980-00		Plugged & Abandoned	88 ft
7	87-47-209	Calpine Hidalgo Energy Center	Water: Unused	88 ft
8	87-47-208	Calpine Hidalgo Energy Center	Water: Unused	86 ft

Source

U.S. Geological Survey, Texas Water Development Board (GW and Submitted Driller's Report), Texas Commission of Environmental Quality (PWS), Railroad Commission of Texas (Production Data)

Disclaimer

This well scan from Banks Environmental Data, Inc. has included a digital search of state and federal wells currently digitized in our geospatial database. Since this scan includes only well data that is currently mapped in our geospatial database, more wells could exist within the search area. For a complete well search or to locate more details, please contact Banks to obtain a full Water Well Report or Oil & Gas Well/Pipeline Search Report. More detailed individual well records can also be obtained from Banks for an additional cost, please reference a Well ID # from this well scan.

All well locations are based on information obtained from state and federal sources. Although Banks performs quality assurance and quality control on all data, inaccuracies of the records and mapped locations could possibly be traced to the specific regulatory authority or individual well driller. Banks Environmental Data, Inc. cannot fully guarantee the accuracy of the data or well location(s) of the maps and records maintained by the state and federal agencies.

Mapped Sites Summary TWDB Master Drainage Plan - NW

Database	Distance from Target Property	Map ID	Facility Site Name	Facility Site Address	Site Details Page #
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*Sites are sorted by database tier, database, and distance from the target site.

RCRA GEN	0.24 miles E	5	BJ SERVICES COMPANY USA LP	825 FM 1925, EDINBURG, TX 78541	21
LPST	0.09 miles E	1	LULLS GROCERY	1015 W MONTE CRISTO RD W MONTO CRISTO RD, EDINBURG, TX 78539	23
LPST	0.23 miles E	4	CANTUS COUNTRY MART	2202 W MONTE CRISTO RD, EDINBURG, TX 78539	24
LPST	0.29 miles NW	6	CHEMOS COUNTRY MARKET	RT 4 NORTH MCCOLL ROAD AND ROGERS RD., EDINBURG, TX 78539	25
PST	0.11 miles E	1	MONTE CRISTO	1001 W MONTE CRISTO RD, EDINBURG, TX 78541	26
PST	0.09 miles E	1	LULLS GROCERY	1015 W MONTE CRISTO RD, EDINBURG, TX 78541	27
PST	0.21 miles W	2	AZIZ QUICK STOP 22	1510 W MONTE CRISTO RD, EDINBURG, TX 78541	28
PST	0.22 miles W	3	EL TIGRE FOOD STORE 8	2828 W MONTE CRISTO RD, EDINBURG, TX 78541	29
PST	0.23 miles E	4	STRIPES 2404	2202 W MONTE CRISTO RD, EDINBURG, TX 78541	30
PST	0.23 miles E	4	TAGLES MINI MART	JACKSON & MONTE CRISTO, EDINBURG, TX 78539	31
PST	0.24 miles E	5	BAKER HUGHES PRESSURE PUMPING EDINBURG	825 FM 1925, EDINBURG, TX 78541	32
HW	0.24 miles E	5	BJ SERVICES	825 FM 1925, Edinburg, TX 78541	33

End of Mapped Sites Summary Section

Unmapped Sites Summary TWDB Master Drainage Plan - NW

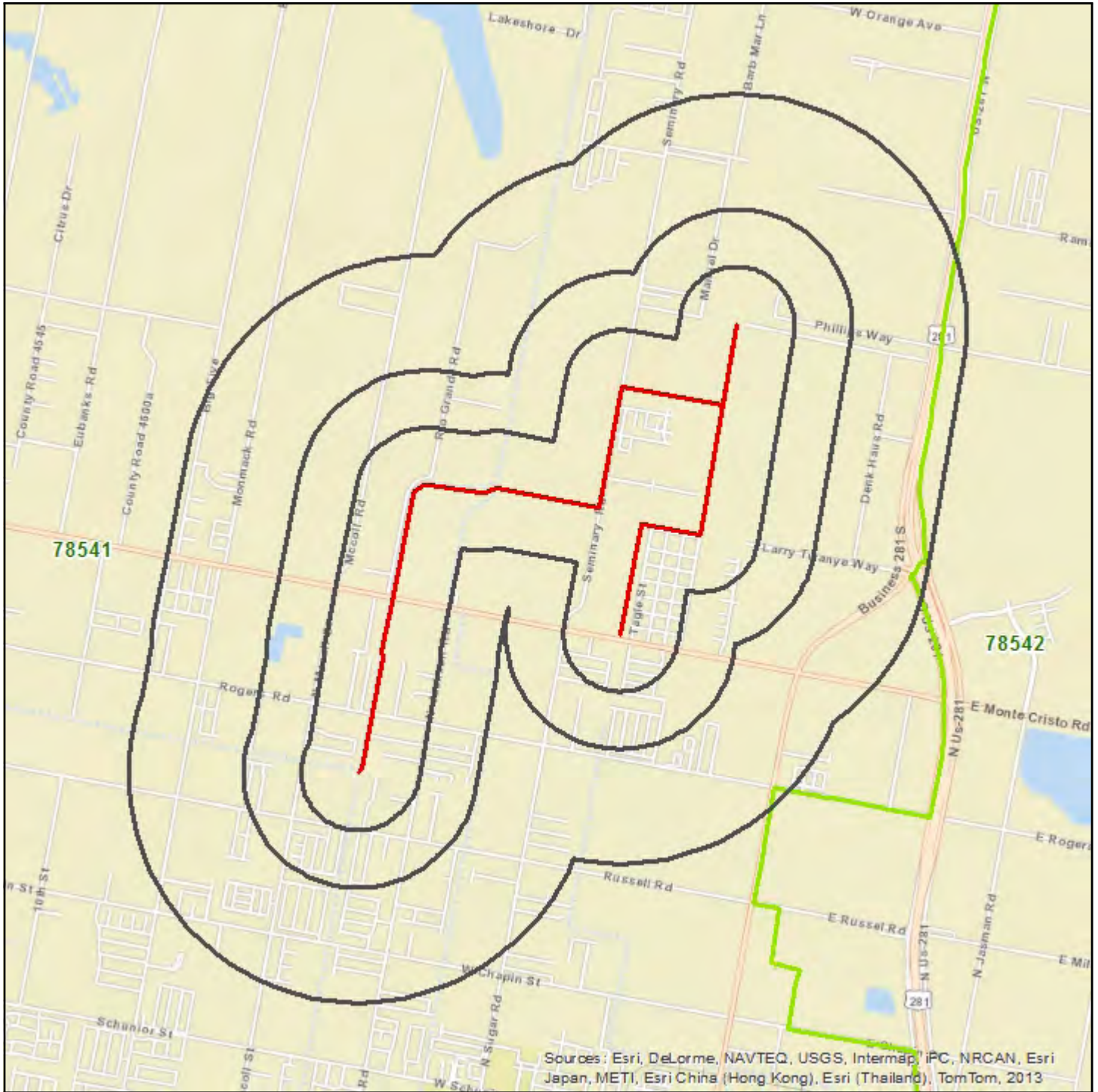
Database	Facility Site Name	Facility Site Address	Site Details Page #
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*Sites are sorted by database tier and database.

CER NFRAP	ILLINI HELICOPTER	P.O. BOX 1601, EDINBURG, TX 78539	35
CER NFRAP	RON WILSHER	N. SIDE OF FM 1925, RT 3,213W, EDINBURG, TX 78539	36
ERNS		IRRIGATION CANAL, EDINBURGH, TX	37
ERNS		ROUTE 7 BOX 980, EDINBURG, TX 78541	38
SWLF	SAFETY KLEEN CORP	0.25 MILE N OF JACKSON RD, TX	39
LPST	1925 DRIVE IN	W MONTE CRISTO RD, EDINBURG, TX 78539	40
PST	ALANIZ GROCERY	TX 78539	41
PST	FFP 680	RT 2, EDINBURG, TX 78539	42
PST	MC ALLEN PRODUCTION UNIT OFFICE	EDINBURG, TX 78539	43
PST	SUN-UP THE FOOD STORE	RT 2, EDINBURG, TX 78539	44
PST	M & R DRIVE INN	TX 78539	45
PST	OTTO WAGNER SR	RT 3 D, EDINBURG, TX 78539	46
PST	MONTE CRISTO	RT 3, EDINBURG, TX 78539	47
PST	RON WILSHER	RT 7, EDINBURG, TX 78539	48
PST	EDINBURG WELL SERVICE	RR 3, EDINBURG, TX 78539	49
PST	LUNAS DRIVE IN 2	RR 7 BOX 11500, EDINBURG, TX 78541	50
PST	HOLCOMB FLYING SER	RT 3 A, EDINBURG, TX 78539	51
PST	WESTSIDE KOUNTRY STORE	TX 78572	52
PST	HERNANDEZ GROC	TX 78572	53

End of Unmapped Sites Summary Section

Zip Code Map - 1 Mile Buffer



Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2013

TWDB Master Drainage Plan - NW

- Target Property
- Search Buffer
- Zip Code Boundary

1 : 40,000
 1 inch = 0.631 miles
 1 inch = 3333 feet
 1 centimeter = 0.400 kilometers
 1 centimeter = 400 meters



Lambert Conformal Conic Projection
 1983 North American Datum
 First Standard Parallel: 33° 00' North
 Second Standard Parallel: 45° 00' North
 Central Meridian: 96° 00' West
 Latitude of Origin: 39° 00' North

Mapped Sites Details: RCRA GEN (MapID 5) TWDB Master Drainage Plan - N



RCRA GEN - RCRA Generators

Map ID #5	RCRA GEN - RCRA Generators	Source: EPA	
EPA Handler ID: TXD078485976	Handler Sequence Number: 8	Banks ID: TXD078485976	
BJ SERVICES COMPANY USA LP 825 FM 1925, EDINBURG, TX 78541 Contact: JOANN COBB		Rel. Loc.: 0.24 miles E Elevation: 88.93 feet (+88.93)	
Owner Name:	BJ SERVICES COMPANY USA LP		
Number of Owners:	1		
Operator Name:	BJ SERVICES COMPANY USA LP		
Number of Operators:	1		
Mailing Address:	11211 FM 2920 RD, TOMBALL, TX 77375		
Contact Name:	JOANN COBB		
Contact Address:	11211 FM 2920 RD, TOMBALL, TX 77375		
Contact Phone:	281-357-2573		
Contact Email Address:			
Government Performance and Results Act (GPRA) Permit:	The facility does not exist on the Operating/Post-Closure Permit Baseline.		
Government Performance and Results Act (GPRA) Corrective Action:	No		
Workload Legend: L=Land Disposal I=Incineration B=Boiler/Industrial Furnace S=Storage T=Treatment			
Permit Workload:	-----		
Closure Workload:	-----		
Post-Closure Workload:	-----		
Subject to Corrective Action:	No		
Subject to Corrective Action 3004:	No		
Subject to Corrective Action Non-TSDF:	No		
Corrective Action Workload:	No		
Generator Status:	Small Quantity Generator		
Nuclear Mixed Waste Handler:	No		
Onsite Burner Exemption:	No		
Furnace Exemption:	No		
Underground Injection Activity:	No		
NAIC Description 1:	Support Activities for Oil and Gas Operations		
NAIC Description 2:			
NAIC Description 3:			
NAIC Description 4:			
Federal Generator Class:	Small Quantity Generator		
State Generator Class:			
Environmental Controls in Place:	No		
Institutional Controls in Place:	No		
Groundwater Controls in Place:	No		
Significant Non-Compliance:	No		
Unaddressed Significant Non-Complier:	No		
Addressed Significant Non-Complier:	No		
Significant Non-Complier with Compliance Schedule:	No		
Enforcement Description	Responsible Enforcement Agency	Enforcement Date	Penalty Description
VERBAL INFORMAL	State	11/23/1999	
VERBAL INFORMAL	State	2/19/2004	
WRITTEN INFORMAL	State	2/6/1985	
WRITTEN INFORMAL	State	11/8/1985	
WRITTEN INFORMAL	State	2/19/2004	
VERBAL INFORMAL	State	4/28/1987	
WRITTEN INFORMAL	State	2/6/1990	
Evaluation Description	Responsible Agency	Evaluation Date	Violation Found
COMPLIANCE EVALUATION INSPECTION ON-SITE	State	11/23/1999	Yes

Continued from Previous Page

COMPLIANCE EVALUATION INSPECTION ON-SITE	State	2/5/1985	Yes	
COMPLIANCE EVALUATION INSPECTION ON-SITE	State	2/19/2004	Yes	
COMPLIANCE EVALUATION INSPECTION ON-SITE	State	11/6/1985	Yes	
COMPLIANCE EVALUATION INSPECTION ON-SITE	State	3/22/2005		
COMPLIANCE EVALUATION INSPECTION ON-SITE	State	7/2/1986	Yes	
COMPLIANCE EVALUATION INSPECTION ON-SITE	State	2/17/2006		
FOCUSED COMPLIANCE INSPECTION	State	11/6/1985	Yes	
FOCUSED COMPLIANCE INSPECTION	State	2/1/1990	Yes	
Violation Description	Violation Determined By	Violation Date	Actual Resolution Date	Scheduled Resolution Date
Generators - General	State	2/5/1985	5/8/1985	5/15/1985
Generators - General	State	11/6/1985	12/2/1985	12/9/1985
Generators - General	State	7/2/1986	4/28/1987	4/28/1987
Generators - General	State	11/23/1999	11/23/1999	12/7/1999
Generators - General	State	11/23/1999	12/2/1999	12/7/1999
Generators - General	State	11/23/1999	12/3/1999	12/7/1999
Generators - Manifest	State	2/1/1990	3/6/1990	3/6/1990
State Statute or Regulation	State	2/1/1990	3/6/1990	3/6/1990
State Statute or Regulation	State	2/19/2004	4/1/2004	
Hazardous Waste Description				
BENZENE				
CADMIUM				
CORROSIVE WASTE				
IGNITABLE WASTE				
LEAD				
TETRACHLOROETHYLENE				
TRICHLOROETHYLENE				

End of RCRA GEN Sites Section

LPST - State/Tribal Leaking Storage Tank

Map ID #1	LPST - State/Tribal Leaking Storage Tank	Source: TCEQ	
LPST ID: 097855	Facility ID: 0030754	Banks ID: 097855	
LULLS GROCERY		Rel. Loc.: 0.09 miles E	
1015 W MONTE CHRISTO RD W MONTO CHRISTO RD, EDINBURG, TX 78539		Elevation: 89.93 feet (+89.93)	
Contact: ED BARTH			
Status:	Final concurrence issued, case close		
Leak Discovery Date:	1/29/1991		
Damage Description:	gw impacted, no apparent threats or impacts to receptors		
Leak Closure Date:			
Facility Contact Name:			
Facility Contact Phone:			
Facility Owner Name:	SUSSER PETROLEUM COMPANY LLC		
Facility Contact Name:	CRAIG SCOTTON		
Facility Contact Phone:	361-884-2463		
Leak Substance:			
Tank #	#1A	#1B	#2A
Status:	REMOVED FROM GROUND	REMOVED FROM GROUND	REMOVED FROM GROUND
Capacity:	8000	6000	8000
Comments:			
Install Date:	1/1/1987	1/1/1982	1/1/1987
Closure Certification Date:			
Above or Below Ground Tank:	below	below	below
Unit ID:			
Construction Material:	Composite (steel w/external FRP cladding)	Steel	Composite (steel w/external FRP cladding)
Piping Material:	FRP (fiberglass-reinforced plastic)	Steel	FRP (fiberglass-reinforced plastic)
Tank Contents:	GASOLINE	GASOLINE	GASOLINE
Automatic Tank Gauge:			
Inventory Control:			
Tank #	#2B	#3A	#3B
Status:	REMOVED FROM GROUND	REMOVED FROM GROUND	REMOVED FROM GROUND
Capacity:	4000	4000	4000
Comments:			
Install Date:	1/1/1982	1/1/1987	1/1/1982
Closure Certification Date:			
Above or Below Ground Tank:	below	below	below
Unit ID:			
Construction Material:	Steel	Composite (steel w/external FRP cladding)	Steel
Piping Material:	Steel	FRP (fiberglass-reinforced plastic)	Steel
Tank Contents:	GASOLINE	GASOLINE	DIESEL
Automatic Tank Gauge:			
Inventory Control:			
Tank #	#4		
Status:	REMOVED FROM GROUND		
Capacity:	12000		
Comments:			
Install Date:	1/1/1987		
Closure Certification Date:			
Above or Below Ground Tank:	below		
Unit ID:			
Construction Material:	Composite (steel w/external FRP cladding)		
Piping Material:	FRP (fiberglass-reinforced plastic)		
Tank Contents:	DIESEL		
Automatic Tank Gauge:			
Inventory Control:			

Mapped Sites Details: LPST (MapID 4) TWDB Master Drainage Plan - NW



Map ID #4	LPST - State/Tribal Leaking Storage Tank		Source: TCEQ
LPST ID: 118732	Facility ID: 0064263		Banks ID: 118732
CANTUS COUNTRY MART 2202 W MONTE CHRISTO RD, EDINBURG, TX 78539 Contact: MIKE FAZEL			Rel. Loc.: 0.23 miles E Elevation: 89.67 feet (+89.67)
Status:	Preassessment / release determination		
Leak Discovery Date:	11/29/2011		
Damage Description:	gw impacted, no apparent threats or impacts to receptors		
Leak Closure Date:			
Facility Contact Name:			
Facility Contact Phone:			
Facility Owner Name:	VALLEY ASSETS HOLDING INC		
Facility Contact Name:	ORLANDO SALDIVAR		
Facility Contact Phone:	956-748-2311		
Leak Substance:			
Tank #	#1	#2	#3
Status:	REMOVED FROM GROUND	REMOVED FROM GROUND	REMOVED FROM GROUND
Capacity:	8000	4000	4000
Comments:			
Install Date:	2/1/1993	2/1/1993	2/1/1993
Closure Certification Date:			
Above or Below Ground Tank:	below	below	below
Unit ID:			
Construction Material:	FRP (fiberglass-reinforced plastic)	FRP (fiberglass-reinforced plastic)	FRP (fiberglass-reinforced plastic)
Piping Material:	FRP (fiberglass-reinforced plastic)	FRP (fiberglass-reinforced plastic)	FRP (fiberglass-reinforced plastic)
Tank Contents:	EMPTY	EMPTY	EMPTY
Automatic Tank Gauge:			
Inventory Control:			
Tank #	#4	#5	
Status:	IN USE	IN USE	
Capacity:	30260	30250	
Comments:			
Install Date:	6/25/2012	6/25/2012	
Closure Certification Date:			
Above or Below Ground Tank:	below	below	
Unit ID:			
Construction Material:	Coated (steel w/external polyurethane cladding)		
Piping Material:	FRP (fiberglass-reinforced plastic)	FRP (fiberglass-reinforced plastic)	
Tank Contents:	GASOLINE	GASOLINE	
Automatic Tank Gauge:			
Inventory Control:			

Mapped Sites Details: LPST (MapID 6) TWDB Master Drainage Plan - NW

Map ID #6	LPST - State/Tribal Leaking Storage Tank		Source: TCEQ
LPST ID: 106817	Facility ID: 0039301		Banks ID: 106817
CHEMOS COUNTRY MARKET			Rel. Loc.: 0.29 miles NW
RT 4 NORTH MCCOLL ROAD AND ROGERS RD., EDINBURG, TX 78539			Elevation: 91.92 feet (+91.92)
Contact: GARY CLEMONS			
Status:	Final concurrence issued, case close		
Leak Discovery Date:	6/14/1993		
Damage Description:	no gw impacted, no apparent threats or impacts to receptors		
Leak Closure Date:			
Facility Contact Name:			
Facility Contact Phone:			
Facility Owner Name:	FRANK CHMIELOWSKI		
Facility Contact Name:	Frank Chmielowski		
Facility Contact Phone:	956-318-1653		
Leak Substance:			
Tank #	#1	#2	#3
Status:	REMOVED FROM GROUND	REMOVED FROM GROUND	REMOVED FROM GROUND
Capacity:	10000	8000	6000
Comments:			
Install Date:	1/1/1981	1/1/1981	1/1/1981
Closure Certification Date:			
Above or Below Ground Tank:	below	below	below
Unit ID:			
Construction Material:	FRP (fiberglass-reinforced plastic)	FRP (fiberglass-reinforced plastic)	FRP (fiberglass-reinforced plastic)
Piping Material:	FRP (fiberglass-reinforced plastic)	FRP (fiberglass-reinforced plastic)	FRP (fiberglass-reinforced plastic)
Tank Contents:	GASOLINE	GASOLINE	GASOLINE
Automatic Tank Gauge:			
Inventory Control:			

End of LPST Sites Section

Mapped Sites Details: PST (MapID 1) TWDB Master Drainage Plan - NW



PST - State/Tribal Storage Tank

Map ID #1	PST - State/Tribal Storage Tank		Source: TCEQ
Facility #: 0030800	TCEQ Customer ID: 044380		Banks ID: 0030800
MONTE CRISTO 1001 W MONTE CRISTO RD, EDINBURG, TX 78541			Rel. Loc.: 0.11 miles E Elevation: 90.12 feet (+90.12)
Contact:			
Facility Owner Name:	J & E OIL INC		
Facility Owner Address:			
Facility Owner City:	ELSA		
Facility Owner State:	TX		
Facility Owner Zip:	78543		
Facility Contact Name:	Jerry L Barth		
Facility Contact Phone:	956-262-4771		
Number of ASTs:	0		
Number of USTs:	0		
Total Number of Tanks:			
Tank #	#1	#2	#3
Status:	REMOVED FROM GROUND	REMOVED FROM GROUND	REMOVED FROM GROUND
Capacity:	10000	60000	40000
Comments:			
Install Date:	1/1/1981	1/1/1981	1/1/1981
Closure Certification Date:			
Above or Below Ground Tank:	below	below	below
Unit ID:			
Construction Material:	Steel	Steel	Steel
Piping Material:	Steel	Steel	Steel
Tank Contents:	GASOLINE	GASOLINE	DIESEL
Automatic Tank Gauge:			
Inventory Control:			

Mapped Sites Details: PST (MapID 1) TWDB Master Drainage Plan - NW



Map ID #1	PST - State/Tribal Storage Tank		Source: TCEQ
Facility #: 0030754	TCEQ Customer ID: 044341		Banks ID: 0030754
LULLS GROCERY 1015 W MONTE CRISTO RD, EDINBURG, TX 78541			Rel. Loc.: 0.09 miles E Elevation: 89.93 feet (+89.93)
Contact:			
Facility Owner Name:	SUSSE PETROLEUM COMPANY LLC		
Facility Owner Address:	4525 AYERS ST		
Facility Owner City:	CORPUS CHRISTI		
Facility Owner State:	TX		
Facility Owner Zip:	784151401		
Facility Contact Name:	CRAIG SCOTTON		
Facility Contact Phone:	361-884-2463		
Number of ASTs:	0		
Number of USTs:	0		
Total Number of Tanks:			
Tank #	#1A	#1B	#2A
Status:	REMOVED FROM GROUND	REMOVED FROM GROUND	REMOVED FROM GROUND
Capacity:	8000	6000	8000
Comments:			
Install Date:	1/1/1987	1/1/1982	1/1/1987
Closure Certification Date:			
Above or Below Ground Tank:	below	below	below
Unit ID:			
Construction Material:	Composite (steel w/external FRP cladding)	Steel	Composite (steel w/external FRP cladding)
Piping Material:	FRP (fiberglass-reinforced plastic)	Steel	FRP (fiberglass-reinforced plastic)
Tank Contents:	GASOLINE	GASOLINE	GASOLINE
Automatic Tank Gauge:			
Inventory Control:			
Tank #	#2B	#3A	#3B
Status:	REMOVED FROM GROUND	REMOVED FROM GROUND	REMOVED FROM GROUND
Capacity:	4000	4000	4000
Comments:			
Install Date:	1/1/1982	1/1/1987	1/1/1982
Closure Certification Date:			
Above or Below Ground Tank:	below	below	below
Unit ID:			
Construction Material:	Steel	Composite (steel w/external FRP cladding)	Steel
Piping Material:	Steel	FRP (fiberglass-reinforced plastic)	Steel
Tank Contents:	GASOLINE	GASOLINE	DIESEL
Automatic Tank Gauge:			
Inventory Control:			
Tank #	#4		
Status:	REMOVED FROM GROUND		
Capacity:	12000		
Comments:			
Install Date:	1/1/1987		
Closure Certification Date:			
Above or Below Ground Tank:	below		
Unit ID:			
Construction Material:	Composite (steel w/external FRP cladding)		
Piping Material:	FRP (fiberglass-reinforced plastic)		
Tank Contents:	DIESEL		
Automatic Tank Gauge:			
Inventory Control:			

Mapped Sites Details: PST (MapID 2) TWDB Master Drainage Plan - NW

Map ID #2	PST - State/Tribal Storage Tank		Source: TCEQ
Facility #: 0077271	TCEQ Customer ID: 118713		Banks ID: 0077271
AZIZ QUICK STOP 22 1510 W MONTE CRISTO RD, EDINBURG, TX 78541			Rel. Loc.: 0.21 miles W Elevation: 91.7 feet (+91.7)
Contact:			
Facility Owner Name:	AZIZ CONVENIENCE STORES LLC		
Facility Owner Address:	4513 N 4TH ST		
Facility Owner City:	MCALLEN		
Facility Owner State:	TX		
Facility Owner Zip:	78504		
Facility Contact Name:	DAGOBERTO TREVINO		
Facility Contact Phone:	956-686-2838		
Number of ASTs:	0000		
Number of USTs:	0002		
Total Number of Tanks:			
Tank #	#1	#2	
Status:	IN USE	IN USE	
Capacity:	15000	15000	
Comments:			
Install Date:	3/8/2005	3/8/2005	
Closure Certification Date:			
Above or Below Ground Tank:	below	below	
Unit ID:			
Construction Material:	FRP (fiberglass-reinforced plastic)	FRP (fiberglass-reinforced plastic)	
Piping Material:	FRP (fiberglass-reinforced plastic)	FRP (fiberglass-reinforced plastic)	
Tank Contents:	GASOLINE	DIESEL	
Automatic Tank Gauge:			
Inventory Control:			

Mapped Sites Details: PST (MapID 3) TWDB Master Drainage Plan - NW

Map ID #3	PST - State/Tribal Storage Tank		Source: TCEQ
Facility #: 0072423	TCEQ Customer ID: 110224		Banks ID: 0072423
EL TIGRE FOOD STORE 8 2828 W MONTE CRISTO RD, EDINBURG, TX 78541			Rel. Loc.: 0.22 miles W Elevation: 90.92 feet (+90.92)
Contact:			
Facility Owner Name:	CCS PROPERTIES INC		
Facility Owner Address:	2105 REMINGTON AVE		
Facility Owner City:	EDINBURG		
Facility Owner State:	TX		
Facility Owner Zip:	78539		
Facility Contact Name:	MAURO GARZA		
Facility Contact Phone:	956-287-8077		
Number of ASTs:	0000		
Number of USTs:	0002		
Total Number of Tanks:			
Tank #	#1	#2	
Status:	IN USE	IN USE	
Capacity:	15000	20000	
Comments:			
Install Date:	6/16/1999	6/16/1999	
Closure Certification Date:			
Above or Below Ground Tank:	below	below	
Unit ID:			
Construction Material:	FRP (fiberglass-reinforced plastic)	FRP (fiberglass-reinforced plastic)	
Piping Material:	FRP (fiberglass-reinforced plastic)	FRP (fiberglass-reinforced plastic)	
Tank Contents:	GASOLINE	GASOLINE	
Automatic Tank Gauge:			
Inventory Control:			

Mapped Sites Details: PST (MapID 4) TWDB Master Drainage Plan - NW



Map ID #4	PST - State/Tribal Storage Tank		Source: TCEQ
Facility #: 0064263	TCEQ Customer ID: 045387		Banks ID: 0064263
STRIPES 2404			Rel. Loc.: 0.23 miles E
2202 W MONTE CRISTO RD, EDINBURG, TX 78541			Elevation: 89.67 feet (+89.67)
Contact: JEFF TURNER			
Facility Owner Name:	VALLEY ASSETS HOLDING INC		
Facility Owner Address:	2909 HILLCROFT ST, STE 300		
Facility Owner City:	HOUSTON		
Facility Owner State:	TX		
Facility Owner Zip:	770575843		
Facility Contact Name:	ORLANDO SALDIVAR		
Facility Contact Phone:	956-748-2311		
Number of ASTs:	0		
Number of USTs:	2		
Total Number of Tanks:			
Tank #	#1	#2	#3
Status:	REMOVED FROM GROUND	REMOVED FROM GROUND	REMOVED FROM GROUND
Capacity:	8000	4000	4000
Comments:			
Install Date:	2/1/1993	2/1/1993	2/1/1993
Closure Certification Date:			
Above or Below Ground Tank:	below	below	below
Unit ID:			
Construction Material:	FRP (fiberglass-reinforced plastic)	FRP (fiberglass-reinforced plastic)	FRP (fiberglass-reinforced plastic)
Piping Material:	FRP (fiberglass-reinforced plastic)	FRP (fiberglass-reinforced plastic)	FRP (fiberglass-reinforced plastic)
Tank Contents:	EMPTY	EMPTY	EMPTY
Automatic Tank Gauge:			
Inventory Control:			
Tank #	#4	#5	
Status:	IN USE	IN USE	
Capacity:	30260	30250	
Comments:			
Install Date:	6/25/2012	6/25/2012	
Closure Certification Date:			
Above or Below Ground Tank:	below	below	
Unit ID:			
Construction Material:	Coated (steel w/external polyurethane cladding)		
Piping Material:	FRP (fiberglass-reinforced plastic)	FRP (fiberglass-reinforced plastic)	
Tank Contents:	GASOLINE	GASOLINE	
Automatic Tank Gauge:			
Inventory Control:			

Mapped Sites Details: PST (MapID 4) TWDB Master Drainage Plan - NW


Map ID #4	PST - State/Tribal Storage Tank		Source: TCEQ
Facility #: 0035983	TCEQ Customer ID: 067812		Banks ID: 0035983
TAGLES MINI MART JACKSON & MONTE CRISTO, EDINBURG, TX 78539 Contact: JOEL ROMERO			Rel. Loc.: 0.23 miles E Elevation: 89.67 feet (+89.67)
Facility Owner Name:	DISCOUNT OILS LUBRICANTS & FUELS INC		
Facility Owner Address:	1318 SHASTA AVE		
Facility Owner City:	MCALLEN		
Facility Owner State:	TX		
Facility Owner Zip:	78504		
Facility Contact Name:	ROBERT GUTIERREZ JR		
Facility Contact Phone:	956-686-0472		
Number of ASTs:	0000		
Number of USTs:	0003		
Total Number of Tanks:			
Tank #	#1	#2	#3
Status:	IN USE	IN USE	IN USE
Capacity:	8000	6000	4000
Comments:			
Install Date:	1/1/1985	3/28/1986	3/28/1986
Closure Certification Date:			
Above or Below Ground Tank:	below	below	below
Unit ID:			
Construction Material:	Composite (steel w/external FRP cladding)	Composite (steel w/external FRP cladding)	Composite (steel w/external FRP cladding)
Piping Material:	FRP (fiberglass-reinforced plastic)	FRP (fiberglass-reinforced plastic)	FRP (fiberglass-reinforced plastic)
Tank Contents:	GASOLINE	GASOLINE	DIESEL
Automatic Tank Gauge:			
Inventory Control:			

Mapped Sites Details: PST (MapID 5) TWDB Master Drainage Plan - NW

Map ID #5	PST - State/Tribal Storage Tank		Source: TCEQ
Facility #: 0051175	TCEQ Customer ID: 082251		Banks ID: 0051175
BAKER HUGHES PRESSURE PUMPING EDINBURG 825 FM 1925, EDINBURG, TX 78541 Contact: JERRY DAILY			Rel. Loc.: 0.24 miles E Elevation: 88.93 feet (+88.93)
Facility Owner Name:	BJ SERVICES COMPANY USA		
Facility Owner Address:	11211 FM 2920 RD		
Facility Owner City:	TOMBALL		
Facility Owner State:	TX		
Facility Owner Zip:	773758927		
Facility Contact Name:	JOSH MORRISSETTE		
Facility Contact Phone:	281-357-2573		
Number of ASTs:	2		
Number of USTs:	0		
Total Number of Tanks:			
Tank #	#1	#1	#2
Status:	REMOVED FROM GROUND		
Capacity:	5000	300	10000
Comments:			
Install Date:	1/1/1974	8/31/1987	1/1/1974
Closure Certification Date:			
Above or Below Ground Tank:	above	below	above
Unit ID:	156756		156755
Construction Material:	Steel	Steel	Steel
Piping Material:			
Tank Contents:	USED OIL	USED OIL	DIESEL
Automatic Tank Gauge:			
Inventory Control:			

End of PST Sites Section

Mapped Sites Details: HW (MapID 5) TWDB Master Drainage Plan - NW



HW - State/Tribal Hazardous Waste

Map ID #5		HW - State/Tribal Hazardous Waste			Source: TCEQ
Register #: 33543		EPA ID: TXD078485976			Banks ID: 33543
BJ SERVICES 825 FM 1925, Edinburg, TX 78541 Contact: JOANN COBB				Rel. Loc.: 0.24 miles E Elevation: 88.93 feet (+88.93)	
Status:		ACTIVE			
Waste Description:					
Location Description:		825 FM 1925, Edinburg, TX			
Additional State ID:		11025			
Permit Number:					
Business Type:		Corporation			
Facility Type:					
Facility Owner Name:		BJ SERVICES COMPANY USA LP			
Facility Owner Phone:		1-281-3572572			
Facility Contact Name:					
Facility Contact Phone:					
Company Name:		BJ SERVICES COMPANY USA			
Operator Address:					
Waste ID	Waste Code	Waste Description	Disposal Method	Storage Method	Total Annual Waste (lbs)
138183	0501203H	SPENT SOLVENT Waste inactivated due to error in submission.			
141233	02963101	Sorbant saturated with hydrocarbons generated by vehicle maintenance shop operat			
153658	03959992	Miscellaneous trash generated by district operations. Waste inactivated due to			
298377	DQHF3011				
93699	00112061	Recovered truck wash oil. Oil seperated from external truck wash wastewater. 198			
93703	00312061	Used motor oil. Regular maintenance of motors. 1983 - Inactive due to change in			
93717	00233902	Unused cement/cement which could not be used in the field or used on site. 1983			
93719	0044211H	Spent paint solvents. Generated during the painting of equipment. 1983 Waste in			
93726	00733081	Scrap drums/containers (not triple rinsed or crushed). Use of products. 1983 - I			
93728	00839032	Office trash. Office and domestic debris. 1983 - Inactivated due to changein gen			
93732	01233072	Scrap metal. Scrapped engine and equipment parts. 1983. Waste inactivateddue to			
93740	01836031	Tank bottoms. Settlement in tanks and process vessels. Inactivated due to change			
264538	C7J33011				
93698	00101141	Untreated truck wash washwater. truck wash wastewater from the exterior washing			
93700	00121142	Treated truck wash wastewater. Treated wastewater after the removal of solids an			
93722	0046204H	Spent mixed (Safety Kleen) solvent. Generated during the cleaning of equipment p			
93724	0063309H	Used batteries. Maintenance of equipment. 1983 - Inactivated due to changein cla			
93731	01122961	Waste antifreeze. Equipment maintenance (drummed for reuse). 1983. Waste inacti			
93736	01733011	Hydrocarbon bearing soil/soil contaminated by oil due to drips or spills. NA			
294681	D8TL203H				
93702	00133911	Truck wash separator sludge. Sludge from the treatment of wastewater from the ex			

Mapped Sites Details: HW (MapID 5) TWDB Master Drainage Plan - NW

Continued from Previous Page

93718	0041203H	Spent Safety Kleen solvent. Generated during the cleaning of equipment parts. Up
93723	00534031	Used tires. Maintenance of vehicles. 1983 - Inactivated due to change in classif
93727	00743082	Scrap containers, and , 5 gallons (triple rinsed and crushed). Use of products.
93729	01033101	Used oil filters. Removed from engine and drained. 1983. Waste inactivateddue t
93734	01349011	Oily trash. Trash from maintenance bay. 1983. - Inactivated due to change in gen

End of HW Sites Section



CER NFRAP - CERCLIS NFRAP

CER NFRAP - CERCLIS NFRAP

Source: EPA

Site ID: 0603061

EPA ID: TXD981047871

Banks ID: 0603061

ILLINI HELICOPTER

P.O. BOX 1601, EDINBURG, TX 78539

Contact:

National Priority List Status: Not on the NPL
Facility Type: Not a federal facility

Aliases:

Additional Info: <http://cfpub.epa.gov/supercpad/cursites/calinfo.cfm?id=0603061>

Action	Start Date	Completion Date
DISCOVERY		1/1/1985 12:00:00 AM
PRELIMINARY ASSESSMENT	3/1/1986	3/1/1986 12:00:00 AM
ARCHIVE SITE		3/1/1986 12:00:00 AM

Unmapped Sites Details: CER NFRAP (MapID) TWDB Master Drainage Plan**CER NFRAP - CERCLIS NFRAP****Source: EPA****Site ID: 0603322****EPA ID: TXD981515810****Banks ID: 0603322**

RON WILSHER

N. SIDE OF FM 1925, RT 3,213W, EDINBURG, TX 78539

Contact:

National Priority List Status: Not on the NPL**Facility Type:** Not a federal facility**Aliases:****Additional Info:** <http://cfpub.epa.gov/supercpad/cursites/calinfo.cfm?id=0603322>

Action	Start Date	Completion Date
DISCOVERY		5/1/1986 12:00:00 AM
PRELIMINARY ASSESSMENT	5/1/1986	5/1/1986 12:00:00 AM
SITE INSPECTION	9/1/1988	9/1/1988 12:00:00 AM
ARCHIVE SITE		9/1/1988 12:00:00 AM

End of CER NFRAP Sites Section

ERNS - ERNS List

ERNS - ERNS List

Source: EPA/National Response Center

NRC Report #: 45414

Secondary ID: NA

Banks ID: 45414

IRRIGATION CANAL, EDINBURGH, TX

Contact:

Responsible Party:**Incident Location:****Incident Date/Time:** 10/29/1990 8:00 AM**Cause of Incident:** UNKNOWN**Description of Incident:** UNKNOWN/ UNKNOWN - MATERIAL WAS DISCOVERED IN THE IRRIGATION CANAL**Incident Type:** UNKNOWN SHEEN**Additional Information:** THIS MATERIAL IS 20 TO 30 FEET UP THE CANAL THE CALLER SAYS THE CANAL DOES IMPACT DRINKING WATER INTAKES.**Any Fatalities:** Unknown**Number of Fatalities:****Remedial Action Taken:** NONE**Medium Affected:** WATER**Medium Description:** IRRIGATION CANAL**Materials Spilled:** OIL: DIESEL**Railroad Involved:****Pipeline Type Involved:** UNKNOWN**Source:** UNAVAILABLE

Unmapped Sites Details: ERNS (MapID) TWDB Master Drainage Plan - NW**ERNS - ERNS List**

Source: EPA/National Response Center

NRC Report #: 812479

Secondary ID: NA

Banks ID: 812479

ROUTE 7 BOX 980, EDINBURG, TX 78541

Contact:

Responsible Party: NB EXPRESS**Incident Location:****Incident Date/Time:** 9/24/2006 7:00 AM**Cause of Incident:** NATURAL PHENOMENON**Description of Incident:** THE CALLER IS REPORTING THAT DUE TO HEAVY RAIN, THERE WAS A RELEASE OF MATERIALS ONTO THE GROUND AND INTO STANDING WATER FROM CAR PARTS.**Incident Type:** FIXED**Additional Information:** THE CALLER HAD NO ADDITIONAL INFORMATION**Any Fatalities:** No**Number of Fatalities:****Remedial Action Taken:** NONE**Medium Affected:** WATER**Medium Description:** LAND>STANDING WATER**Materials Spilled:** UNKNOWN OIL**Railroad Involved:****Pipeline Type Involved:****Source:** TELEPHONE**End of ERNS Sites Section**



SWLF - State/Tribal Disposal or Landfill

SWLF - State/Tribal Disposal or Landfill **Source: TCEQ**

MSW ID: 40203 **Regulated Entity#: RN104751276** **Banks ID: 40203**

SAFETY KLEEN CORP
 0.25 MILE N OF JACKSON RD, TX
 Contact:

Detail #1

Facility Type:	5TL
Facility Status:	CLOSED
Permit Information	
Permit Status:	REVOKED - Start 07/18/2003 - End 01/20/2011

Detail #2

Facility Type:	5TL
Facility Status:	CLOSED
Permit Information	
Permit Status:	REVOKED - Start 07/18/2003 - End 01/20/2011

End of SWLF Sites Section

Unmapped Sites Details: LPST (MapID) TWDB Master Drainage Plan - NW



LPST - State/Tribal Leaking Storage Tank

LPST - State/Tribal Leaking Storage Tank

Source: TCEQ

LPST ID: 118102

Facility ID: 0039314

Banks ID: 118102

1925 DRIVE IN

W MONTE CRISTO RD, EDINBURG, TX 78539

Contact: MIKE BROUGHTON

Status:	Final concurrence issued, case close	
Leak Discovery Date:	5/13/2009	
Damage Description:	no gw impacted, no apparent threats or impacts to receptors	
Leak Closure Date:		
Facility Contact Name:		
Facility Contact Phone:		
Facility Owner Name:	VISTA INDUSTRIES INC	
Facility Contact Name:	MIKE BROUGHTON	
Facility Contact Phone:	956-607-5661	
Leak Substance:		
Tank #	#1	#2
Status:	REMOVED FROM GROUND	REMOVED FROM GROUND
Capacity:		
Comments:		
Install Date:	1/1/1982	1/1/1982
Closure Certification Date:		
Above or Below Ground Tank:	below	below
Unit ID:		
Construction Material:	Steel	Steel
Piping Material:	FRP (fiberglass-reinforced plastic)	FRP (fiberglass-reinforced plastic)
Tank Contents:	GASOLINE	GASOLINE
Automatic Tank Gauge:		
Inventory Control:		

End of LPST Sites Section

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - NW



PST - State/Tribal Storage Tank

PST - State/Tribal Storage Tank

Source: TCEQ

Facility #: 0011107

TCEQ Customer ID: 045329

Banks ID: 0011107

ALANIZ GROCERY

TX 78539

Contact:

Facility Owner Name: B CANTRELL OIL COMPANY

Facility Owner Address:

Facility Owner City: RIO HONDO

Facility Owner State: TX

Facility Owner Zip: 78583

Facility Contact Name: TED VEGA

Facility Contact Phone: 956-748-2368

Number of ASTs: 0

Number of USTs: 0

Total Number of Tanks:

Tank #	#1	#2
Status:	REMOVED FROM GROUND	REMOVED FROM GROUND
Capacity:	8000	8000
Comments:		
Install Date:	1/1/1981	1/1/1981
Closure Certification Date:		
Above or Below Ground Tank:	below	below
Unit ID:		
Construction Material:	Steel	Steel
Piping Material:	Steel	Steel
Tank Contents:	GASOLINE	GASOLINE
Automatic Tank Gauge:		
Inventory Control:		

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - NW



PST - State/Tribal Storage Tank

Source: TCEQ

Facility #: 0018450

TCEQ Customer ID: 072830

Banks ID: 0018450

FFP 680

RT 2, EDINBURG, TX 78539

Contact:

Facility Owner Name: FFP OPERATING PARTNERS LP

Facility Owner Address: 2801 GLENDA ST

Facility Owner City: FORT WORTH

Facility Owner State: TX

Facility Owner Zip: 761174326

Facility Contact Name: MARK LIPSCOMB

Facility Contact Phone: 817-838-4701

Number of ASTs: 0

Number of USTs: 0

Total Number of Tanks:

Tank #	#1	#2	#3
Status:	REMOVED FROM GROUND	REMOVED FROM GROUND	REMOVED FROM GROUND
Capacity:	8000	4000	4000
Comments:			
Install Date:	1/1/1977	1/1/1977	1/1/1977
Closure Certification Date:			
Above or Below Ground Tank:	below	below	below
Unit ID:			
Construction Material:	Steel	Steel	Steel
Piping Material:	Steel	Steel	Steel
Tank Contents:	GASOLINE	GASOLINE	GASOLINE

Automatic Tank Gauge:

Inventory Control:

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - NW



PST - State/Tribal Storage Tank

Source: TCEQ

Facility #: 0034676

TCEQ Customer ID: 067146

Banks ID: 0034676

MC ALLEN PRODUCTION UNIT OFFICE

EDINBURG, TX 78539

Contact: J R ABLE

Facility Owner Name: SHELL WESTERN E & P INC

Facility Owner Address:

Facility Owner City: HOUSTON

Facility Owner State: TX

Facility Owner Zip: 77001

Facility Contact Name: J R ABLE

Facility Contact Phone: 713-870-3443

Number of ASTs: 0

Number of USTs: 0

Total Number of Tanks:

Tank # #1

Status: REMOVED FROM GROUND

Capacity: 10000

Comments:

Install Date: 1/1/1976

Closure Certification Date:

Above or Below Ground Tank: below

Unit ID:

Construction Material: FRP (fiberglass-reinforced plastic)

Piping Material: Steel

Tank Contents: GASOLINE

Automatic Tank Gauge:

Inventory Control:

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - NW



PST - State/Tribal Storage Tank

Source: TCEQ

Facility #: 0043072

TCEQ Customer ID: 071887

Banks ID: 0043072

SUN-UP THE FOOD STORE

RT 2, EDINBURG, TX 78539

Contact: JOSE LUIS SALINAS

Facility Owner Name: JOSE LUIS SALINAS

Facility Owner Address:

Facility Owner City: EDINBURG

Facility Owner State: TX

Facility Owner Zip: 78539

Facility Contact Name:

Facility Contact Phone: 512-383-0551

Number of ASTs: 0000

Number of USTs: 0003

Total Number of Tanks:

Tank #	#1	#2	#3
Status:	IN USE	IN USE	IN USE
Capacity:	8000	8000	4000
Comments:			
Install Date:	1/1/1966	1/1/1966	1/1/1966
Closure Certification Date:			
Above or Below Ground Tank:	below	below	below
Unit ID:			
Construction Material:	Steel	Steel	Steel
Piping Material:	Steel	Steel	Steel
Tank Contents:	GASOLINE	GASOLINE	GASOLINE

Automatic Tank Gauge:

Inventory Control:

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - NW



PST - State/Tribal Storage Tank

Source: TCEQ

Facility #: 0046156

TCEQ Customer ID: 045375

Banks ID: 0046156

M & R DRIVE INN

TX 78539

Contact:

Facility Owner Name: B CANTRELL OIL COMPANY

Facility Owner Address:

Facility Owner City: RIO HONDO

Facility Owner State: TX

Facility Owner Zip: 78583

Facility Contact Name: TED VEGA

Facility Contact Phone: 956-748-2368

Number of ASTs: 0

Number of USTs: 0

Total Number of Tanks:

Tank #	#1	#2
Status:	REMOVED FROM GROUND	REMOVED FROM GROUND
Capacity:	8000	8000
Comments:		
Install Date:	1/1/1986	1/1/1986
Closure Certification Date:		
Above or Below Ground Tank:	below	below
Unit ID:		
Construction Material:	Steel	Steel
Piping Material:	FRP (fiberglass-reinforced plastic)	FRP (fiberglass-reinforced plastic)
Tank Contents:	GASOLINE	GASOLINE
Automatic Tank Gauge:		
Inventory Control:		

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - NW



PST - State/Tribal Storage Tank

Source: TCEQ

Facility #: 0051533

TCEQ Customer ID: 060113

Banks ID: 0051533

OTTO WAGNER SR

RT 3 D, EDINBURG, TX 78539

Contact:

Facility Owner Name: BROWNIES OIL CO INC

Facility Owner Address:

Facility Owner City: MCALLEN

Facility Owner State: TX

Facility Owner Zip: 78502

Facility Contact Name:

Facility Contact Phone: 2106863791

Number of ASTs: 0

Number of USTs: 0

Total Number of Tanks:

Tank # #1

Status:

Capacity: 1900

Comments:

Install Date: 1/1/1974

Closure Certification Date:

Above or Below Ground Tank: above

Unit ID: 157445

Construction Material: Steel

Piping Material:

Tank Contents: DIESEL

Automatic Tank Gauge:

Inventory Control:

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - NW



PST - State/Tribal Storage Tank

Source: TCEQ

Facility #: 0054059

TCEQ Customer ID: 083820

Banks ID: 0054059

MONTE CHRISTO

RT 3, EDINBURG, TX 78539

Contact: DANIEL BABIK

Facility Owner Name:	MOBIL EXPLORATION & PRODUCING US INC
Facility Owner Address:	1200 TIMBERLOCH PL
Facility Owner City:	THE WOODLANDS
Facility Owner State:	TX
Facility Owner Zip:	77380
Facility Contact Name:	Mark Del Pico
Facility Contact Phone:	281-296-3100
Number of ASTs:	0
Number of USTs:	0

Total Number of Tanks:

Tank #	#A
Status:	
Capacity:	2000
Comments:	
Install Date:	1/1/1985
Closure Certification Date:	
Above or Below Ground Tank:	above
Unit ID:	160948
Construction Material:	Steel
Piping Material:	
Tank Contents:	GASOLINE
Automatic Tank Gauge:	
Inventory Control:	

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - NW



PST - State/Tribal Storage Tank

Source: TCEQ

Facility #: 0058911

TCEQ Customer ID: 089290

Banks ID: 0058911

RON WILSHER

RT 7, EDINBURG, TX 78539

Contact: RON WILSHER

Facility Owner Name:	WILSHER RON
Facility Owner Address:	2201 W MONTE CRISTO
Facility Owner City:	EDINBURG
Facility Owner State:	TX
Facility Owner Zip:	78539
Facility Contact Name:	RON WILSHER
Facility Contact Phone:	5123833442
Number of ASTs:	0001
Number of USTs:	0000

Total Number of Tanks:

Tank #	#1
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Status:

Capacity:	3000
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Comments:

Install Date:	1/1/1990
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Closure Certification Date:

Above or Below Ground Tank:	above
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Unit ID:	163733
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Construction Material:	Steel
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Piping Material:

Tank Contents:	DIESEL
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Automatic Tank Gauge:

Inventory Control:

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - NW



PST - State/Tribal Storage Tank

Source: TCEQ

Facility #: 0068255

TCEQ Customer ID: 103085

Banks ID: 0068255

EDINBURG WELL SERVICE

RR 3, EDINBURG, TX 78539

Contact: GEORGE GELLERSEN

Facility Owner Name:	DAWSON WELL SERVICING INC
Facility Owner Address:	6 DESTA DR, STE 4400
Facility Owner City:	MIDLAND
Facility Owner State:	TX
Facility Owner Zip:	76902
Facility Contact Name:	FRANK CASTANEDA
Facility Contact Phone:	830-277-1451
Number of ASTs:	0
Number of USTs:	0

Total Number of Tanks:

Tank #	#J
Status:	
Capacity:	6000
Comments:	
Install Date:	12/21/1995
Closure Certification Date:	
Above or Below Ground Tank:	above
Unit ID:	178881
Construction Material:	Steel
Piping Material:	
Tank Contents:	DIESEL
Automatic Tank Gauge:	
Inventory Control:	

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - NW



PST - State/Tribal Storage Tank

Source: TCEQ

Facility #: 0074043

TCEQ Customer ID: 112895

Banks ID: 0074043

LUNAS DRIVE IN 2

RR 7 BOX 11500, EDINBURG, TX 78541

Contact: HECTOR LUNA

Facility Owner Name: VICTORIA MARTINEZ

Facility Owner Address:

Facility Owner City: EDINBURG

Facility Owner State: TX

Facility Owner Zip: 78540

Facility Contact Name: VICTORIA MARTINEZ

Facility Contact Phone: 956-451-2021

Number of ASTs: 0000

Number of USTs: 0001

Total Number of Tanks:

Tank # #1

Status: IN USE

Capacity: 10000

Comments:

Install Date: 7/1/1996

Closure Certification Date:

Above or Below Ground Tank: below

Unit ID:

Construction Material:

Piping Material: FRP (fiberglass-reinforced plastic)

Tank Contents: GASOLINE

Automatic Tank Gauge:

Inventory Control:

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - NW



PST - State/Tribal Storage Tank

Source: TCEQ

Facility #: 0051935

TCEQ Customer ID: 082576

Banks ID: 0051935

HOLCOMB FLYING SER

RT 3 A, EDINBURG, TX 78539

Contact: BEN HOLCOMB

Facility Owner Name:	HOLCOMB FLYING SERVICE INC
Facility Owner Address:	1613 EAST AVE
Facility Owner City:	WELLINGTON
Facility Owner State:	TX
Facility Owner Zip:	79095
Facility Contact Name:	BEN HOLCOMB
Facility Contact Phone:	5128423630
Number of ASTs:	0001
Number of USTs:	0000

Total Number of Tanks:

Tank #	#1
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Status:

Capacity:	12000
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Comments:

Install Date:	8/31/1989
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Closure Certification Date:

Above or Below Ground Tank:	above
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Unit ID:	158325
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Construction Material:	Steel
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Piping Material:

Tank Contents:	DIESEL
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Automatic Tank Gauge:

Inventory Control:

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - NW



PST - State/Tribal Storage Tank

Source: TCEQ

Facility #: 0011132

TCEQ Customer ID: 045350

Banks ID: 0011132

WESTSIDE KOUNTRY STORE

TX 78572

Contact: B CANTRELL

Facility Owner Name: B CANTRELL OIL COMPANY

Facility Owner Address:

Facility Owner City: RIO HONDO

Facility Owner State: TX

Facility Owner Zip: 78583

Facility Contact Name: TED VEGA

Facility Contact Phone: 956-748-2368

Number of ASTs: 0

Number of USTs: 0

Total Number of Tanks:

Tank #	#1	#2	#3
Status:	REMOVED FROM GROUND	REMOVED FROM GROUND	REMOVED FROM GROUND
Capacity:	8000	4000	4000
Comments:			
Install Date:	1/1/1985	1/1/1985	1/1/1985
Closure Certification Date:			
Above or Below Ground Tank:	below	below	below
Unit ID:			
Construction Material:	Steel	Steel	Steel
Piping Material:	FRP (fiberglass-reinforced plastic)	FRP (fiberglass-reinforced plastic)	FRP (fiberglass-reinforced plastic)
Tank Contents:	GASOLINE	GASOLINE	GASOLINE

Automatic Tank Gauge:

Inventory Control:

Tank #	#4
Status:	REMOVED FROM GROUND
Capacity:	4000
Comments:	
Install Date:	1/1/1985
Closure Certification Date:	
Above or Below Ground Tank:	below
Unit ID:	
Construction Material:	Steel
Piping Material:	FRP (fiberglass-reinforced plastic)
Tank Contents:	DIESEL

Automatic Tank Gauge:

Inventory Control:

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - NW**PST - State/Tribal Storage Tank****Source: TCEQ****Facility #: 0011140****TCEQ Customer ID: 045356****Banks ID: 0011140**

HERNANDEZ GROC TX

78572

Contact: BOB CANTRELL

Facility Owner Name: B CANTRELL OIL COMPANY**Facility Owner Address:****Facility Owner City:** RIO HONDO**Facility Owner State:** TX**Facility Owner Zip:** 78583**Facility Contact Name:** TED VEGA**Facility Contact Phone:** 956-748-2368**Number of ASTs:** 0**Number of USTs:** 0**Total Number of Tanks:**

Tank #	#1	#2
Status:	REMOVED FROM GROUND	REMOVED FROM GROUND
Capacity:	8000	8000
Comments:		
Install Date:	1/1/1985	1/1/1985
Closure Certification Date:		
Above or Below Ground Tank:	below	below
Unit ID:		
Construction Material:	Steel	Steel
Piping Material:	Steel	Steel
Tank Contents:	GASOLINE	GASOLINE
Automatic Tank Gauge:		
Inventory Control:		

End of PST Sites Section

Dataset Descriptions and Sources *TWDB Master Drainage Plan - NW*



Dataset	Source	Dataset Description	Update Schedule	Data Requested	Data Obtained	Data Updated	Source Updated
NPL -- National Priority List	EPA	NPL is the list of high priority hazardous waste sites in the United States eligible for long-term remedial action financed under the federal Superfund program and CERCLIS. Also known as Superfund sites, the EPA will only add sites to the NPL list based upon completion of the Hazard Ranking System (HRS) screening, public solicitation of comments about the proposed site, and after all comments have been addressed.	Quarterly	07/18/2013	11/05/2013	11/05/2013	10/25/2013
DNPL -- Delisted National Priority List	EPA	DNPL is a list of all sites that have been deleted from the EPA NPL list. These sites are taken off the NPL list usually due to no further response or remedial action being required on them. Notices to delete NPL sites are published in the Federal Register and become effective unless the EPA receives significant adverse or critical comments during the 30-day public comment period.	Quarterly	07/18/2013	11/05/2013	11/05/2013	10/25/2013
CER -- CERCLIS	EPA	CERCLIS sites come from the Comprehensive Environmental Response, Compensation, and Liability Act, a federal law designed to clean up abandoned hazardous waste sites. These sites are either proposed, listed or under review currently to be a part of the National Priority List.	Quarterly	07/18/2013	11/05/2013	11/05/2013	10/25/2013
CER NFRAP -- CERCLIS NFRAP	EPA	CERCLIS sites designated 'No Further Remedial Action Planned' NFRAP have been removed from CERCLIS. NFRAP sites may be sites where, following an initial investigation, no contamination was found, contamination was removed quickly without the site being placed on the NPL, or the contamination was not serious enough to require Federal Superfund action or NPL consideration.	Quarterly	07/18/2013	11/05/2013	11/05/2013	10/25/2013
RCRA COR -- RCRA CORRACTS	EPA	These sites are registered hazardous waste generators or handlers that fall under the Resource Conservation and Recovery Act (RCRA), and subject to corrective action activity.	Quarterly	11/19/2013	11/19/2013	11/19/2013	11/14/2013
RCRA TSD -- RCRA non-CORRACTS TSD	EPA	This database lists all treatment, storage and disposal of hazardous material sites that fall under the Resource Conservation and Recovery Act (RCRA). All hazardous waste TSD facilities are required to notify EPA of their existence.	Quarterly	11/19/2013	11/19/2013	11/19/2013	11/14/2013
RCRA GEN -- RCRA Generators	EPA	The EPA regulates all Hazardous Waste Generators subject to the Resource Conservation and Recovery Act (RCRA). They are classified by the quantity of hazardous waste generated. A Small Quantity Generator (SQG) generates between 100kg and 1,000 kg of waste per month. A Large Quantity Generator (LQG) generates over 1,000 kg of waste per month. A Conditionally Exempt SQG (CEG) generates less than 100 kg of waste per month.	Quarterly	11/19/2013	11/19/2013	11/19/2013	11/14/2013
FED BWN -- Federal Brownfields	EPA	A listing of sites that assist the EPA in collecting, tracking, and updating information of sites in relation to the Small Business Liability Relief and Brownfields Revitalization Act. These sites are real property that is either abandoned or underutilized where redevelopment or expansion is complicated by real or perceived environmental contamination.	Quarterly	11/05/2013	11/12/2013	11/12/2013	11/05/2013
FED IC -- Federal Institutional Control	EPA	This is a listing of Brownfield Management System (BMS) sites that have had Institutional Controls (ICs) placed on them. ICs are administrative restrictions, such as legal controls, that help minimize the potential for human exposure to known contamination by ensuring appropriate land or resource use. ICs are meant to supplement Engineering Controls and will rarely be the sole remedy at a site. ICs are a type of Activity and Use Limitation (AUL).	Quarterly	11/05/2013	11/12/2013	11/12/2013	11/05/2013
FED EC -- Federal Engineering Control	EPA	This is a listing of Brownfield Management System (BMS) sites that have had Engineering Controls (ECs) placed on them. ECs are physical methods or modifications put into place on a site to reduce or eliminate the possibility of human exposure to known contamination. ECs are a type of Activity and Use Limitation (AUL).	Quarterly	11/05/2013	11/12/2013	11/12/2013	11/05/2013

Dataset Descriptions and Sources TWDB Master Drainage Plan - NW



Dataset	Source	Dataset Description	Update Schedule	Data Requested	Data Obtained	Data Updated	Source Updated
ERNS -- ERNS List	EPA/National Response Center	ERNS is a national database used to store information on unauthorized releases of oil and hazardous substances that have been reported to the National Response Center since 2001. The NRC is the sole federal point of contact for reporting oil and chemical spills. Prior to 2001 this information was maintained by the EPA.	Annually	01/11/2013	01/18/2013	01/18/2013	12/31/2012
ST NPL -- State/Tribal Equivalent NPL	TCEQ	This database contains sites determined by the TCEQ that may constitute an imminent and substantial endangerment to public health and safety or to the environment due to a release or threatened release of hazardous substances into the environment.	Quarterly	11/05/2013	11/06/2013	11/06/2013	11/06/2013
ST CER -- State/Tribal Equivalent CERCLIS	NA	This database is not currently available from this state. If this state does make this database available in the future, Banks Environmental Data will obtain it for reporting purposes.	NA	N/A	N/A	N/A	N/A
SWLF -- State/Tribal Disposal or Landfill	TCEQ	The SWLF database contains records of municipal solid waste facilities that may accept various types of municipal solid waste for processing or disposal, depending on the type of facility. A Municipal Solid Waste facility may also accept certain special wastes and non-hazardous industrial solid wastes if approved by the TCEQ executive director.	Quarterly	01/07/2014	01/07/2014	01/07/2014	01/03/2014
SWLF -- State/Tribal Disposal or Landfill	TCEQ	This database is a listing of closed and abandoned municipal solid waste landfills. The sites included are either unauthorized (UNUM_) or permitted (PERMAPP_).	NA	N/A	N/A	N/A	N/A
LPST -- State/Tribal Leaking Storage Tank	TCEQ	This database contains information on leaking storage tanks, equipment failures, compliance, and releases in the state.	Quarterly	11/08/2013	11/08/2013	11/08/2013	11/07/2013
LPST -- State/Tribal Leaking Storage Tank	EPA	The Tribal LUST database (maintained by EPA Region 6) provides information on leaking underground storage tank on tribal lands in Louisiana, Arkansas, Oklahoma, New Mexico and Tribal Nations.	Quarterly	10/28/2013	10/30/2013	10/30/2013	10/30/2013
PST -- State/Tribal Storage Tank	TCEQ	This database contains information on above and underground storage tanks, compliance, and releases in the state.	Quarterly	11/08/2013	11/08/2013	11/08/2013	11/07/2013
PST -- State/Tribal Storage Tank	EPA	The Tribal UST database (maintained by EPA Region 6) provides underground storage tank information on tribal lands in Louisiana, Arkansas, Oklahoma, New Mexico and Tribal Nations.	Quarterly	10/28/2013	10/30/2013	10/30/2013	10/30/2013
ST IC -- State/Tribal Institutional Control	TCEQ	This database includes Voluntary Cleanup Program (VCP) or Innocent Operator Program (IOP) sites that have been remediated and have had Institutional Controls (ICs) placed on them. ICs are administrative restrictions, such as legal controls, that help minimize the potential for human exposure to known contamination by ensuring appropriate land or resource use.	Quarterly	11/13/2013	11/18/2013	11/18/2013	11/04/2013
ST IC -- State/Tribal Institutional Control	RRC	The Railroad Commission of Texas Voluntary Cleanup Program provides an incentive to remediate Oil & Gas related pollution by participants as long as they did not cause or contribute to the contamination.	Quarterly	11/08/2013	11/13/2013	11/18/2013	11/13/2013
ST EC -- State/Tribal Engineering Control	TCEQ	This database includes Voluntary Cleanup Program (VCP) or Innocent Operator Program (IOP) sites that have been remediated and have had Engineering Controls (ECs) placed on them. ECs are physical methods or modifications put into place on a site to reduce or eliminate the possibility of human exposure to known contamination.	Quarterly	11/13/2013	11/18/2013	11/18/2013	11/04/2013

Dataset Descriptions and Sources *TWDB Master Drainage Plan - NW*



Dataset	Source	Dataset Description	Update Schedule	Data Requested	Data Obtained	Data Updated	Source Updated
VCP -- State/Tribal Voluntary Cleanup	TCEQ	This database contains sites from both the Voluntary Cleanup Program (VCP) and the Innocent Operator Program (IOP). The VCP records contain information on contaminated sites that private parties have cleaned up through assistance from the State in the form of administrative, technical, and legal incentives. The IOP records are sites that have received certificates from the State acknowledging that their property is contaminated as a result of a release or migration of contaminants from a source or sources not located on the property, and they did not cause or contribute to the source or sources of contamination.	Quarterly	11/13/2013	11/18/2013	11/18/2013	11/04/2013
VCP -- State/Tribal Voluntary Cleanup	RRC	The Railroad Commission of Texas Voluntary Cleanup Program provides an incentive to remediate Oil & Gas related pollution by participants as long as they did not cause or contribute to the contamination.	Quarterly	11/08/2013	11/13/2013	11/18/2013	11/13/2013
ST BWN -- State/Tribal Brownfield	TCEQ	Brownfield sites are former industrial properties that lie dormant or underutilized due to liability associated with real or perceived contamination. In Texas, the TCEQ, in close partnership with the EPA and other federal, state, and local redevelopment agencies, and stakeholders, is facilitating cleanup, transferability, and revitalization of Brownfield's through the development of regulatory, tax, and technical assistance tools.	Quarterly	11/18/2013	11/18/2013	11/19/2013	11/04/2013
ST BWN -- State/Tribal Brownfield	RRC	The Railroad Commission of Texas' Voluntary Cleanup Program (RRC-VCP) provides an incentive to remediate Oil & Gas related pollution by participants as long as they did not cause or contribute to the contamination. Applicants to the program receive a release of liability to the state in exchange for a successful cleanup.	Quarterly	11/08/2013	11/13/2013	11/19/2013	11/13/2013
HW -- State/Tribal Hazardous Waste	TCEQ	This database contains information on facilities which store, process, or dispose of hazardous waste as maintained by the Industrial and Hazardous Waste Permits section of the TCEQ.	Quarterly	11/08/2013	11/13/2013	11/13/2013	10/05/2013
RCRA -- RCRA	EPA	This database lists all sites that fall under the Resource Conservation and Recovery Act (RCRA) and are not classifiable as treatment, storage, disposers of hazardous material, hazardous waste generator or subject to corrective action activity.	Quarterly	11/19/2013	11/19/2013	11/19/2013	11/14/2013
DRYC -- Dry Cleaners	TCEQ	Dry Cleaner data houses both the DCRP Program information and PERC information released by the TCEQ. The DCRP database contains records funded for state-lead clean up of dry cleaner related contaminated sites. The DCRP administers the Dry Cleaning Facility Release Fund to assist with remediation of contamination caused by dry cleaning solvents. There are two listings from this program: LIST#1 - A historic listing of any facility that registered with the DCRP indicating whether or not the facility has used Perchloroethylene (PERC) in the past. LIST#2 - A Prioritization list of dry cleaner sites Facilities on this list will be investigated in order to determine the existence and or extent of possible contamination. Facilities which are not current on their DCRP payments get dropped from the program. Banks Environmental Data DOES NOT REMOVE these listings from our database so that we may present a more complete historical listing of facilities that may or may not have used PERC in the past.	Quarterly	11/05/2013	11/06/2013	11/07/2013	11/06/2013

Disclaimer TWDB Master Drainage Plan - NW

The Banks Environmental Data Regulatory Database Report was prepared based upon data obtained from State, Tribal, and Federal sources known to Banks Environmental Data at the time the data was obtained. Great care has been taken by Banks in obtaining the best available data from the best available sources. However, there is a possibility that there are sources of data applicable or pertaining to this report's target property, and/or surrounding properties, to which Banks does not have access or has not accessed. Furthermore, although Banks Environmental Data performs quality assurance and quality control on all data, including data it obtains, Banks recognizes that inaccuracies in data from these sources may, and do, exist; accordingly, inaccurate data may have been used or relied upon in the preparation of this report. Even though Banks Environmental Data performs a thorough and diligent search to locate and fix any inaccuracies in the data relied upon in the preparation of this report and this report, Banks cannot guarantee or warrant the accuracy of the locations, information, data, or report. The purchaser of this report accepts this report "as is" and assumes all risk related to any potential inaccuracy contained in the report or not reported in it, whether due to a reliance by Banks Environmental Data on inaccurate data, or for any other reason [including but not limited to the negligence or express negligence of Banks Environmental Data]. If this report is being used for the Records Review section of a Phase I Site Assessment according to the ASTM 1527-13, for EPA's All Appropriate Inquiry, or for any other purpose (public or private), all liability and responsibility is assumed by the Environmental Professional or other individual or entity acquiring the report.

Prepared for:

RABA KISTNER, INC-HOUSTON
3602 Westchase
Houston, TX 77042



Regulatory Database Report

ASTM E1527-13/AAI Compliant

TWDB Master Drainage Plan - SE(2)

TX

Hidalgo County

Friday, January 10, 2014

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Geographic Summary TWDB Master Drainage Plan - SE(2)**Location**

Hidalgo, TX

Coordinates

Longitude & Latitude in Degrees Minutes Seconds	-98° 8' 50", 26° 16' 10"
Longitude & Latitude in Decimal Degrees	-98.147323°, 26.269498°
X and Y in UTM	585140.2, 2905810.01 (Zone 14)

Elevation

Target Property lies 84.51 feet above sea level.

Zip Codes Searched

Search Distance	Zip Codes
Target Property	78542, 78516, 78537, 78538, 78539, 78543, 78549, 78558, 78589
0.25 miles	78542, 78516, 78537, 78538, 78539, 78543, 78549, 78558, 78589
0.5 miles	78539, 78541, 78542, 78543, 78549, 78558, 78574, 78542, 78516, 78537, 78538, 78539, 78543, 78549, 78558, 78589
1 mile	78539, 78541, 78542, 78543, 78549, 78558, 78574, 78542, 78516, 78537, 78538, 78539, 78543, 78549, 78558, 78589

Topos Searched

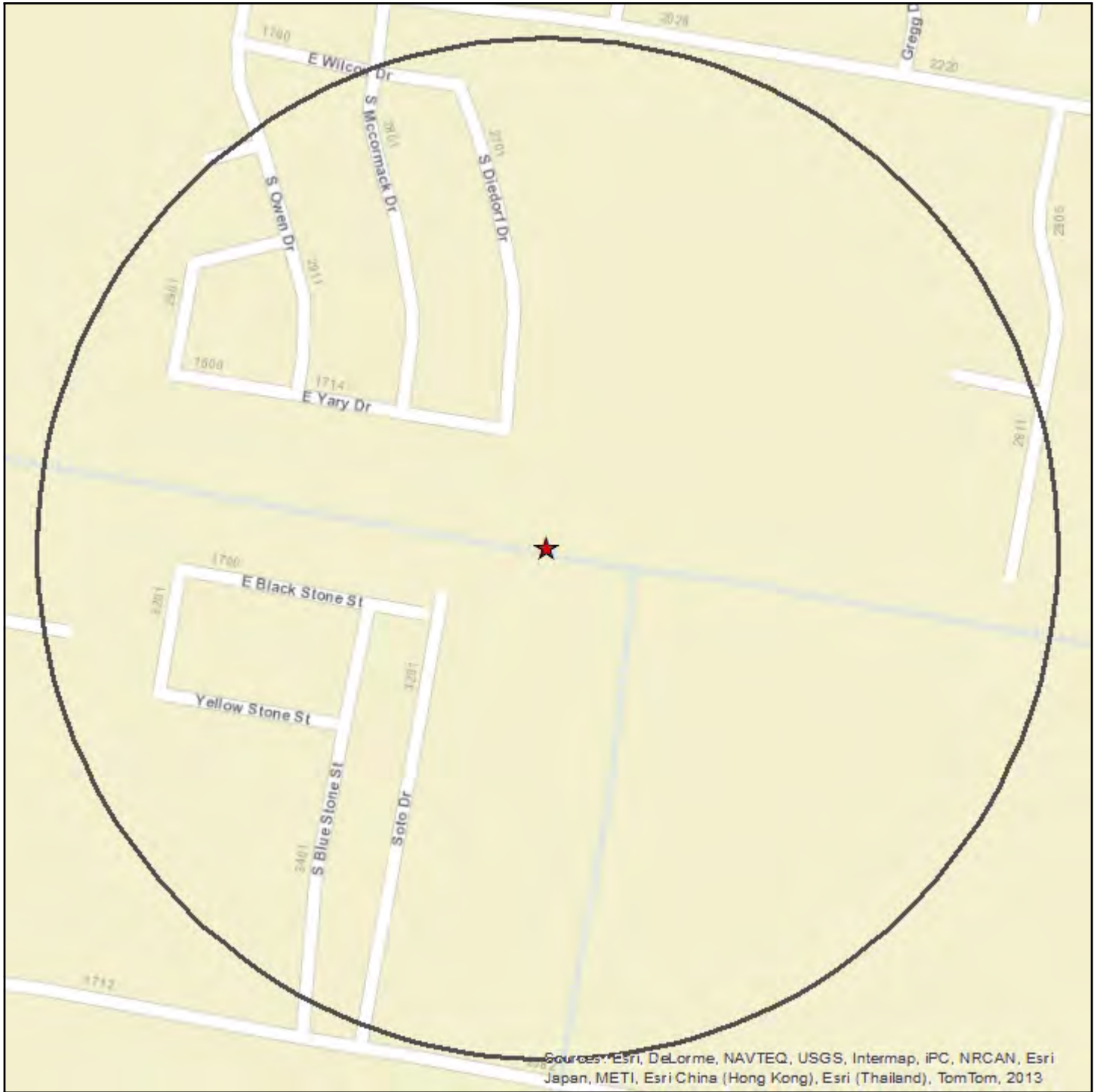
Search Distance	Topo Name
Target Property	Edinburg (1984)
0.25 miles	Edinburg (1984)
0.5 miles	Edinburg (1984)
1 mile	Edinburg (1984)

Database Summary TWDB Master Drainage Plan - SE(2)



Databases Searched	Distance Searched	# Mapped	# Not Mapped	Total
Federal - ASTM 1527-13/AAI Required				
National Priority List (NPL)	1	0	0	0
Delisted National Priority List (DNPL)	0.5	0	0	0
CERCLIS (CER)	0.5	0	0	0
CERCLIS NFRAP (CER NFRAP)	0.5	0	1	1
RCRA CORRACTS (RCRA COR)	1	0	0	0
RCRA non-CORRACTS TSD (RCRA TSD)	0.5	0	0	0
RCRA Generators (RCRA GEN)	0.25	0	0	0
Federal Brownfields (FED BWN)	0.5	0	0	0
Federal Institutional Control (FED IC)	0.5	0	0	0
Federal Engineering Control (FED EC)	0.5	0	0	0
ERNS List (ERNS)	0.25	0	1	1
State - ASTM 1527-13/AAI Required				
State/Tribal Equivalent NPL (ST NPL)	1	0	0	0
State/Tribal Equivalent CERCLIS (ST CER)	0.5	0	0	0
State/Tribal Disposal or Landfill (SWLF)	0.5	0	0	0
State/Tribal Leaking Storage Tank (LPST)	0.5	0	0	0
State/Tribal Storage Tank (PST)	0.25	0	15	15
State/Tribal Institutional Control (ST IC)	0.25	0	0	0
State/Tribal Engineering Control (ST EC)	0.5	0	0	0
State/Tribal Voluntary Cleanup (VCP)	0.5	0	0	0
State/Tribal Brownfield (ST BWN)	0.5	0	0	0
State/Tribal Hazardous Waste (HW)	0.25	0	0	0
Non-ASTM/AAI Required Databases				
RCRA (RCRA)	0.25	0	0	0
Dry Cleaners (DRYC)	0.25	0	0	0
Total Sites Found		0	17	17

Summary Map - 0.25 Mile Radius



Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2013

TWDB Master Drainage Plan - SE(2)

- | | | | |
|--|--------------|-------------|-------------------------------|
| Single Site | Cluster Site | Large Tract | Cluster Site with Large Tract |
| <i>RCRA COR, RCRA TSD, CER, LPST, NPL, ST NPL, SWLF</i> | | | |
| Single Site | Cluster Site | Large Tract | Cluster Site with Large Tract |
| <i>RCRA GEN, ST & FED BWN, ST & FED EC, ST & FED IC, DNPL, CER NFRAP, PST, VCP, ST CER</i> | | | |
| Single Site | Cluster Site | Large Tract | Cluster Site with Large Tract |
| <i>ERNS, HW, RCRA, DRYC</i> | | | |

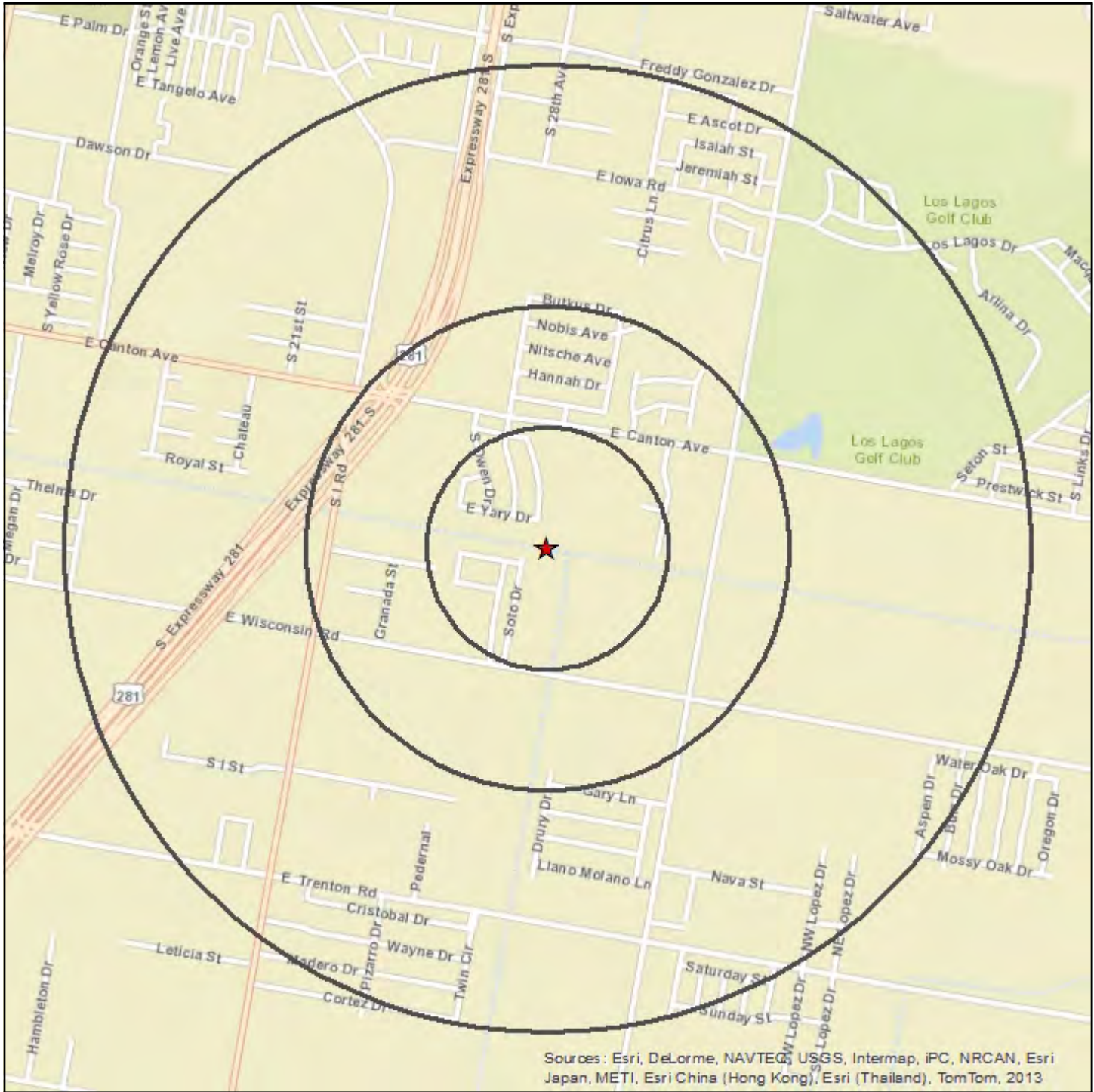
- Target Property
- Search Buffer

1 : 4,500
 1 inch = 0.071 miles
 1 inch = 375 feet
 1 centimeter = 0.045 kilometers
 1 centimeter = 45 meters



Lambert Conformal Conic Projection
 1983 North American Datum
 First Standard Parallel: 33° 00' North
 Second Standard Parallel: 45° 00' North
 Central Meridian: 96° 00' West
 Latitude of Origin: 39° 00' North

Summary Map - 1 Mile Radius



Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2013

TWDB Master Drainage Plan - SE(2)

- | | | | |
|--|---|--|--|
| ● Single Site | ● Cluster Site | ■ Large Tract | ■ Cluster Site with Large Tract |
| ● Single Site | ● Cluster Site | ■ Large Tract | ■ Cluster Site with Large Tract |
| ● Single Site | ● Cluster Site | ■ Large Tract | ■ Cluster Site with Large Tract |
- RCRA COR, RCRA TSD, CER, LPST, NPL, ST NPL, SWLF
 RCRA GEN, ST & FED BWN, ST & FED EC, ST & FED IC, DNPL, CER NFRAP, PST, VCP, ST CER
 ERNS, HW, RCRA, DRYC

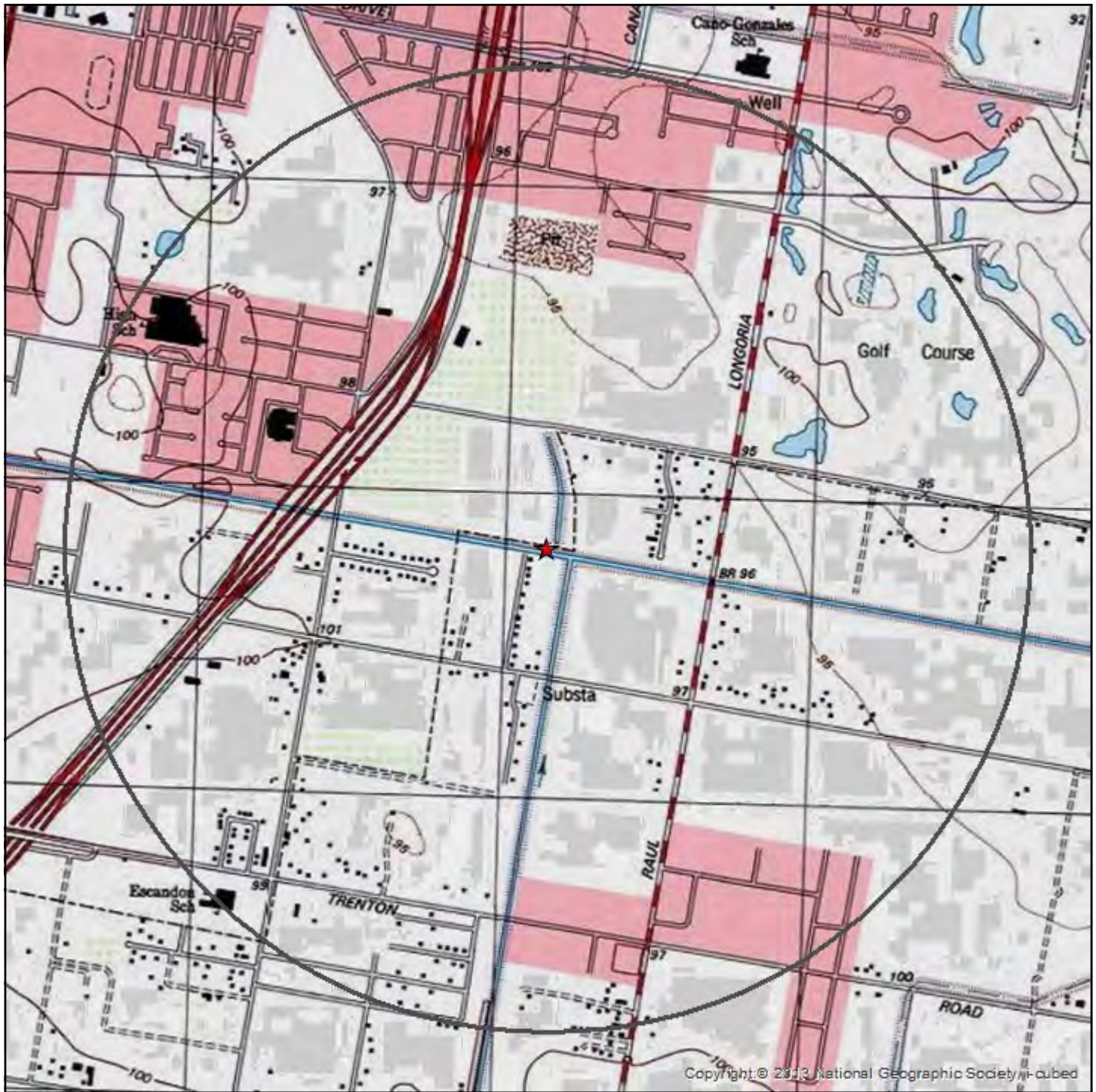
- ★ Target Property
- Search Buffer

1 : 19,000
 1 inch = 0.300 miles
 1 inch = 1583 feet
 1 centimeter = 0.190 kilometers
 1 centimeter = 190 meters

Lambert Conformal Conic Projection
 1983 North American Datum
 First Standard Parallel: 33° 00' North
 Second Standard Parallel: 45° 00' North
 Central Meridian: 96° 00' West
 Latitude of Origin: 39° 00' North



Topographic Overlay Map - 1 Mile Radius



TWDB Master Drainage Plan - SE(2)

- Target Property
- Search Buffer

Target Property Quad Name
Edinburg (1984)

1 : 19,000
1 inch = 0.300 miles
1 inch = 1583 feet
1 centimeter = 0.190 kilometers
1 centimeter = 190 meters

Lambert Conformal Conic Projection
1983 North American Datum
First Standard Parallel: 33° 00' North
Second Standard Parallel: 45° 00' North
Central Meridian: 96° 00' West
Latitude of Origin: 39° 00' North

Current Imagery Overlay Map - 0.5 Mile Radius



Source: Esri, DigitalGlobe, GeoEye, Earthstar, USDA, USGS, Aero, Sotomayor, Swisstopo, and the GIS User Community

TWDB Master Drainage Plan - SE(2)

- | | | | | |
|--|---|--|--|---|
| ● Single Site | ● Cluster Site | ■ Large Tract | ● Cluster Site with Large Tract | ★ Target Property |
| ● Single Site | ● Cluster Site | ■ Large Tract | ● Cluster Site with Large Tract | Search Buffer |
| ● Single Site | ● Cluster Site | ■ Large Tract | ● Cluster Site with Large Tract | |

RCRA COR, RCRA TSD, CER, LPST, NPL, ST NPL, SWLF
 RCRA GEN, ST & FED BWN, ST & FED EC, ST & FED IC, DNPL, CER NFRAP, PST, VCP, ST CER
 ERNS, HW, RCRA, DRYC

1 : 9,000
 1 inch = 0.142 miles
 1 inch = 750 feet
 1 centimeter = 0.090 kilometers
 1 centimeter = 90 meters



Lambert Conformal Conic Projection
 1983 North American Datum
 First Standard Parallel: 33° 00' 00" North
 Second Standard Parallel: 45° 00' 00" North
 Central Meridian: 96° 00' 00" West
 Latitude of Origin: 39° 00' 00" North

Soil Survey Map - 0.1 Mile Radius



Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2013

TWDB Master Drainage Plan - SE(2)

- | | | | | |
|-------------|--------------|-------------|-------------------------------|-----------------|
| Single Site | Cluster Site | Large Tract | Cluster Site with Large Tract | Target Property |
| Single Site | Cluster Site | Large Tract | Cluster Site with Large Tract | Search Buffer |
| Single Site | Cluster Site | Large Tract | Cluster Site with Large Tract | Soils Boundary |
- RCRA COR, RCRA TSD, CER, LPST, NPL, ST NPL, SWLF*
RCRA GEN, ST & FED BWN, ST & FED EC, ST & FED IC, DNPL, CER NFRAP, PST, VCP, ST CER
ERNS, HW, RCRA, DRYC

1 : 2,000
 1 inch = 0.032 miles
 1 inch = 167 feet
 1 centimeter = 0.020 kilometers
 1 centimeter = 20 meters



Lambert Conformal Conic Projection
 1983 North American Datum
 First Standard Parallel: 33° 00' North
 Second Standard Parallel: 45° 00' North
 Central Meridian: 96° 00' West
 Latitude of Origin: 39° 00' North



Soils TWDB Master Drainage Plan - SE(2)

Soils Types Found

Target Property	28
Within 0.1 miles of Target Property	28

Soil Type Descriptions

28 - Hidalgo sandy clay loam, 0 to 1 percent slopes

Hydric Status	0
Minimum Depth to Bedrock	

Hidalgo (80 percent)

Hydrologic Group	Moderately low runoff potential
Soil Drainage Class	Well drained
Corrosion Potential - Uncoated Steel	High
Depth to Restrictive Feature	

Horizon	Soil Texture	Upper Boundary	Lower Boundary	AASHTO	Unified
H1	Sandy clay loam	0 cm	43 cm	A-6	CL, SC
H2	Sandy clay loam	43 cm	71 cm	A-6	CL, SC
H3	Sandy clay loam	71 cm	203 cm	A-6, A-7-6	CL, SC

Unnamed, minor components (20 percent)

Soils Descriptions TWDB Master Drainage Plan - SE(2)**AASHTO Classification Definitions**

A-1, A-1-a, A-1-b	Granular materials (35% or less passing No. 200 sieve), silt fragments, gravel and sand
A-2, A-2-4, A-2-5, A-2-6, A-2-7	Granular materials (35% or less passing No. 200 sieve), silty or clayey gravel and sand
A-3	Granular materials (35% or less passing No. 200 sieve), fine sand
A-4	Silt-Clay materials (more than 35% passing No. 200 sieve), silty soils
A-5	Silt-Clay materials (more than 35% passing No. 200 sieve), silty soils
A-6	Silt-Clay materials (more than 35% passing No. 200 sieve), clayey soils
A-7, A-7-5, A-7-6	Silt-Clay materials (more than 35% passing No. 200 sieve), clayey soils
A-8	Silt-Clay materials (more than 35% passing No. 200 sieve), clayey soils

Unified Classification Definitions

CH	Fine-grained soils, silts and clays (liquid limit is 50% or more), Fat Clay
CL, CL-A (proposed), CL-K (proposed), CL-ML, CL-O (proposed), CL-T (proposed)	Fine-grained soils, silts and clays (liquid limit is less than 50%), Lean Clay
GC, GC-GM	Coarse-grained soils, Gravels, gravel with fines, Clayey Gravel
GM	Coarse-grained soils, Gravels, gravel with fines, Silty Gravel
GP, GP-GC, GP-GM	Coarse-grained soils, Gravels, clean gravels, Poorly Graded Gravel
GW, GW-GC, GW-GM	Coarse-grained soils, Gravels, clean gravels, Well-Graded Gravel
MH, MH-A, MH-K, MH-O, MH-T	Fine-grained soils, silts and clays (liquid limit is 50% or more), Elastic Silt
ML, ML-A (proposed), ML-K (proposed), ML-O (proposed), ML-T (proposed)	Fine-grained soils, silts and clays (liquid limit is less than 50%), Silt
OH, OH-T (proposed)	Fine-grained soils, silts and clays (liquid limit is 50% or more), Organic Clay or Organic Silt
OL	Fine-grained soils, silts and clays (liquid limit is less than 50%), Organic Clay or Organic Silt
PT	Highly organic soils, Peat
SC, SC-SM	Coarse-grained soils, Sands, sands with fines, Clayey Sand
SM	Coarse-grained soils, Sands, sands with fines, Silty Sand
SP, SP-SC, SP-SM	Coarse-grained soils, Sands, clean sands, Poorly Graded Sand
SW, SW-SC, SW-SM	Coarse-grained soils, Sands, clean sands, Well-Graded Sand

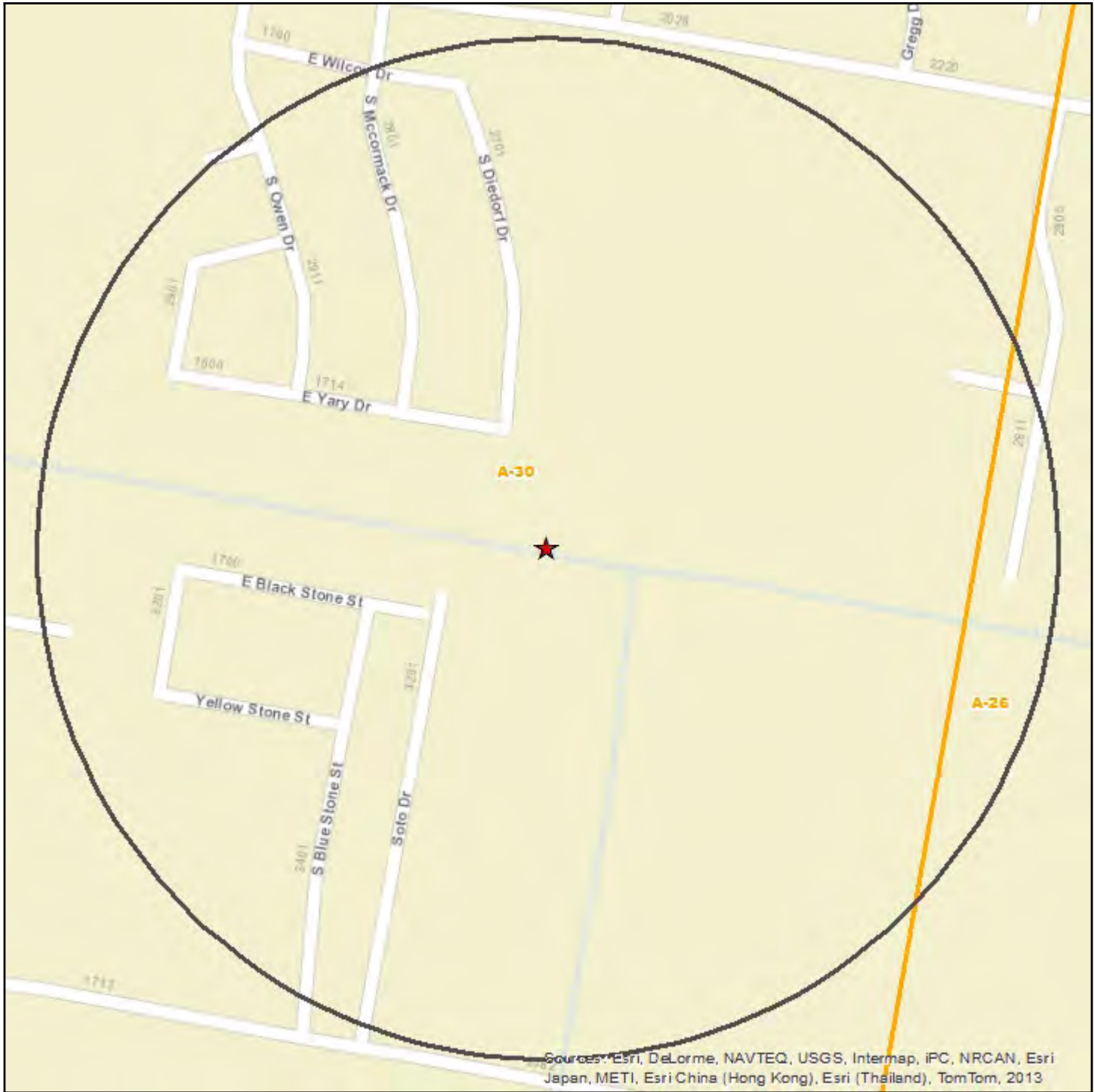
Source

Natural Resources Conservation Service, Soil Survey Geographic (SSURGO) Database.

Disclaimer

This Soils Survey from Banks Environmental Data, Inc. has searched Natural Resources Conservation Service (NRCS) and the Soil Survey Geographic Database (SSURGO). All soil data presented on the map and in the details section are based on information obtained from NRCS. Although Banks performs quality assurance and quality control on all data, inaccuracies of the data and mapped locations could possibly be traced to the source. Banks Environmental Data, Inc. cannot fully guarantee the accuracy of the SSURGO database maintained by NRCS.

Water & Oil/Gas Wells Map - 0.25 Mile Radius



Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2013

TWDB Master Drainage Plan - SE(2)

- Single Water Well
- Water Well Cluster
- Single Oil/Gas/Other Well
- Oil/Gas/Other Well Cluster
- Water/Oil/Gas/Other Well Cluster

- ★ Target Property
- Search Buffer
- Texas Land Survey

1 : 4,500
 1 inch = 0.071 miles
 1 inch = 375 feet
 1 centimeter = 0.045 kilometers
 1 centimeter = 45 meters



Lambert Conformal Conic Projection
 1983 North American Datum
 First Standard Parallel: 33° 00' North
 Second Standard Parallel: 45° 00' North
 Central Meridian: 96° 00' West
 Latitude of Origin: 39° 00' North

This well scan searched for state and federal wells currently digitized in our geospatial database. No wells were found, but more wells could exist within the search area.

Source

U.S. Geological Survey, Texas Water Development Board (GW and Submitted Driller's Report), Texas Commission of Environmental Quality (PWS), Railroad Commission of Texas (Production Data)

Disclaimer

This well scan from Banks Environmental Data, Inc. has included a digital search of state and federal wells currently digitized in our geospatial database. Since this scan includes only well data that is currently mapped in our geospatial database, more wells could exist within the search area. For a complete well search or to locate more details, please contact Banks to obtain a full Water Well Report or Oil & Gas Well/Pipeline Search Report. More detailed individual well records can also be obtained from Banks for an additional cost, please reference a Well ID # from this well scan.

All well locations are based on information obtained from state and federal sources. Although Banks performs quality assurance and quality control on all data, inaccuracies of the records and mapped locations could possibly be traced to the specific regulatory authority or individual well driller. Banks Environmental Data, Inc. cannot fully guarantee the accuracy of the data or well location(s) of the maps and records maintained by the state and federal agencies.

Banks Environmental Data performed a thorough search and no mapped sites were found.

Unmapped Sites Summary TWDB Master Drainage Plan - SE(2)

Database	Facility Site Name	Facility Site Address	Site Details Page #
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*Sites are sorted by database tier and database.

CER NFRAP	ILLINI HELICOPTER	P.O. BOX 1601, EDINBURG, TX 78539	18
ERNS		ROUTE 7 BOX 980, EDINBURG, TX 78541	19
PST	TNT GROCERY	TX 78537	20
PST	ALANIZ GROCERY	TX 78539	21
PST	FFP 680	RT 2, EDINBURG, TX 78539	22
PST	MC ALLEN PRODUCTION UNIT OFFICE	EDINBURG, TX 78539	23
PST	SUN-UP THE FOOD STORE	RT 2, EDINBURG, TX 78539	24
PST	M & R DRIVE INN	TX 78539	25
PST	OTTO WAGNER SR	RT 3 D, EDINBURG, TX 78539	26
PST	RON WILSHER	RT 7, EDINBURG, TX 78539	27
PST	EDINBURG WELL SERVICE	RR 3, EDINBURG, TX 78539	28
PST	LUNAS DRIVE IN 2	RR 7 BOX 11500, EDINBURG, TX 78541	29
PST	HOLCOMB FLYING SER	RT 3 A, EDINBURG, TX 78539	30
PST	L & E DRIVE INN	TX 78543	31
PST	DOUBLE F QUICK STOP	TX 78549	32
PST	WESTSIDE KOUNTRY STORE	TX 78572	33
PST	HERNANDEZ GROC	TX 78572	34

End of Unmapped Sites Summary Section

Zip Code Map - 1 Mile Radius



Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2013

TWDB Master Drainage Plan - SE(2)

- Target Property
- Search Buffer
- Zip Code Boundary

1 : 19,000
 1 inch = 0.300 miles
 1 inch = 1583 feet
 1 centimeter = 0.190 kilometers
 1 centimeter = 190 meters



Lambert Conformal Conic Projection
 1983 North American Datum
 First Standard Parallel: 33° 00' North
 Second Standard Parallel: 45° 00' North
 Central Meridian: 96° 00' West
 Latitude of Origin: 39° 00' North

Unmapped Sites Details: CER NFRAP (MapID) TWDB Master Drainage Plan



CER NFRAP - CERCLIS NFRAP

CER NFRAP - CERCLIS NFRAP

Source: EPA

Site ID: 0603061

EPA ID: TXD981047871

Banks ID: 0603061

ILLINI HELICOPTER

P.O. BOX 1601, EDINBURG, TX 78539

Contact:

National Priority List Status: Not on the NPL
Facility Type: Not a federal facility

Aliases:**Additional Info:** <http://cfpub.epa.gov/supercpad/cursites/calinfo.cfm?id=0603061>

Action	Start Date	Completion Date
DISCOVERY		1/1/1985 12:00:00 AM
PRELIMINARY ASSESSMENT	3/1/1986	3/1/1986 12:00:00 AM
ARCHIVE SITE		3/1/1986 12:00:00 AM

End of CER NFRAP Sites Section

Unmapped Sites Details: ERNS (MapID) TWDB Master Drainage Plan - SE(2)



ERNS - ERNS List

ERNS - ERNS List		Source: EPA/National Response Center
NRC Report #: 812479	Secondary ID: NA	Banks ID: 812479
ROUTE 7 BOX 980, EDINBURG, TX 78541		
Contact:		
Responsible Party:	NB EXPRESS	
Incident Location:		
Incident Date/Time:	9/24/2006 7:00 AM	
Cause of Incident:	NATURAL PHENOMENON	
Description of Incident:	THE CALLER IS REPORTING THAT DUE TO HEAVY RAIN, THERE WAS A RELEASE OF MATERIALS ONTO THE GROUND AND INTO STANDING WATER FROM CAR PARTS.	
Incident Type:	FIXED	
Additional Information:	THE CALLER HAD NO ADDITIONAL INFORMATION	
Any Fatalities:	No	
Number of Fatalities:		
Remedial Action Taken:	NONE	
Medium Affected:	WATER	
Medium Description:	LAND>STANDING WATER	
Materials Spilled:	UNKNOWN OIL	
Railroad Involved:		
Pipeline Type Involved:		
Source:	TELEPHONE	

End of ERNS Sites Section

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - SE(2)



PST - State/Tribal Storage Tank

PST - State/Tribal Storage Tank

Source: TCEQ

Facility #: 0011113

TCEQ Customer ID: 045335

Banks ID: 0011113

TNT GROCERY

TX 78537

Contact: B CANTRELL

Facility Owner Name: B CANTRELL OIL COMPANY

Facility Owner Address:

Facility Owner City: RIO HONDO

Facility Owner State: TX

Facility Owner Zip: 78583

Facility Contact Name: TED VEGA

Facility Contact Phone: 956-748-2368

Number of ASTs: 0

Number of USTs: 0

Total Number of Tanks:

Tank #	#1	#2
Status:	REMOVED FROM GROUND	REMOVED FROM GROUND
Capacity:	8000	8000
Comments:		
Install Date:	1/1/1975	1/1/1975
Closure Certification Date:		
Above or Below Ground Tank:	below	below
Unit ID:		
Construction Material:	Steel	Steel
Piping Material:	Steel	Steel
Tank Contents:	GASOLINE	GASOLINE
Automatic Tank Gauge:		
Inventory Control:		

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - SE(2)



PST - State/Tribal Storage Tank

Source: TCEQ

Facility #: 0011107

TCEQ Customer ID: 045329

Banks ID: 0011107

ALANIZ GROCERY

TX 78539

Contact:

Facility Owner Name: B CANTRELL OIL COMPANY

Facility Owner Address:

Facility Owner City: RIO HONDO

Facility Owner State: TX

Facility Owner Zip: 78583

Facility Contact Name: TED VEGA

Facility Contact Phone: 956-748-2368

Number of ASTs: 0

Number of USTs: 0

Total Number of Tanks:

Tank #	#1	#2
Status:	REMOVED FROM GROUND	REMOVED FROM GROUND
Capacity:	8000	8000
Comments:		
Install Date:	1/1/1981	1/1/1981
Closure Certification Date:		
Above or Below Ground Tank:	below	below
Unit ID:		
Construction Material:	Steel	Steel
Piping Material:	Steel	Steel
Tank Contents:	GASOLINE	GASOLINE
Automatic Tank Gauge:		
Inventory Control:		

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - SE(2)



PST - State/Tribal Storage Tank

Source: TCEQ

Facility #: 0018450

TCEQ Customer ID: 072830

Banks ID: 0018450

FFP 680

RT 2, EDINBURG, TX 78539

Contact:

Facility Owner Name: FFP OPERATING PARTNERS LP

Facility Owner Address: 2801 GLENDA ST

Facility Owner City: FORT WORTH

Facility Owner State: TX

Facility Owner Zip: 761174326

Facility Contact Name: MARK LIPSCOMB

Facility Contact Phone: 817-838-4701

Number of ASTs: 0

Number of USTs: 0

Total Number of Tanks:

Tank #	#1	#2	#3
Status:	REMOVED FROM GROUND	REMOVED FROM GROUND	REMOVED FROM GROUND
Capacity:	8000	4000	4000
Comments:			
Install Date:	1/1/1977	1/1/1977	1/1/1977
Closure Certification Date:			
Above or Below Ground Tank:	below	below	below
Unit ID:			
Construction Material:	Steel	Steel	Steel
Piping Material:	Steel	Steel	Steel
Tank Contents:	GASOLINE	GASOLINE	GASOLINE
Automatic Tank Gauge:			
Inventory Control:			

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - SE(2)**PST - State/Tribal Storage Tank****Source: TCEQ****Facility #: 0034676****TCEQ Customer ID: 067146****Banks ID: 0034676**

MC ALLEN PRODUCTION UNIT OFFICE

EDINBURG, TX 78539

Contact: J R ABLE

Facility Owner Name: SHELL WESTERN E & P INC**Facility Owner Address:****Facility Owner City:** HOUSTON**Facility Owner State:** TX**Facility Owner Zip:** 77001**Facility Contact Name:** J R ABLE**Facility Contact Phone:** 713-870-3443**Number of ASTs:** 0**Number of USTs:** 0**Total Number of Tanks:****Tank #** #1**Status:** REMOVED FROM GROUND**Capacity:** 10000**Comments:****Install Date:** 1/1/1976**Closure Certification Date:****Above or Below Ground Tank:** below**Unit ID:****Construction Material:** FRP (fiberglass-reinforced plastic)**Piping Material:** Steel**Tank Contents:** GASOLINE**Automatic Tank Gauge:****Inventory Control:**

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - SE(2)



PST - State/Tribal Storage Tank

Source: TCEQ

Facility #: 0043072

TCEQ Customer ID: 071887

Banks ID: 0043072

SUN-UP THE FOOD STORE

RT 2, EDINBURG, TX 78539

Contact: JOSE LUIS SALINAS

Facility Owner Name: JOSE LUIS SALINAS

Facility Owner Address:

Facility Owner City: EDINBURG

Facility Owner State: TX

Facility Owner Zip: 78539

Facility Contact Name:

Facility Contact Phone: 512-383-0551

Number of ASTs: 0000

Number of USTs: 0003

Total Number of Tanks:

Tank #	#1	#2	#3
Status:	IN USE	IN USE	IN USE
Capacity:	8000	8000	4000
Comments:			
Install Date:	1/1/1966	1/1/1966	1/1/1966
Closure Certification Date:			
Above or Below Ground Tank:	below	below	below
Unit ID:			
Construction Material:	Steel	Steel	Steel
Piping Material:	Steel	Steel	Steel
Tank Contents:	GASOLINE	GASOLINE	GASOLINE

Automatic Tank Gauge:

Inventory Control:

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - SE(2)



PST - State/Tribal Storage Tank

Source: TCEQ

Facility #: 0046156

TCEQ Customer ID: 045375

Banks ID: 0046156

M & R DRIVE INN

TX 78539

Contact:

Facility Owner Name: B CANTRELL OIL COMPANY

Facility Owner Address:

Facility Owner City: RIO HONDO

Facility Owner State: TX

Facility Owner Zip: 78583

Facility Contact Name: TED VEGA

Facility Contact Phone: 956-748-2368

Number of ASTs: 0

Number of USTs: 0

Total Number of Tanks:

Tank #	#1	#2
Status:	REMOVED FROM GROUND	REMOVED FROM GROUND
Capacity:	8000	8000
Comments:		
Install Date:	1/1/1986	1/1/1986
Closure Certification Date:		
Above or Below Ground Tank:	below	below
Unit ID:		
Construction Material:	Steel	Steel
Piping Material:	FRP (fiberglass-reinforced plastic)	FRP (fiberglass-reinforced plastic)
Tank Contents:	GASOLINE	GASOLINE
Automatic Tank Gauge:		
Inventory Control:		

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - SE(2)



PST - State/Tribal Storage Tank

Source: TCEQ

Facility #: 0051533

TCEQ Customer ID: 060113

Banks ID: 0051533

OTTO WAGNER SR

RT 3 D, EDINBURG, TX 78539

Contact:

Facility Owner Name: BROWNIES OIL CO INC

Facility Owner Address:

Facility Owner City: MCALLEN

Facility Owner State: TX

Facility Owner Zip: 78502

Facility Contact Name:

Facility Contact Phone: 2106863791

Number of ASTs: 0

Number of USTs: 0

Total Number of Tanks:

Tank # #1

Status:

Capacity: 1900

Comments:

Install Date: 1/1/1974

Closure Certification Date:

Above or Below Ground Tank: above

Unit ID: 157445

Construction Material: Steel

Piping Material:

Tank Contents: DIESEL

Automatic Tank Gauge:

Inventory Control:

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - SE(2)



PST - State/Tribal Storage Tank

Source: TCEQ

Facility #: 0058911

TCEQ Customer ID: 089290

Banks ID: 0058911

RON WILSHER

RT 7, EDINBURG, TX 78539

Contact: RON WILSHER

Facility Owner Name:	WILSHER RON
Facility Owner Address:	2201 W MONTE CRISTO
Facility Owner City:	EDINBURG
Facility Owner State:	TX
Facility Owner Zip:	78539
Facility Contact Name:	RON WILSHER
Facility Contact Phone:	5123833442
Number of ASTs:	0001
Number of USTs:	0000

Total Number of Tanks:

Tank #	#1
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Status:

Capacity:	3000
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Comments:

Install Date:	1/1/1990
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Closure Certification Date:

Above or Below Ground Tank:	above
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Unit ID:	163733
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Construction Material:	Steel
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Piping Material:

Tank Contents:	DIESEL
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Automatic Tank Gauge:

Inventory Control:

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - SE(2)



PST - State/Tribal Storage Tank

Source: TCEQ

Facility #: 0068255

TCEQ Customer ID: 103085

Banks ID: 0068255

EDINBURG WELL SERVICE

RR 3, EDINBURG, TX 78539

Contact: GEORGE GELLERSEN

Facility Owner Name:	DAWSON WELL SERVICING INC
Facility Owner Address:	6 DESTA DR, STE 4400
Facility Owner City:	MIDLAND
Facility Owner State:	TX
Facility Owner Zip:	76902
Facility Contact Name:	FRANK CASTANEDA
Facility Contact Phone:	830-277-1451
Number of ASTs:	0
Number of USTs:	0

Total Number of Tanks:

Tank #	#J
Status:	
Capacity:	6000
Comments:	
Install Date:	12/21/1995
Closure Certification Date:	
Above or Below Ground Tank:	above
Unit ID:	178881
Construction Material:	Steel
Piping Material:	
Tank Contents:	DIESEL
Automatic Tank Gauge:	
Inventory Control:	

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - SE(2)



PST - State/Tribal Storage Tank

Source: TCEQ

Facility #: 0074043

TCEQ Customer ID: 112895

Banks ID: 0074043

LUNAS DRIVE IN 2

RR 7 BOX 11500, EDINBURG, TX 78541

Contact: HECTOR LUNA

Facility Owner Name: VICTORIA MARTINEZ

Facility Owner Address:

Facility Owner City: EDINBURG

Facility Owner State: TX

Facility Owner Zip: 78540

Facility Contact Name: VICTORIA MARTINEZ

Facility Contact Phone: 956-451-2021

Number of ASTs: 0000

Number of USTs: 0001

Total Number of Tanks:

Tank # #1

Status: IN USE

Capacity: 10000

Comments:

Install Date: 7/1/1996

Closure Certification Date:

Above or Below Ground Tank: below

Unit ID:

Construction Material:

Piping Material: FRP (fiberglass-reinforced plastic)

Tank Contents: GASOLINE

Automatic Tank Gauge:

Inventory Control:

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - SE(2)



PST - State/Tribal Storage Tank

Source: TCEQ

Facility #: 0051935

TCEQ Customer ID: 082576

Banks ID: 0051935

HOLCOMB FLYING SER

RT 3 A, EDINBURG, TX 78539

Contact: BEN HOLCOMB

Facility Owner Name:	HOLCOMB FLYING SERVICE INC
Facility Owner Address:	1613 EAST AVE
Facility Owner City:	WELLINGTON
Facility Owner State:	TX
Facility Owner Zip:	79095
Facility Contact Name:	BEN HOLCOMB
Facility Contact Phone:	5128423630
Number of ASTs:	0001
Number of USTs:	0000

Total Number of Tanks:

Tank #	#1
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Status:

Capacity:	12000
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Comments:

Install Date:	8/31/1989
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Closure Certification Date:

Above or Below Ground Tank:	above
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Unit ID:	158325
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Construction Material:	Steel
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Piping Material:

Tank Contents:	DIESEL
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Automatic Tank Gauge:

Inventory Control:

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - SE(2)



PST - State/Tribal Storage Tank

Source: TCEQ

Facility #: 0046093

TCEQ Customer ID: 045369

Banks ID: 0046093

L & E DRIVE INN

TX 78543

Contact: MIKE IRBY

Facility Owner Name:	VALLEY ASSETS HOLDING INC
Facility Owner Address:	2909 HILLCROFT ST, STE 300
Facility Owner City:	HOUSTON
Facility Owner State:	TX
Facility Owner Zip:	770575843
Facility Contact Name:	ORLANDO SALDIVAR
Facility Contact Phone:	956-748-2311
Number of ASTs:	0000
Number of USTs:	0002

Total Number of Tanks:

Tank #	#1	#2
Status:	IN USE	IN USE
Capacity:	6000	6000
Comments:		
Install Date:	5/26/1988	5/26/1988
Closure Certification Date:		
Above or Below Ground Tank:	below	below

Unit ID:

Construction Material:	Composite (steel w/external FRP cladding)	Composite (steel w/external FRP cladding)
Piping Material:	FRP (fiberglass-reinforced plastic)	FRP (fiberglass-reinforced plastic)
Tank Contents:	GASOLINE	GASOLINE
Automatic Tank Gauge:		
Inventory Control:		

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - SE(2)



PST - State/Tribal Storage Tank

Source: TCEQ

Facility #: 0046149

TCEQ Customer ID: 045370

Banks ID: 0046149

DOUBLE F QUICK STOP

TX 78549

Contact: ALBERT MENDOZA

Facility Owner Name:	VALLEY ASSETS HOLDING INC	
Facility Owner Address:	2909 HILLCROFT ST, STE 300	
Facility Owner City:	HOUSTON	
Facility Owner State:	TX	
Facility Owner Zip:	770575843	
Facility Contact Name:	ORLANDO SALDIVAR	
Facility Contact Phone:	956-748-2311	
Number of ASTs:	0000	
Number of USTs:	0002	
Total Number of Tanks:		
Tank #	#1	#2
Status:	TEMP OUT OF SERVICE	TEMP OUT OF SERVICE
Capacity:	6000	6000
Comments:		
Install Date:	11/9/1986	11/9/1986
Closure Certification Date:		
Above or Below Ground Tank:	below	below
Unit ID:		
Construction Material:	Composite (steel w/external FRP cladding)	Composite (steel w/external FRP cladding)
Piping Material:	FRP (fiberglass-reinforced plastic)	FRP (fiberglass-reinforced plastic)
Tank Contents:	GASOLINE	GASOLINE
Automatic Tank Gauge:		
Inventory Control:		

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - SE(2)



PST - State/Tribal Storage Tank

Source: TCEQ

Facility #: 0011132

TCEQ Customer ID: 045350

Banks ID: 0011132

WESTSIDE KOUNTRY STORE

TX 78572

Contact: B CANTRELL

Facility Owner Name: B CANTRELL OIL COMPANY

Facility Owner Address:

Facility Owner City: RIO HONDO

Facility Owner State: TX

Facility Owner Zip: 78583

Facility Contact Name: TED VEGA

Facility Contact Phone: 956-748-2368

Number of ASTs: 0

Number of USTs: 0

Total Number of Tanks:

Tank #	#1	#2	#3
Status:	REMOVED FROM GROUND	REMOVED FROM GROUND	REMOVED FROM GROUND
Capacity:	8000	4000	4000
Comments:			
Install Date:	1/1/1985	1/1/1985	1/1/1985
Closure Certification Date:			
Above or Below Ground Tank:	below	below	below
Unit ID:			
Construction Material:	Steel	Steel	Steel
Piping Material:	FRP (fiberglass-reinforced plastic)	FRP (fiberglass-reinforced plastic)	FRP (fiberglass-reinforced plastic)
Tank Contents:	GASOLINE	GASOLINE	GASOLINE

Automatic Tank Gauge:

Inventory Control:

Tank #	#4
Status:	REMOVED FROM GROUND
Capacity:	4000
Comments:	
Install Date:	1/1/1985
Closure Certification Date:	
Above or Below Ground Tank:	below
Unit ID:	
Construction Material:	Steel
Piping Material:	FRP (fiberglass-reinforced plastic)
Tank Contents:	DIESEL

Automatic Tank Gauge:

Inventory Control:

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - SE(2)**PST - State/Tribal Storage Tank****Source: TCEQ****Facility #: 0011140****TCEQ Customer ID: 045356****Banks ID: 0011140**

HERNANDEZ GROC TX

78572

Contact: BOB CANTRELL

Facility Owner Name: B CANTRELL OIL COMPANY**Facility Owner Address:****Facility Owner City:** RIO HONDO**Facility Owner State:** TX**Facility Owner Zip:** 78583**Facility Contact Name:** TED VEGA**Facility Contact Phone:** 956-748-2368**Number of ASTs:** 0**Number of USTs:** 0**Total Number of Tanks:**

Tank #	#1	#2
Status:	REMOVED FROM GROUND	REMOVED FROM GROUND
Capacity:	8000	8000
Comments:		
Install Date:	1/1/1985	1/1/1985
Closure Certification Date:		
Above or Below Ground Tank:	below	below
Unit ID:		
Construction Material:	Steel	Steel
Piping Material:	Steel	Steel
Tank Contents:	GASOLINE	GASOLINE
Automatic Tank Gauge:		
Inventory Control:		

End of PST Sites Section

Dataset Descriptions and Sources TWDB Master Drainage Plan - SE(2)



Dataset	Source	Dataset Description	Update Schedule	Data Requested	Data Obtained	Data Updated	Source Updated
NPL -- National Priority List	EPA	NPL is the list of high priority hazardous waste sites in the United States eligible for long-term remedial action financed under the federal Superfund program and CERCLIS. Also known as Superfund sites, the EPA will only add sites to the NPL list based upon completion of the Hazard Ranking System (HRS) screening, public solicitation of comments about the proposed site, and after all comments have been addressed.	Quarterly	07/18/2013	11/05/2013	11/05/2013	10/25/2013
DNPL -- Delisted National Priority List	EPA	DNPL is a list of all sites that have been deleted from the EPA NPL list. These sites are taken off the NPL list usually due to no further response or remedial action being required on them. Notices to delete NPL sites are published in the Federal Register and become effective unless the EPA receives significant adverse or critical comments during the 30-day public comment period.	Quarterly	07/18/2013	11/05/2013	11/05/2013	10/25/2013
CER -- CERCLIS	EPA	CERCLIS sites come from the Comprehensive Environmental Response, Compensation, and Liability Act, a federal law designed to clean up abandoned hazardous waste sites. These sites are either proposed, listed or under review currently to be a part of the National Priority List.	Quarterly	07/18/2013	11/05/2013	11/05/2013	10/25/2013
CER NFRAP -- CERCLIS NFRAP	EPA	CERCLIS sites designated 'No Further Remedial Action Planned' NFRAP have been removed from CERCLIS. NFRAP sites may be sites where, following an initial investigation, no contamination was found, contamination was removed quickly without the site being placed on the NPL, or the contamination was not serious enough to require Federal Superfund action or NPL consideration.	Quarterly	07/18/2013	11/05/2013	11/05/2013	10/25/2013
RCRA COR -- RCRA CORRACTS	EPA	These sites are registered hazardous waste generators or handlers that fall under the Resource Conservation and Recovery Act (RCRA). and subject to corrective action activity.	Quarterly	11/19/2013	11/19/2013	11/19/2013	11/14/2013
RCRA TSD -- RCRA non-CORRACTS TSD	EPA	This database lists all treatment, storage and disposal of hazardous material sites that fall under the Resource Conservation and Recovery Act (RCRA). All hazardous waste TSD facilities are required to notify EPA of their existence.	Quarterly	11/19/2013	11/19/2013	11/19/2013	11/14/2013
RCRA GEN -- RCRA Generators	EPA	The EPA regulates all Hazardous Waste Generators subject to the Resource Conservation and Recovery Act (RCRA). They are classified by the quantity of hazardous waste generated. A Small Quantity Generator (SQG) generates between 100kg and 1,000 kg of waste per month. A Large Quantity Generator (LQG) generates over 1,000 kg of waste per month. A Conditionally Exempt SQG (CEG) generates less than 100 kg of waste per month.	Quarterly	11/19/2013	11/19/2013	11/19/2013	11/14/2013
FED BWN -- Federal Brownfields	EPA	A listing of sites that assist the EPA in collecting, tracking, and updating information of sites in relation to the Small Business Liability Relief and Brownfields Revitalization Act. These sites are real property that is either abandoned or underutilized where redevelopment or expansion is complicated by real or perceived environmental contamination.	Quarterly	11/05/2013	11/12/2013	11/12/2013	11/05/2013
FED IC -- Federal Institutional Control	EPA	This is a listing of Brownfield Management System (BMS) sites that have had Institutional Controls (ICs) placed on them. ICs are administrative restrictions, such as legal controls, that help minimize the potential for human exposure to known contamination by ensuring appropriate land or resource use. ICs are meant to supplement Engineering Controls and will rarely be the sole remedy at a site. ICs are a type of Activity and Use Limitation (AUL).	Quarterly	11/05/2013	11/12/2013	11/12/2013	11/05/2013
FED EC -- Federal Engineering Control	EPA	This is a listing of Brownfield Management System (BMS) sites that have had Engineering Controls (ECs) placed on them. ECs are physical methods or modifications put into place on a site to reduce or eliminate the possibility of human exposure to known contamination. ECs are a type of Activity and Use Limitation (AUL).	Quarterly	11/05/2013	11/12/2013	11/12/2013	11/05/2013

Dataset Descriptions and Sources TWDB Master Drainage Plan - SE(2)



Dataset	Source	Dataset Description	Update Schedule	Data Requested	Data Obtained	Data Updated	Source Updated
ERNS -- ERNS List	EPA/National Response Center	ERNS is a national database used to store information on unauthorized releases of oil and hazardous substances that have been reported to the National Response Center since 2001. The NRC is the sole federal point of contact for reporting oil and chemical spills. Prior to 2001 this information was maintained by the EPA.	Annually	01/11/2013	01/18/2013	01/18/2013	12/31/2012
ST NPL -- State/Tribal Equivalent NPL	TCEQ	This database contains sites determined by the TCEQ that may constitute an imminent and substantial endangerment to public health and safety or to the environment due to a release or threatened release of hazardous substances into the environment.	Quarterly	11/05/2013	11/06/2013	11/06/2013	11/06/2013
ST CER -- State/Tribal Equivalent CERCLIS	NA	This database is not currently available from this state. If this state does make this database available in the future, Banks Environmental Data will obtain it for reporting purposes.	NA	N/A	N/A	N/A	N/A
SWLF -- State/Tribal Disposal or Landfill	TCEQ	The SWLF database contains records of municipal solid waste facilities that may accept various types of municipal solid waste for processing or disposal, depending on the type of facility. A Municipal Solid Waste facility may also accept certain special wastes and non-hazardous industrial solid wastes if approved by the TCEQ executive director.	Quarterly	01/07/2014	01/07/2014	01/07/2014	01/03/2014
SWLF -- State/Tribal Disposal or Landfill	TCEQ	This database is a listing of closed and abandoned municipal solid waste landfills. The sites included are either unauthorized (UNUM_) or permitted (PERMAPP_).	NA	N/A	N/A	N/A	N/A
LPST -- State/Tribal Leaking Storage Tank	TCEQ	This database contains information on leaking storage tanks, equipment failures, compliance, and releases in the state.	Quarterly	11/08/2013	11/08/2013	11/08/2013	11/07/2013
LPST -- State/Tribal Leaking Storage Tank	EPA	The Tribal LUST database (maintained by EPA Region 6) provides information on leaking underground storage tank on tribal lands in Louisiana, Arkansas, Oklahoma, New Mexico and Tribal Nations.	Quarterly	10/28/2013	10/30/2013	10/30/2013	10/30/2013
PST -- State/Tribal Storage Tank	TCEQ	This database contains information on above and underground storage tanks, compliance, and releases in the state.	Quarterly	11/08/2013	11/08/2013	11/08/2013	11/07/2013
PST -- State/Tribal Storage Tank	EPA	The Tribal UST database (maintained by EPA Region 6) provides underground storage tank information on tribal lands in Louisiana, Arkansas, Oklahoma, New Mexico and Tribal Nations.	Quarterly	10/28/2013	10/30/2013	10/30/2013	10/30/2013
ST IC -- State/Tribal Institutional Control	TCEQ	This database includes Voluntary Cleanup Program (VCP) or Innocent Operator Program (IOP) sites that have been remediated and have had Institutional Controls (ICs) placed on them. ICs are administrative restrictions, such as legal controls, that help minimize the potential for human exposure to known contamination by ensuring appropriate land or resource use.	Quarterly	11/13/2013	11/18/2013	11/18/2013	11/04/2013
ST IC -- State/Tribal Institutional Control	RRC	The Railroad Commission of Texas Voluntary Cleanup Program provides an incentive to remediate Oil & Gas related pollution by participants as long as they did not cause or contribute to the contamination.	Quarterly	11/08/2013	11/13/2013	11/18/2013	11/13/2013
ST EC -- State/Tribal Engineering Control	TCEQ	This database includes Voluntary Cleanup Program (VCP) or Innocent Operator Program (IOP) sites that have been remediated and have had Engineering Controls (ECs) placed on them. ECs are physical methods or modifications put into place on a site to reduce or eliminate the possibility of human exposure to known contamination.	Quarterly	11/13/2013	11/18/2013	11/18/2013	11/04/2013

Dataset Descriptions and Sources TWDB Master Drainage Plan - SE(2)



Dataset	Source	Dataset Description	Update Schedule	Data Requested	Data Obtained	Data Updated	Source Updated
VCP -- State/Tribal Voluntary Cleanup	TCEQ	This database contains sites from both the Voluntary Cleanup Program (VCP) and the Innocent Operator Program (IOP). The VCP records contain information on contaminated sites that private parties have cleaned up through assistance from the State in the form of administrative, technical, and legal incentives. The IOP records are sites that have received certificates from the State acknowledging that their property is contaminated as a result of a release or migration of contaminants from a source or sources not located on the property, and they did not cause or contribute to the source or sources of contamination.	Quarterly	11/13/2013	11/18/2013	11/18/2013	11/04/2013
VCP -- State/Tribal Voluntary Cleanup	RRC	The Railroad Commission of Texas Voluntary Cleanup Program provides an incentive to remediate Oil & Gas related pollution by participants as long as they did not cause or contribute to the contamination.	Quarterly	11/08/2013	11/13/2013	11/18/2013	11/13/2013
ST BWN -- State/Tribal Brownfield	TCEQ	Brownfield sites are former industrial properties that lie dormant or underutilized due to liability associated with real or perceived contamination. In Texas, the TCEQ, in close partnership with the EPA and other federal, state, and local redevelopment agencies, and stakeholders, is facilitating cleanup, transferability, and revitalization of Brownfield's through the development of regulatory, tax, and technical assistance tools.	Quarterly	11/18/2013	11/18/2013	11/19/2013	11/04/2013
ST BWN -- State/Tribal Brownfield	RRC	The Railroad Commission of Texas' Voluntary Cleanup Program (RRC-VCP) provides an incentive to remediate Oil & Gas related pollution by participants as long as they did not cause or contribute to the contamination. Applicants to the program receive a release of liability to the state in exchange for a successful cleanup.	Quarterly	11/08/2013	11/13/2013	11/19/2013	11/13/2013
HW -- State/Tribal Hazardous Waste	TCEQ	This database contains information on facilities which store, process, or dispose of hazardous waste as maintained by the Industrial and Hazardous Waste Permits section of the TCEQ.	Quarterly	11/08/2013	11/13/2013	11/13/2013	10/05/2013
RCRA -- RCRA	EPA	This database lists all sites that fall under the Resource Conservation and Recovery Act (RCRA) and are not classifiable as treatment, storage, disposers of hazardous material, hazardous waste generator or subject to corrective action activity.	Quarterly	11/19/2013	11/19/2013	11/19/2013	11/14/2013
DRYC -- Dry Cleaners	TCEQ	Dry Cleaner data houses both the DCRP Program information and PERC information released by the TCEQ. The DCRP database contains records funded for state-lead clean up of dry cleaner related contaminated sites. The DCRP administers the Dry Cleaning Facility Release Fund to assist with remediation of contamination caused by dry cleaning solvents. There are two listings from this program: LIST#1 - A historic listing of any facility that registered with the DCRP indicating whether or not the facility has used Perchloroethylene (PERC) in the past. LIST#2 - A Prioritization list of dry cleaner sites Facilities on this list will be investigated in order to determine the existence and or extent of possible contamination. Facilities which are not current on their DCRP payments get dropped from the program. Banks Environmental Data DOES NOT REMOVE these listings from our database so that we may present a more complete historical listing of facilities that may or may not have used PERC in the past.	Quarterly	11/05/2013	11/06/2013	11/07/2013	11/06/2013

Disclaimer TWDB Master Drainage Plan - SE(2)

The Banks Environmental Data Regulatory Database Report was prepared based upon data obtained from State, Tribal, and Federal sources known to Banks Environmental Data at the time the data was obtained. Great care has been taken by Banks in obtaining the best available data from the best available sources. However, there is a possibility that there are sources of data applicable or pertaining to this report's target property, and/or surrounding properties, to which Banks does not have access or has not accessed. Furthermore, although Banks Environmental Data performs quality assurance and quality control on all data, including data it obtains, Banks recognizes that inaccuracies in data from these sources may, and do, exist; accordingly, inaccurate data may have been used or relied upon in the preparation of this report. Even though Banks Environmental Data performs a thorough and diligent search to locate and fix any inaccuracies in the data relied upon in the preparation of this report and this report, Banks cannot guarantee or warrant the accuracy of the locations, information, data, or report. The purchaser of this report accepts this report "as is" and assumes all risk related to any potential inaccuracy contained in the report or not reported in it, whether due to a reliance by Banks Environmental Data on inaccurate data, or for any other reason [including but not limited to the negligence or express negligence of Banks Environmental Data]. If this report is being used for the Records Review section of a Phase I Site Assessment according to the ASTM 1527-13, for EPA's All Appropriate Inquiry, or for any other purpose (public or private), all liability and responsibility is assumed by the Environmental Professional or other individual or entity acquiring the report.

Prepared for:

RABA KISTNER, INC-HOUSTON
3602 Westchase
Houston, TX 77042



Regulatory Database Report

ASTM E 1527-13/AAI Compliant

TWDB Master Drainage Plan - SW

TX

Hidalgo County

PO #: 151915

ES-108904

Thursday, January 09, 2014

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Geographic Summary TWDB Master Drainage Plan - SW

Location	
Hidalgo, TX	
Target location is 6.38 miles in length	

Coordinates	
Longitude & Latitude in Degrees Minutes Seconds	NA
Longitude & Latitude in Decimal Degrees	NA
X and Y in UTM	NA

Elevation	
NA	

Zip Codes Searched	
Search Distance	Zip Codes
Target Property	78539, 78541, 78542, 78543, 78549, 78558, 78574, 78541, 78504, 78538, 78539, 78560, 78563, 78572, 78595
0.25 miles	78539, 78541, 78542, 78543, 78549, 78558, 78574, 78541, 78504, 78538, 78539, 78560, 78563, 78572, 78595
0.5 miles	78504, 78541, 78563, 78573, 78539, 78541, 78542, 78543, 78549, 78558, 78574, 78541, 78504, 78538, 78539, 78560, 78563, 78572, 78595
1 mile	78504, 78541, 78563, 78573, 78539, 78541, 78542, 78543, 78549, 78558, 78574, 78541, 78504, 78538, 78539, 78560, 78563, 78572, 78595

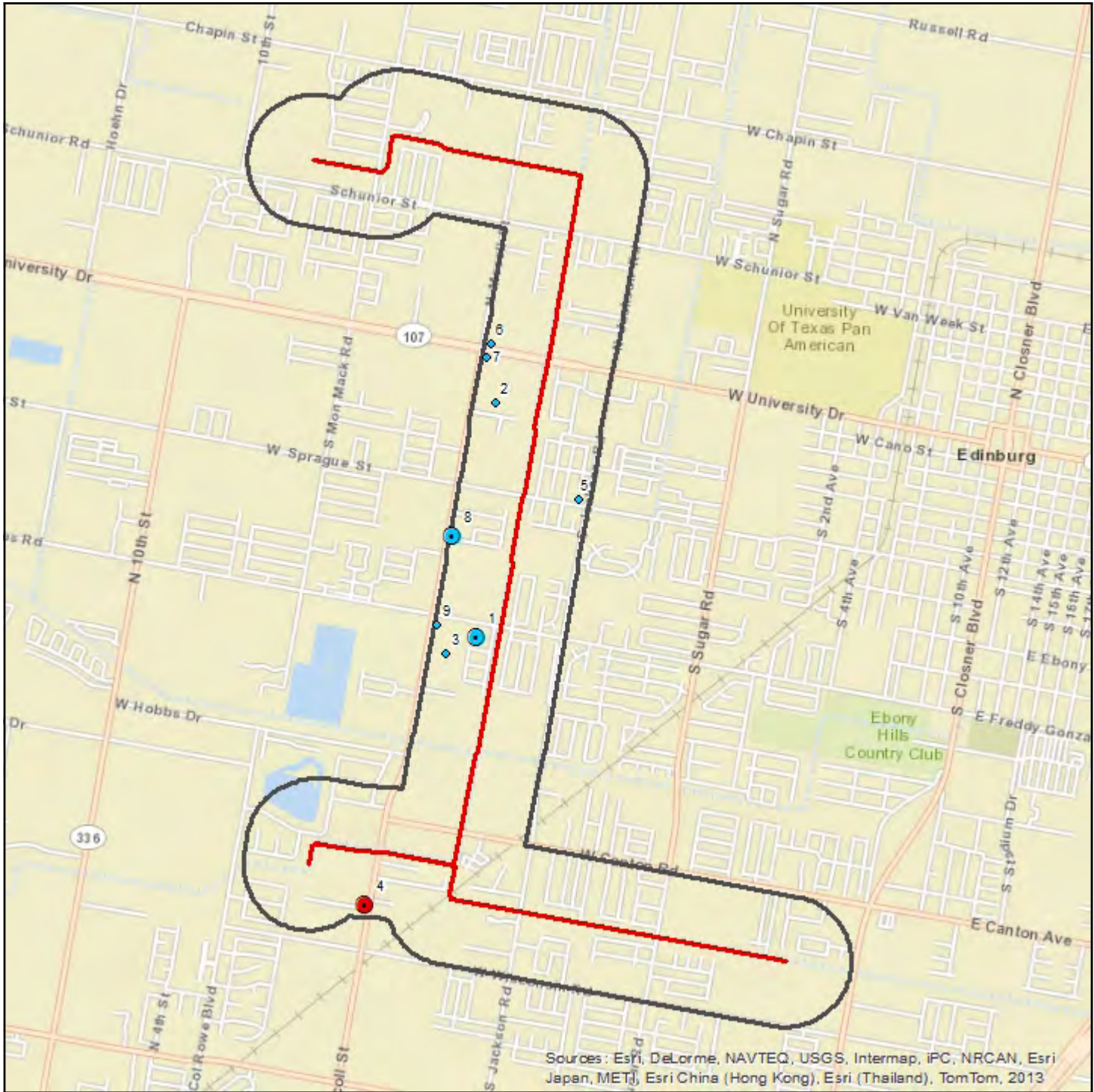
Topos Searched	
Search Distance	Topo Name
Target Property	Edinburg (1984)
0.25 miles	Edinburg (1984)
0.5 miles	Edinburg (1984)
1 mile	Edinburg (1984)

Database Summary TWDB Master Drainage Plan - SW



Databases Searched	Distance Searched	# Mapped	# Not Mapped	Total
Federal - ASTM 1527-13/AAI Required				
National Priority List (NPL)	1	0	0	0
Delisted National Priority List (DNPL)	0.5	0	0	0
CERCLIS (CER)	0.5	0	0	0
CERCLIS NFRAP (CER NFRAP)	0.5	0	2	2
RCRA CORRACTS (RCRA COR)	1	0	0	0
RCRA non-CORRACTS TSD (RCRA TSD)	0.5	2	0	2
RCRA Generators (RCRA GEN)	0.25	4	0	4
Federal Brownfields (FED BWN)	0.5	0	0	0
Federal Institutional Control (FED IC)	0.5	0	0	0
Federal Engineering Control (FED EC)	0.5	0	0	0
ERNS List (ERNS)	0.25	0	1	1
State - ASTM 1527-13/AAI Required				
State/Tribal Equivalent NPL (ST NPL)	1	0	0	0
State/Tribal Equivalent CERCLIS (ST CER)	0.5	0	0	0
State/Tribal Disposal or Landfill (SWLF)	0.5	0	0	0
State/Tribal Leaking Storage Tank (LPST)	0.5	6	0	6
State/Tribal Storage Tank (PST)	0.25	6	11	17
State/Tribal Institutional Control (ST IC)	0.25	0	0	0
State/Tribal Engineering Control (ST EC)	0.5	0	0	0
State/Tribal Voluntary Cleanup (VCP)	0.5	0	0	0
State/Tribal Brownfield (ST BWN)	0.5	0	0	0
State/Tribal Hazardous Waste (HW)	0.25	2	0	2
Non-ASTM/AAI Required Databases				
RCRA (RCRA)	0.25	1	0	1
Dry Cleaners (DRYC)	0.25	3	0	3
Total Sites Found		24	14	38

Summary Map - 0.25 Mile Buffer



Sources : Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2013

TWDB Master Drainage Plan - SW

- | | | | |
|--|---|---|--|
| ● Single Site | ● Cluster Site | ■ Large Tract | ● Cluster Site with Large Tract |
| <i>RCRA COR, RCRA TSD, CER, LPST, NPL, ST NPL, SWLF</i> | | | |
| ● Single Site | ● Cluster Site | ■ Large Tract | ● Cluster Site with Large Tract |
| <i>RCRA GEN, ST & FED BWN, ST & FED EC, ST & FED IC, DNPL, CER NFRAP, PST, VCP, ST CER</i> | | | |
| ● Single Site | ● Cluster Site | ■ Large Tract | ● Cluster Site with Large Tract |
| <i>ERNS, HW, RCRA, DRYC</i> | | | |

- Target Property
- Search Buffer

1 : 35,000
 1 inch = 0.552 miles
 1 inch = 2917 feet
 1 centimeter = 0.350 kilometers
 1 centimeter = 350 meters

Lambert Conformal Conic Projection
 1983 North American Datum
 First Standard Parallel: 33° 00' North
 Second Standard Parallel: 45° 00' North
 Central Meridian: 96° 00' West
 Latitude of Origin: 39° 00' North



Summary Map - 0.5 Mile Buffer



Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2013

TWDB Master Drainage Plan - SW

- | | | | |
|--|---|--|--|
| ● Single Site | ● Cluster Site | ■ Large Tract | ● Cluster Site with Large Tract |
| <i>RCRA COR, RCRA TSD, CER, LPST, NPL, ST NPL, SWLF</i> | | | |
| ● Single Site | ● Cluster Site | ■ Large Tract | ● Cluster Site with Large Tract |
| <i>RCRA GEN, ST & FED BWN, ST & FED EC, ST & FED IC, DNPL, CER NFRAP, PST, VCP, ST CER</i> | | | |
| ● Single Site | ● Cluster Site | ■ Large Tract | ● Cluster Site with Large Tract |
| <i>ERNS, HW, RCRA, DRYC</i> | | | |

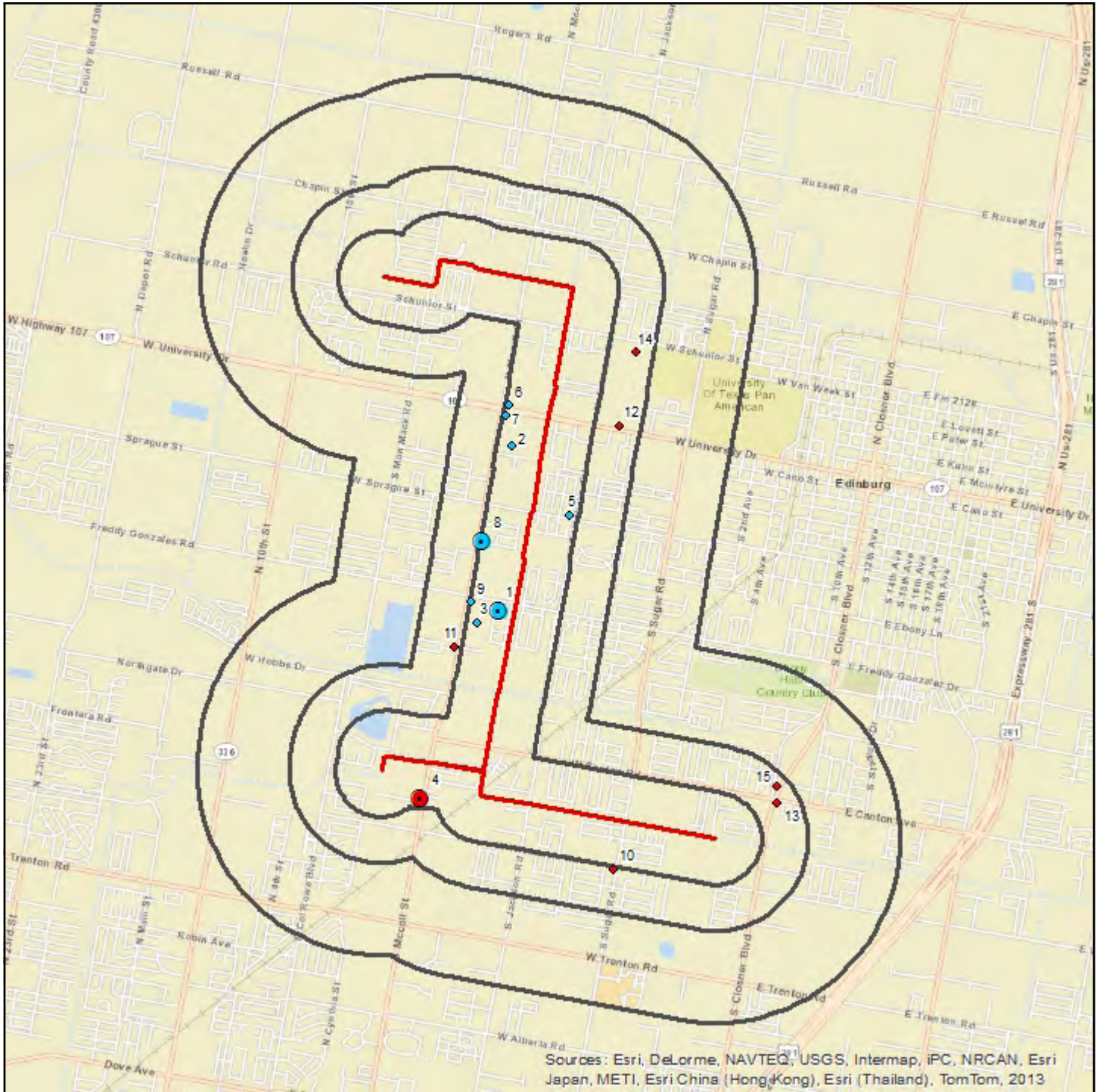
- Target Property
- Search Buffer

1 : 40,000
 1 inch = 0.631 miles
 1 inch = 3333 feet
 1 centimeter = 0.400 kilometers
 1 centimeter = 400 meters

Lambert Conformal Conic Projection
 1983 North American Datum
 First Standard Parallel: 33° 00' North
 Second Standard Parallel: 45° 00' North
 Central Meridian: 96° 00' West
 Latitude of Origin: 39° 00' North



Summary Map - 1 Mile Buffer



TWDB Master Drainage Plan - SW

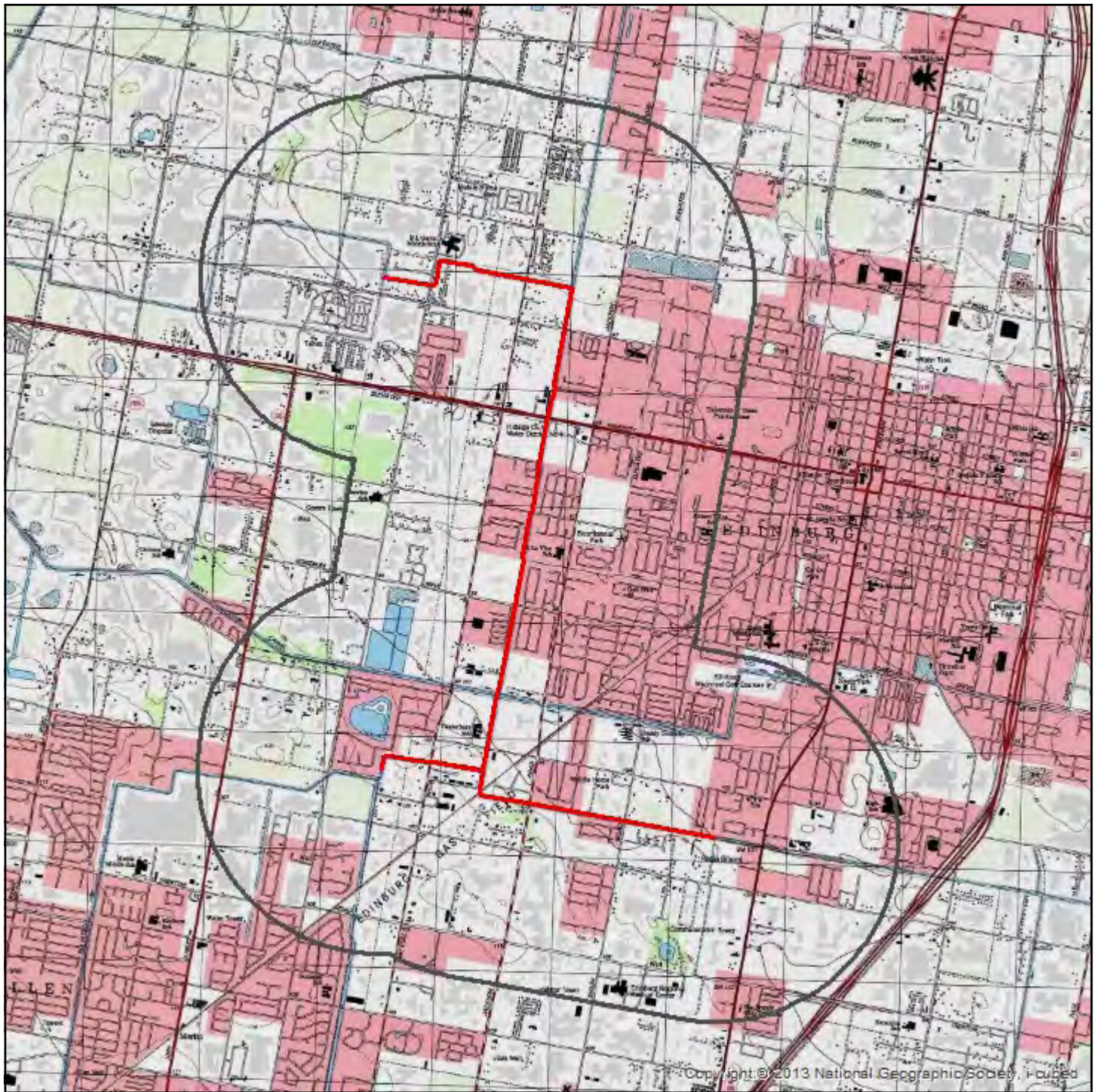
- | | | | | |
|-------------|--------------|-------------|-------------------------------|-----------------|
| Single Site | Cluster Site | Large Tract | Cluster Site with Large Tract | Target Property |
| Single Site | Cluster Site | Large Tract | Cluster Site with Large Tract | Search Buffer |
| Single Site | Cluster Site | Large Tract | Cluster Site with Large Tract | |
- RCRA COR, RCRA TSD, CER, LPST, NPL, ST NPL, SWLF
 RCRA GEN, ST & FED BWN, ST & FED EC, ST & FED IC, DNPL, CER NFRAP, PST, VCP, ST CER
 ERNS, HW, RCRA, DRYC

1 : 50,000
 1 inch = 0.789 miles
 1 inch = 4167 feet
 1 centimeter = 0.500 kilometers
 1 centimeter = 500 meters




Lambert Conformal Conic Projection
 1983 North American Datum
 First Standard Parallel: 33° 00' North
 Second Standard Parallel: 45° 00' North
 Central Meridian: 96° 00' West
 Latitude of Origin: 39° 00' North

Topographic Overlay Map - 1 Mile Buffer



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TWDB Master Drainage Plan - SW

-  Target Property
-  Search Buffer

Target Property Quad Name
Edinburg (1984)

1 : 50,000
 1 inch = 0.789 miles
 1 inch = 4167 feet
 1 centimeter = 0.500 kilometers
 1 centimeter = 500 meters

Lambert Conformal Conic Projection
 1983 North American Datum
 First Standard Parallel: 33° 00' North
 Second Standard Parallel: 45° 00' North
 Central Meridian: 96° 00' West
 Latitude of Origin: 39° 00' North



Current Imagery Overlay Map - 0.5 Mile Buffer



Sources: Esri, DigitalGlobe, GeoEye, Earthstar, USDA, USGS, AeroGRID, IGN, IGA, swisstopo, and the GIS User Community

TWDB Master Drainage Plan - SW

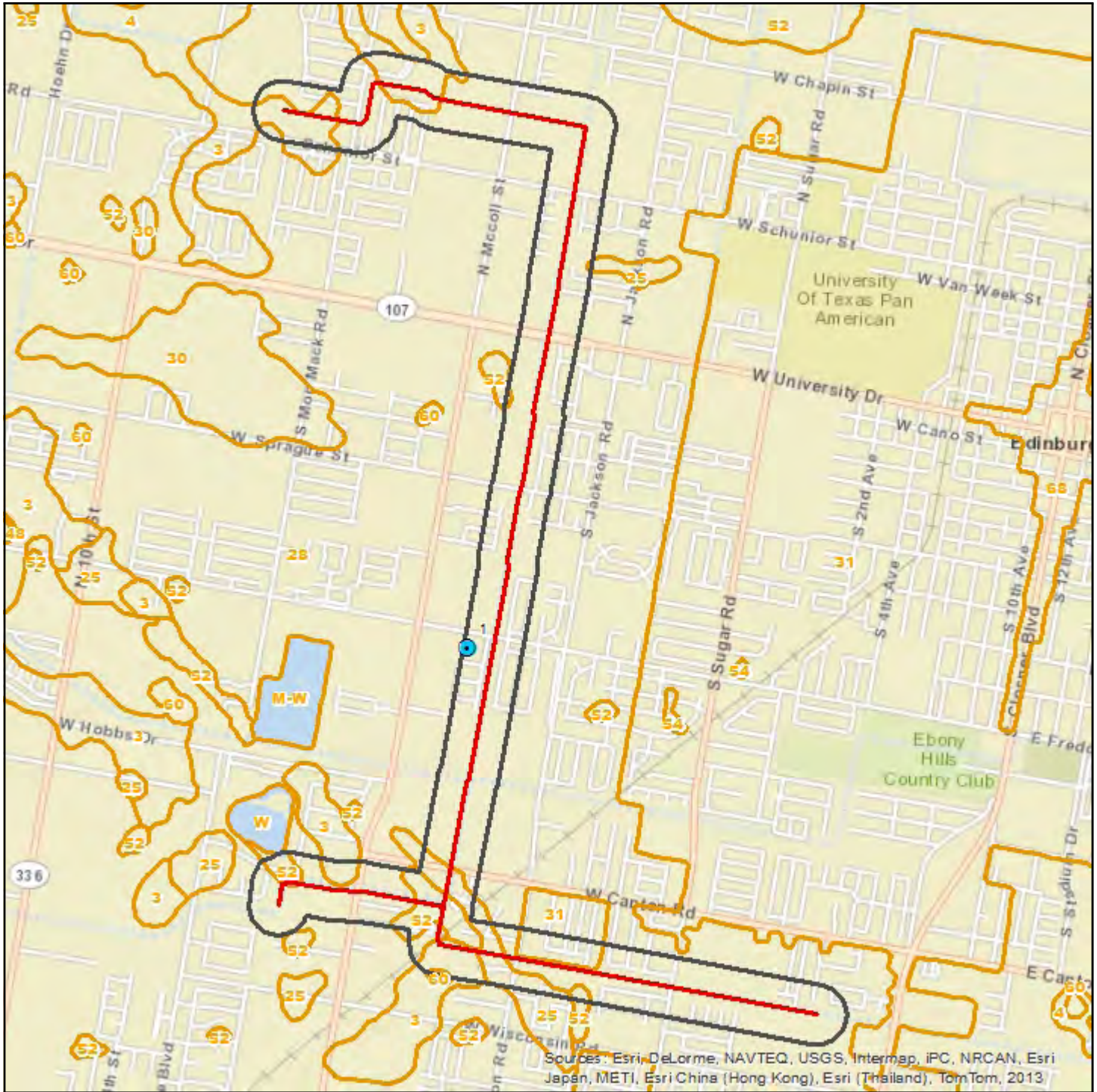
- | | | | | |
|--|---|--|--|---|
| ● Single Site | ● Cluster Site | ■ Large Tract | ● Cluster Site with Large Tract | — Target Property |
| ● Single Site | ● Cluster Site | ■ Large Tract | ● Cluster Site with Large Tract | — Search Buffer |
| ● Single Site | ● Cluster Site | ■ Large Tract | ● Cluster Site with Large Tract | |
- RCRA COR, RCRA TSD, CER, LPST, NPL, ST NPL, SWLF*
RCRA GEN, ST & FED BWN, ST & FED EC, ST & FED IC, DNPL, CER NFRAP, PST, VCP, ST CER
ERNS, HW, RCRA, DRYC

1 : 40,000
 1 inch = 0.631 miles
 1 inch = 3333 feet
 1 centimeter = 0.400 kilometers
 1 centimeter = 400 meters



Lambert Conformal Conic Projection
 1983 North American Datum
 First Standard Parallel: 33° 00' 00" North
 Second Standard Parallel: 45° 00' 00" North
 Central Meridian: 96° 00' 00" West
 Latitude of Origin: 39° 00' 00" North

Soil Survey Map - 0.1 Mile Buffer



Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, IPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2013

TWDB Master Drainage Plan - SW

- | | | | | |
|--|---|--|--|--|
| ● Single Site | ● Cluster Site | ■ Large Tract | ● Cluster Site with Large Tract | — Target Property |
| ● Single Site | ● Cluster Site | ■ Large Tract | ● Cluster Site with Large Tract | Search Buffer |
| ● Single Site | ● Cluster Site | ■ Large Tract | ● Cluster Site with Large Tract | Soils Boundary |

1 : 31,000
 1 inch = 0.489 miles
 1 inch = 2583 feet
 1 centimeter = 0.310 kilometers
 1 centimeter = 310 meters

Lambert Conformal Conic Projection
 1983 North American Datum
 First Standard Parallel: 33° 00' North
 Second Standard Parallel: 45° 00' North
 Central Meridian: 96° 00' West
 Latitude of Origin: 39° 00' North



Soils TWDB Master Drainage Plan - SW**Soils Types Found**

Target Property	28, 3, 3, 52, 3, 25, 52
Within 0.1 miles of Target Property	28, 3, 3, 25, 52, 3, W, 52, 3, 60, 25, 52, 31, 52, 52

Soil Type Descriptions**25 - Hidalgo fine sandy loam, 0 to 1 percent slopes**

Hydric Status 0

Minimum Depth to Bedrock**Hidalgo (80 percent)**

Hydrologic Group	Moderately low runoff potential
Soil Drainage Class	Well drained
Corrosion Potential - Uncoated Steel	High
Depth to Restrictive Feature	

Horizon	Soil Texture	Upper Boundary	Lower Boundary	AASHTO	Unified
H1	Fine sandy loam	0 cm	43 cm	A-4, A-6	SC, SC-SM, SM
H2	Sandy clay loam	43 cm	71 cm	A-6	CL, SC
H3	Sandy clay loam	71 cm	203 cm	A-6, A-7-6	CL, SC

Unnamed, minor components (20 percent)**28 - Hidalgo sandy clay loam, 0 to 1 percent slopes**

Hydric Status 0

Minimum Depth to Bedrock**Hidalgo (80 percent)**

Hydrologic Group	Moderately low runoff potential
Soil Drainage Class	Well drained
Corrosion Potential - Uncoated Steel	High
Depth to Restrictive Feature	

Horizon	Soil Texture	Upper Boundary	Lower Boundary	AASHTO	Unified
H1	Sandy clay loam	0 cm	43 cm	A-6	CL, SC
H2	Sandy clay loam	43 cm	71 cm	A-6	CL, SC
H3	Sandy clay loam	71 cm	203 cm	A-6, A-7-6	CL, SC

Unnamed, minor components (20 percent)**3 - Brennan fine sandy loam, 0 to 1 percent slopes**

Hydric Status 0

Minimum Depth to Bedrock**Brennan (85 percent)**

Hydrologic Group	Moderately low runoff potential
Soil Drainage Class	Well drained
Corrosion Potential - Uncoated Steel	Moderate
Depth to Restrictive Feature	

Horizon	Soil Texture	Upper Boundary	Lower Boundary	AASHTO	Unified
H1	Fine sandy loam	0 cm	33 cm	A-2-4, A-4	SC, SC-SM, SM
H2	Sandy clay loam	33 cm	165 cm	A-2-4, A-2-6, A-4, A-6	CL, SC

Unnamed, minor components (15 percent)**31 - Hidalgo-Urban land complex, 0 to 3 percent slopes**

Hydric Status 0

Minimum Depth to Bedrock

Soils TWDB Master Drainage Plan - SW**Hidalgo (50 percent)**

Hydrologic Group	Moderately low runoff potential
Soil Drainage Class	Well drained
Corrosion Potential - Uncoated Steel	High
Depth to Restrictive Feature	

Horizon	Soil Texture	Upper Boundary	Lower Boundary	AASHTO	Unified
H1	Fine sandy loam	0 cm	43 cm	A-4, A-6	SC, SC-SM, SM
H2	Sandy clay loam	43 cm	71 cm	A-6	CL, SC
H3	Sandy clay loam	71 cm	203 cm	A-6, A-7-6	CL, SC

Urban land (30 percent)

Horizon	Soil Texture	Upper Boundary	Lower Boundary	AASHTO	Unified
H1	Variable	0 cm	102 cm		

Unnamed, minor components (20 percent)**52 - Raymondville clay loam, 0 to 1 percent slopes**

Hydric Status	0
Minimum Depth to Bedrock	

Raymondville (85 percent)

Hydrologic Group	Moderately high runoff potential
Soil Drainage Class	Moderately well drained
Corrosion Potential - Uncoated Steel	High
Depth to Restrictive Feature	

Horizon	Soil Texture	Upper Boundary	Lower Boundary	AASHTO	Unified
H1	Clay loam	0 cm	38 cm	A-6, A-7-6	CL
H2	Clay loam	38 cm	109 cm	A-6, A-7-6	CH, CL
H3	Clay	109 cm	165 cm	A-7-6	CH, CL

Unnamed, minor components (15 percent)**60 - Rio clay loam**

Hydric Status	95
Minimum Depth to Bedrock	

Rio (87 percent)

Hydrologic Group	Moderately high runoff potential when drained and high runoff potential undrained
Soil Drainage Class	Somewhat poorly drained
Corrosion Potential - Uncoated Steel	High
Depth to Restrictive Feature	

Horizon	Soil Texture	Upper Boundary	Lower Boundary	AASHTO	Unified
H1	Clay loam	0 cm	30 cm	A-6, A-7	CL
H2	Clay	30 cm	97 cm	A-7-6	CH, CL
H3	Clay loam	97 cm	160 cm	A-7-6	CL

Tiocano (8 percent)

Hydrologic Group	
Soil Drainage Class	Somewhat poorly drained
Corrosion Potential - Uncoated Steel	
Depth to Restrictive Feature	

Unnamed, minor components (5 percent)**W - Water**

Hydric Status	0
Minimum Depth to Bedrock	

Soils TWDB Master Drainage Plan - SW



Water (100 percent)

Soils Descriptions TWDB Master Drainage Plan - SW**AASHTO Classification Definitions**

A-1, A-1-a, A-1-b	Granular materials (35% or less passing No. 200 sieve), silt fragments, gravel and sand
A-2, A-2-4, A-2-5, A-2-6, A-2-7	Granular materials (35% or less passing No. 200 sieve), silty or clayey gravel and sand
A-3	Granular materials (35% or less passing No. 200 sieve), fine sand
A-4	Silt-Clay materials (more than 35% passing No. 200 sieve), silty soils
A-5	Silt-Clay materials (more than 35% passing No. 200 sieve), silty soils
A-6	Silt-Clay materials (more than 35% passing No. 200 sieve), clayey soils
A-7, A-7-5, A-7-6	Silt-Clay materials (more than 35% passing No. 200 sieve), clayey soils
A-8	Silt-Clay materials (more than 35% passing No. 200 sieve), clayey soils

Unified Classification Definitions

CH	Fine-grained soils, silts and clays (liquid limit is 50% or more), Fat Clay
CL, CL-A (proposed), CL-K (proposed), CL-ML, CL-O (proposed), CL-T (proposed)	Fine-grained soils, silts and clays (liquid limit is less than 50%), Lean Clay
GC, GC-GM	Coarse-grained soils, Gravels, gravel with fines, Clayey Gravel
GM	Coarse-grained soils, Gravels, gravel with fines, Silty Gravel
GP, GP-GC, GP-GM	Coarse-grained soils, Gravels, clean gravels, Poorly Graded Gravel
GW, GW-GC, GW-GM	Coarse-grained soils, Gravels, clean gravels, Well-Graded Gravel
MH, MH-A, MH-K, MH-O, MH-T	Fine-grained soils, silts and clays (liquid limit is 50% or more), Elastic Silt
ML, ML-A (proposed), ML-K (proposed), ML-O (proposed), ML-T (proposed)	Fine-grained soils, silts and clays (liquid limit is less than 50%), Silt
OH, OH-T (proposed)	Fine-grained soils, silts and clays (liquid limit is 50% or more), Organic Clay or Organic Silt
OL	Fine-grained soils, silts and clays (liquid limit is less than 50%), Organic Clay or Organic Silt
PT	Highly organic soils, Peat
SC, SC-SM	Coarse-grained soils, Sands, sands with fines, Clayey Sand
SM	Coarse-grained soils, Sands, sands with fines, Silty Sand
SP, SP-SC, SP-SM	Coarse-grained soils, Sands, clean sands, Poorly Graded Sand
SW, SW-SC, SW-SM	Coarse-grained soils, Sands, clean sands, Well-Graded Sand

Source

Natural Resources Conservation Service, Soil Survey Geographic (SSURGO) Database.

Disclaimer

This Soils Survey from Banks Environmental Data, Inc. has searched Natural Resources Conservation Service (NRCS) and the Soil Survey Geographic Database (SSURGO). All soil data presented on the map and in the details section are based on information obtained from NRCS. Although Banks performs quality assurance and quality control on all data, inaccuracies of the data and mapped locations could possibly be traced to the source. Banks Environmental Data, Inc. cannot fully guarantee the accuracy of the SSURGO database maintained by NRCS.

Water & Oil/Gas Wells TWDB Master Drainage Plan - SW



Map ID	Well ID	Owner	Well Type	Elevation
1	42-215-31318-00	HAWN BROTHERS COMPANY	Plugged & Abandoned	106 ft
2	42-215-01874-00	MOBIL OIL CORP.	Oil/Gas	104 ft
2	42-215-01874-00	ROYAL PRODUCTION COMPANY, INC.	Oil/Gas	104 ft
2	42-215-33097-00	ROYAL PRODUCTION COMPANY, INC.	Other	105 ft
2	42-215-01874-00	MOBIL OIL CORP.	Oil/Gas	104 ft
2	42-215-33097-00	ROYAL PRODUCTION COMPANY, INC.	Other	105 ft
3	42-215-33194-00	JAMEX, INC.	Other	98 ft
3	42-215-33194-00	JAMEX, INC.	Other	98 ft
4	42-215-32168-00		Other	109 ft
5	87-47-802	Hidalgo County Sheriff's Posse Arena	Water: Irrigation	101 ft
6	4221500		Oil/Gas	96 ft
7	42-215-30965-00	AMERICAN QUASAR PETROLEUM COMPANY	Plugged & Abandoned	96 ft
7	42-215-30965-00	AMERICAN QUASAR PETROLEUM COMPANY	Plugged & Abandoned	96 ft
8	42-215-01861-00		Plugged & Abandoned	99 ft
9	42-215-01929-00		Plugged & Abandoned	98 ft
10	42-215-33243-00	ROYAL PRODUCTION COMPANY, INC.	Other	101 ft
11	42-215-31686-00	K.M.A. OPERATING, INC.	Other	93 ft
12	42-215-32470-00	ROYAL PRODUCTION COMPANY, INC.	Other	102 ft
12	42-215-33098-00	ROYAL PRODUCTION COMPANY, INC.	Other	102 ft
12	42-215-32470-00	ROYAL PRODUCTION COMPANY, INC.	Other	102 ft
13	42-215-32270-00	ROYAL PRODUCTION COMPANY, INC.	Plugged & Abandoned	101 ft
14	42-215-01835-00	MOBIL OIL CORP.	Oil/Gas	98 ft
14	42-215-01835-00	MOBIL PRODUCING TX. & N.M. INC.	Oil/Gas	98 ft
15	42-215-01946-00		Plugged & Abandoned	101 ft
16	42-215-00977-00	MOBIL OIL CORP.	Plugged & Abandoned	107 ft

Source

U.S. Geological Survey, Texas Water Development Board (GW and Submitted Driller's Report), Texas Commission of Environmental Quality (PWS), Railroad Commission of Texas (Production Data)

Disclaimer

This well scan from Banks Environmental Data, Inc. has included a digital search of state and federal wells currently digitized in our geospatial database. Since this scan includes only well data that is currently mapped in our geospatial database, more wells could exist within the search area. For a complete well search or to locate more details, please contact Banks to obtain a full Water Well Report or Oil & Gas Well/Pipeline Search Report. More detailed individual well records can also be obtained from Banks for an additional cost, please reference a Well ID # from this well scan.

All well locations are based on information obtained from state and federal sources. Although Banks performs quality assurance and quality control on all data, inaccuracies of the records and mapped locations could possibly be traced to the specific regulatory authority or individual well driller. Banks Environmental Data, Inc. cannot fully guarantee the accuracy of the data or well location(s) of the maps and records maintained by the state and federal agencies.

Mapped Sites Summary TWDB Master Drainage Plan - SW

Database	Distance from Target Property	Map ID	Facility Site Name	Facility Site Address	Site Details Page #
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*Sites are sorted by database tier, database, and distance from the target site.

RCRA TSD	0.2 miles S	4	MO-VAC SERVICE COMPANY INC	3721-A S MCCOLL ROAD, EDINBURG, TX 78539	20
RCRA TSD	0.2 miles S	4	MO-VAC ENVIRONMENTAL INC	3721 S MCCOLL RD, EDINBURG, TX 78539	22
RCRA GEN	0.08 miles SW	1	1.50 CLEANERS	2524 W FREDDY GONZALES DRIVE, EDINBURG, TX 78539	24
RCRA GEN	0.2 miles S	4	MO-VAC ENVIRONMENTAL INC	3721 S MCCOLL RD, EDINBURG, TX 78539	25
RCRA GEN	0.23 miles W	7	CVS PHARMACY #4821	2820 W UNIVERSITY DR, EDINBURG, TX 78539	27
RCRA GEN	0.23 miles W	8	ONE HOUR PRONTO CLEANERS	1106 S MCCOLL RD, EDINBURG, TX 78539	28
LPST	0.27 miles W	10	DIAMOND TOP	3501 S SUGAR RD, EDINBURG, TX 78539	29
LPST	0.29 miles NW	11	ECONOMY DRIVE INN FFP 290	2015 S MCCOLL RD, EDINBURG, TX 78539	30
LPST	0.38 miles E	12	107 FOOD MART	2115 W UNIVERSITY TRIPLE H MART 15 UP TIL 4 90, EDINBURG, TX 78539	31
LPST	0.39 miles NE	13	SHORTYS CLOVER MART 5	2800 S HWY 281, EDINBURG, TX 78540	32
LPST	0.41 miles E	14	REGION 1 EDUCATION SERVICE CENTER	1900 SCHUNIOR, EDINBURG, TX 78539	33
LPST	0.43 miles NE	15	FRES GAS DEPOT	2527 S HWY 281, EDINBURG, TX 78539	34
PST	0.16 miles NW	2	LOWES OF EDINBURG TX 2485	2802 W UNIVERSITY DR, EDINBURG, TX 78539	35
PST	0.18 miles N	3	HEB 431	2700 W FREDDY GONZALEZ DR, EDINBURG, TX 78539	36
PST	0.2 miles S	4	MCALLEN YARD	3721 S MCCOLL RD, EDINBURG, TX 78539	37
PST	0.21 miles E	5	SPRAGUE PROPERTY	2101 W SPRAGUE ST, EDINBURG, TX 78539	38
PST	0.22 miles W	6	EL TIGRE FOOD STORE 18	2847 W UNIVERSITY DR, EDINBURG, TX 78539	39
PST	0.24 miles SW	9	STRIPES 9110	2824 W FREDDY GONZALEZ DR, EDINBURG, TX 78539	40
HW	0.2 miles S	4	MO VAC ENVIRONMENTAL	3721 S McColl Rd, Edinburg, TX 78539	41
HW	0.2 miles S	4	MO VAC	N McColl Road , McAllen, TX	42
RCRA	0.2 miles S	4	MO VAC ENVIRONMENTAL	N MCCOLL ROAD, MCALLEN, TX 78501	43
DRYC	0.08 miles SW	1	1.50 CLEANERS	2524 W FREDDY GONZALEZ DR, EDINBURG, TX 78539	45
DRYC	0.1 miles SW	1	1.50 CLEANERS	2600 W FREDDY GONZALEZ DR, EDINBURG, TX 78539	46
DRYC	0.23 miles W	8	OASIS ONE DRY CLEANERS	1106 S MCCOLL RD, EDINBURG, TX 78539	47

End of Mapped Sites Summary Section

Unmapped Sites Summary TWDB Master Drainage Plan - SW

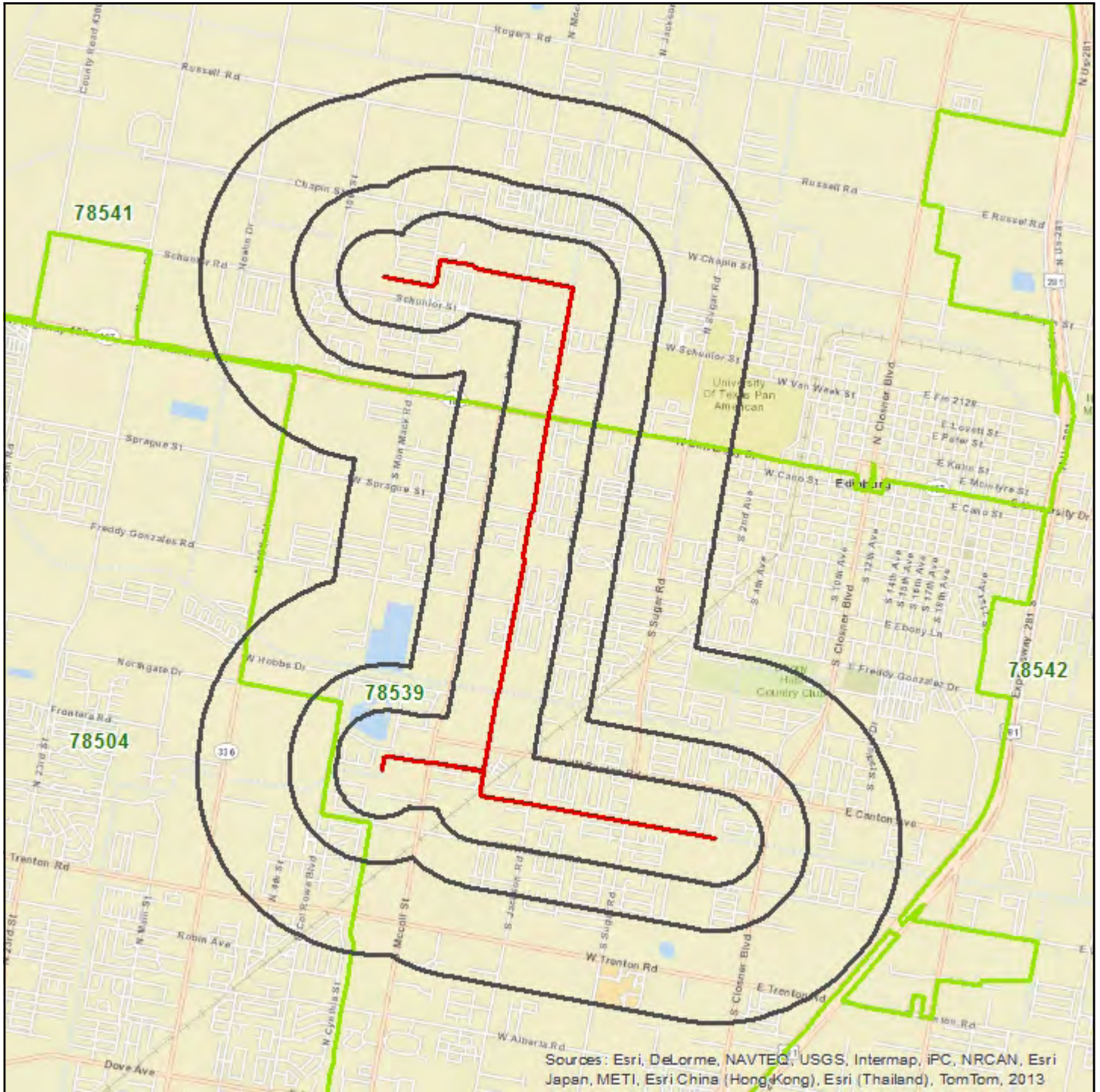
Database	Facility Site Name	Facility Site Address	Site Details Page #
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*Sites are sorted by database tier and database.

CER NFRAP	ILLINI HELICOPTER	P.O. BOX 1601, EDINBURG, TX 78539	48
CER NFRAP	MARTIN FARM & RANCH	ROUTE 4 BOX 473, EDINBURG, TX 78539	49
ERNS		ROUTE 7 BOX 980, EDINBURG, TX 78541	50
PST	ALANIZ GROCERY	TX 78539	51
PST	FFP 680	RT 2, EDINBURG, TX 78539	52
PST	MC ALLEN PRODUCTION UNIT OFFICE	EDINBURG, TX 78539	53
PST	SUN-UP THE FOOD STORE	RT 2, EDINBURG, TX 78539	54
PST	M & R DRIVE INN	TX 78539	55
PST	OTTO WAGNER SR	RT 3 D, EDINBURG, TX 78539	56
PST	RON WILSHER	RT 7, EDINBURG, TX 78539	57
PST	EDINBURG WELL SERVICE	RR 3, EDINBURG, TX 78539	58
PST	LUNAS DRIVE IN 2	RR 7 BOX 11500, EDINBURG, TX 78541	59
PST	WESTSIDE KOUNTRY STORE	TX 78572	60
PST	HERNANDEZ GROC	TX 78572	61

End of Unmapped Sites Summary Section

Zip Code Map - 1 Mile Buffer



Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, IFC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2013

TWDB Master Drainage Plan - SW

- Target Property
- Search Buffer
- Zip Code Boundary

1 : 50,000
 1 inch = 0.789 miles
 1 inch = 4167 feet
 1 centimeter = 0.500 kilometers
 1 centimeter = 500 meters



Lambert Conformal Conic Projection
 1983 North American Datum
 First Standard Parallel: 33° 00' North
 Second Standard Parallel: 45° 00' North
 Central Meridian: 96° 00' West
 Latitude of Origin: 39° 00' North

Mapped Sites Details: RCRA TSD (MapID 4) TWDB Master Drainage Plan - S



RCRA TSD - RCRA non-CORRACTS TSD

Map ID #4	RCRA TSD - RCRA non-CORRACTS TSD	Source: EPA		
EPA Handler ID: TXD006801369	Handler Sequence Number: 1	Banks ID: TXD006801369		
MO-VAC SERVICE COMPANY INC		Rel. Loc.: 0.2 miles S		
3721-A S MCCOLL ROAD, EDINBURG, TX 78539		Elevation: 104.08 feet (+104.08)		
Contact: ARNOLD PEREZ				
Owner Name:	MO-VAC SERVICE COMPANY INC			
Number of Owners:	1			
Operator Name:				
Number of Operators:	0			
Mailing Address:	PO BOX 2677, MCALLEN, TX 785022677			
Contact Name:	ARNOLD PEREZ			
Contact Address:	PO BOX 2677, MCALLEN, TX 785022677			
Contact Phone:	2106319121			
Contact Email Address:				
Government Performance and Results Act (GPRA) Permit:	The facility does not exist on the Operating/Post-Closure Permit Baseline.			
Government Performance and Results Act (GPRA) Corrective Action:	No			
Workload Legend: L=Land Disposal I=Incineration B=Boiler/Industrial Furnace S=Storage T=Treatment				
Permit Workload:	-----			
Closure Workload:	-----			
Post-Closure Workload:	-----			
Subject to Corrective Action:	No			
Subject to Corrective Action 3004:	No			
Subject to Corrective Action Non-TSDF:	No			
Corrective Action Workload:	No			
Generator Status:	Not a Generator			
Nuclear Mixed Waste Handler:	No			
Onsite Burner Exemption:	No			
Furnace Exemption:	No			
Underground Injection Activity:	No			
NAIC Description 1:				
NAIC Description 2:				
NAIC Description 3:				
NAIC Description 4:				
Federal Generator Class:	Not a Generator, Verified			
State Generator Class:	Not a Generator			
Environmental Controls in Place:	No			
Institutional Controls in Place:	No			
Groundwater Controls in Place:	No			
Significant Non-Compliance:	No			
Unaddressed Significant Non-Complier:	No			
Addressed Significant Non-Complier:	No			
Significant Non-Complier with Compliance Schedule:	No			
Enforcement Description	Responsible Enforcement Agency	Enforcement Date	Penalty Description	
REFERRAL TO ESC ENFORCEMENT SCREEN COMM.	State	3/18/1993		
Evaluation Description	Responsible Agency	Evaluation Date	Violation Found	
CASE DEVELOPMENT INSPECTION	State	1/21/1993	Yes	
COMPLIANCE EVALUATION INSPECTION ON-SITE	State	11/17/1992		
FOCUSED COMPLIANCE INSPECTION	State	6/3/1987		
Violation Description	Violation Determined By	Violation Date	Actual Resolution Date	Scheduled Resolution Date
State Statute or Regulation	State	1/21/1993	3/15/2001	
Hazardous Waste Description				

Mapped Sites Details: RCRA TSD (MapID 4)

TWDB Master Drainage Plan - S1



Continued from Previous Page

Mapped Sites Details: RCRA TSD (MapID 4) TWDB Master Drainage Plan - S1



Map ID #4	RCRA TSD - RCRA non-CORRACTS TSD	Source: EPA	
EPA Handler ID: TXR000014779	Handler Sequence Number: 9	Banks ID: TXR000014779	
MO-VAC ENVIRONMENTAL INC		Rel. Loc.: 0.2 miles S	
3721 S MCCOLL RD, EDINBURG, TX 78539		Elevation: 104.08 feet (+104.08)	
Contact: RICK CARPER			
Owner Name:	MO-VAC ENVIRONMENTAL INC		
Number of Owners:	1		
Operator Name:	MO-VAC ENVIRONMENTAL INC		
Number of Operators:	1		
Mailing Address:	PO BOX 2677, MCALLEN, TX 78502		
Contact Name:	RICK CARPER		
Contact Address:	PO BOX 2677, MCALLEN, TX 78502		
Contact Phone:	956-6319121		
Contact Email Address:			
Government Performance and Results Act (GPRA) Permit:	The facility does not exist on the Operating/Post-Closure Permit Baseline.		
Government Performance and Results Act (GPRA) Corrective Action:	No		
Workload Legend: L=Land Disposal I=Incineration B=Boiler/Industrial Furnace S=Storage T=Treatment			
Permit Workload:	-----		
Closure Workload:	-----		
Post-Closure Workload:	-----		
Subject to Corrective Action:	No		
Subject to Corrective Action 3004:	No		
Subject to Corrective Action Non-TSDF:	No		
Corrective Action Workload:	No		
Generator Status:	Conditionally Exempt Small Quantity Generator		
Nuclear Mixed Waste Handler:	No		
Onsite Burner Exemption:	No		
Furnace Exemption:	No		
Underground Injection Activity:	No		
NAIC Description 1:	General Freight Trucking, Local		
NAIC Description 2:			
NAIC Description 3:			
NAIC Description 4:			
Federal Generator Class:	Conditionally Exempt Small Quantity Generator		
State Generator Class:			
Environmental Controls in Place:	No		
Institutional Controls in Place:	No		
Groundwater Controls in Place:	No		
Significant Non-Compliance:	No		
Unaddressed Significant Non-Complier:	No		
Addressed Significant Non-Complier:	No		
Significant Non-Complier with Compliance Schedule:	No		
Enforcement Description	Responsible Enforcement Agency	Enforcement Date	Penalty Description
VERBAL INFORMAL	State	3/15/2001	
WRITTEN INFORMAL	State	7/3/2003	
LETTER OF INTENT TO INITIATE ENFORCEMENT ACTION	State	3/12/2004	
REFERRAL TO ESC ENFORCEMENT SCREEN COMM.	State	7/26/2004	
EXPEDITED PETITION	State	9/3/2004	
FINAL 3008(A) COMPLIANCE ORDER	State	6/9/2005	
WRITTEN INFORMAL	State	5/30/2008	
Evaluation Description	Responsible Agency	Evaluation Date	Violation Found
COMPLIANCE EVALUATION INSPECTION ON-SITE	State	3/15/2001	Yes
COMPLIANCE EVALUATION INSPECTION ON-SITE	State	6/19/2003	Yes
NON-FINANCIAL RECORD REVIEW	State	7/29/2003	Yes
COMPLIANCE EVALUATION INSPECTION ON-SITE	State	1/22/2004	Yes

Mapped Sites Details: RCRA TSD (MapID 4)

TWDB Master Drainage Plan - S1



Continued from Previous Page

COMPLIANCE EVALUATION INSPECTION ON-SITE	State	11/15/2005		
COMPLIANCE SCHEDULE EVALUATION	State	2/8/2008	Yes	
COMPLIANCE EVALUATION INSPECTION ON-SITE	State	5/6/2008	Yes	
Violation Description	Violation Determined By	Violation Date	Actual Resolution Date	Scheduled Resolution Date
Generators - General	State	3/15/2001	4/6/2001	3/29/2001
Generators - General	State	6/19/2003	8/8/2003	8/1/2003
Generators - General	State	2/8/2008	2/8/2008	
Generators - Pre-transport	State	2/8/2008	2/8/2008	
Generators - Records/Reporting	State	5/6/2008		
TSD IS-General Facility Standards	State	2/8/2008	2/8/2008	
Used Oil - Generators	State	5/6/2008		
State Statute or Regulation	State	3/15/2001	4/6/2001	3/29/2001
State Statute or Regulation	State	1/22/2004		
Hazardous Waste Description				
IGNITABLE WASTE				

End of RCRA TSD Sites Section

Mapped Sites Details: RCRA GEN (MapID 1) TWDB Master Drainage Plan - S



RCRA GEN - RCRA Generators

Map ID #1	RCRA GEN - RCRA Generators	Source: EPA		
EPA Handler ID: TXR000074518	Handler Sequence Number: 1	Banks ID: TXR000074518		
1.50 CLEANERS		Rel. Loc.: 0.08 miles SW		
2524 W FREDDY GONZALES DRIVE, EDINBURG, TX 78539		Elevation: 97.58 feet (+97.58)		
Contact:				
Owner Name:				
Number of Owners:	0			
Operator Name:				
Number of Operators:	0			
Mailing Address:	2524 W FREDDY GONZALES DRIVE, EDINBURG, TX 78539			
Contact Name:				
Contact Address:				
Contact Phone:				
Contact Email Address:				
Government Performance and Results Act (GPRA) Permit:		The facility does not exist on the Operating/Post-Closure Permit Baseline.		
Government Performance and Results Act (GPRA) Corrective Action:		No		
Workload Legend: L=Land Disposal I=Incineration B=Boiler/Industrial Furnace S=Storage T=Treatment				
Permit Workload:		-----		
Closure Workload:		-----		
Post-Closure Workload:		-----		
Subject to Corrective Action:		No		
Subject to Corrective Action 3004:		No		
Subject to Corrective Action Non-TSDF:		No		
Corrective Action Workload:		No		
Generator Status:		Conditionally Exempt Small Quantity Generator		
Nuclear Mixed Waste Handler:		No		
Onsite Burner Exemption:		No		
Furnace Exemption:		No		
Underground Injection Activity:		No		
NAIC Description 1:				
NAIC Description 2:				
NAIC Description 3:				
NAIC Description 4:				
Federal Generator Class:		Conditionally Exempt Small Quantity Generator		
State Generator Class:				
Environmental Controls in Place:		No		
Institutional Controls in Place:		No		
Groundwater Controls in Place:		No		
Significant Non-Compliance:		No		
Unaddressed Significant Non-Complier:		No		
Addressed Significant Non-Complier:		No		
Significant Non-Complier with Compliance Schedule:		No		
Enforcement Description	Responsible Enforcement Agency	Enforcement Date	Penalty Description	
Evaluation Description	Responsible Agency	Evaluation Date	Violation Found	
Violation Description	Violation Determined By	Violation Date	Actual Resolution Date	Scheduled Resolution Date

Mapped Sites Details: RCRA GEN (MapID 4) TWDB Master Drainage Plan - S



Map ID #4	RCRA GEN - RCRA Generators	Source: EPA	
EPA Handler ID: TXR000014779	Handler Sequence Number: 9	Banks ID: TXR000014779	
MO-VAC ENVIRONMENTAL INC 3721 S MCCOLL RD, EDINBURG, TX 78539 Contact: RICK CARPER		Rel. Loc.: 0.2 miles S Elevation: 104.08 feet (+104.08)	
Owner Name:	MO-VAC ENVIRONMENTAL INC		
Number of Owners:	1		
Operator Name:	MO-VAC ENVIRONMENTAL INC		
Number of Operators:	1		
Mailing Address:	PO BOX 2677, MCALLEN, TX 78502		
Contact Name:	RICK CARPER		
Contact Address:	PO BOX 2677, MCALLEN, TX 78502		
Contact Phone:	956-6319121		
Contact Email Address:			
Government Performance and Results Act (GPRA) Permit:	The facility does not exist on the Operating/Post-Closure Permit Baseline.		
Government Performance and Results Act (GPRA) Corrective Action:	No		
Workload Legend: L=Land Disposal I=Incineration B=Boiler/Industrial Furnace S=Storage T=Treatment			
Permit Workload:	-----		
Closure Workload:	-----		
Post-Closure Workload:	-----		
Subject to Corrective Action:	No		
Subject to Corrective Action 3004:	No		
Subject to Corrective Action Non-TSDF:	No		
Corrective Action Workload:	No		
Generator Status:	Conditionally Exempt Small Quantity Generator		
Nuclear Mixed Waste Handler:	No		
Onsite Burner Exemption:	No		
Furnace Exemption:	No		
Underground Injection Activity:	No		
NAIC Description 1:	General Freight Trucking, Local		
NAIC Description 2:			
NAIC Description 3:			
NAIC Description 4:			
Federal Generator Class:	Conditionally Exempt Small Quantity Generator		
State Generator Class:			
Environmental Controls in Place:	No		
Institutional Controls in Place:	No		
Groundwater Controls in Place:	No		
Significant Non-Compliance:	No		
Unaddressed Significant Non-Complier:	No		
Addressed Significant Non-Complier:	No		
Significant Non-Complier with Compliance Schedule:	No		
Enforcement Description	Responsible Enforcement Agency	Enforcement Date	Penalty Description
VERBAL INFORMAL	State	3/15/2001	
WRITTEN INFORMAL	State	7/3/2003	
LETTER OF INTENT TO INITIATE ENFORCEMENT ACTION	State	3/12/2004	
REFERRAL TO ESC ENFORCEMENT SCREEN COMM.	State	7/26/2004	
EXPEDITED PETITION	State	9/3/2004	
FINAL 3008(A) COMPLIANCE ORDER	State	6/9/2005	
WRITTEN INFORMAL	State	5/30/2008	
Evaluation Description	Responsible Agency	Evaluation Date	Violation Found
COMPLIANCE EVALUATION INSPECTION ON-SITE	State	3/15/2001	Yes
COMPLIANCE EVALUATION INSPECTION ON-SITE	State	6/19/2003	Yes
NON-FINANCIAL RECORD REVIEW	State	7/29/2003	Yes
COMPLIANCE EVALUATION INSPECTION ON-SITE	State	1/22/2004	Yes

Mapped Sites Details: RCRA GEN (MapID 4) TWDB Master Drainage Plan - S



Continued from Previous Page

COMPLIANCE EVALUATION INSPECTION ON-SITE	State	11/15/2005		
COMPLIANCE SCHEDULE EVALUATION	State	2/8/2008	Yes	
COMPLIANCE EVALUATION INSPECTION ON-SITE	State	5/6/2008	Yes	
Violation Description	Violation Determined By	Violation Date	Actual Resolution Date	Scheduled Resolution Date
Generators - General	State	3/15/2001	4/6/2001	3/29/2001
Generators - General	State	6/19/2003	8/8/2003	8/1/2003
Generators - General	State	2/8/2008	2/8/2008	
Generators - Pre-transport	State	2/8/2008	2/8/2008	
Generators - Records/Reporting	State	5/6/2008		
TSD IS-General Facility Standards	State	2/8/2008	2/8/2008	
Used Oil - Generators	State	5/6/2008		
State Statute or Regulation	State	3/15/2001	4/6/2001	3/29/2001
State Statute or Regulation	State	1/22/2004		
Hazardous Waste Description				
IGNITABLE WASTE				

Mapped Sites Details: RCRA GEN (MapID 7) TWDB Master Drainage Plan - S



Map ID #7	RCRA GEN - RCRA Generators	Source: EPA
EPA Handler ID: TXR000081366	Handler Sequence Number: 1	Banks ID: TXR000081366
CVS PHARMACY #4821		Rel. Loc.: 0.23 miles W
2820 W UNIVERSITY DR, EDINBURG, TX 78539		Elevation: 99.68 feet (+99.68)
Contact: WENDY L BRANT		
Owner Name:	CVS PHARMACY, INC	
Number of Owners:		
Operator Name:	CVS PHARMACY, INC	
Number of Operators:		
Mailing Address:	1 CVS DR, WOONSOCKET, RI 02895	
Contact Name:	WENDY L BRANT	
Contact Address:	1 CVS DR, WOONSOCKET, RI 02895	
Contact Phone:	401-765-1500	
Contact Email Address:	WENDY.BRANT@CVSCAREMARK.COM	
Government Performance and Results Act (GPRA) Permit:	The facility does not exist on the Operating/Post-Closure Permit Baseline.	
Government Performance and Results Act (GPRA) Corrective Action:	No	
Workload Legend: L=Land Disposal I=Incineration B=Boiler/Industrial Furnace S=Storage T=Treatment		
Permit Workload:	-----	
Closure Workload:	-----	
Post-Closure Workload:	-----	
Subject to Corrective Action:	No	
Subject to Corrective Action 3004:	No	
Subject to Corrective Action Non-TSDF:	No	
Corrective Action Workload:	No	
Generator Status:	Conditionally Exempt Small Quantity Generator	
Nuclear Mixed Waste Handler:	No	
Onsite Burner Exemption:	No	
Furnace Exemption:	No	
Underground Injection Activity:	No	
NAIC Description 1:	Pharmacies and Drug Stores	
NAIC Description 2:		
NAIC Description 3:		
NAIC Description 4:		
Federal Generator Class:	Conditionally Exempt Small Quantity Generator	
State Generator Class:		
Environmental Controls in Place:	No	
Institutional Controls in Place:	No	
Groundwater Controls in Place:	No	
Significant Non-Compliance:	No	
Unaddressed Significant Non-Complier:	No	
Addressed Significant Non-Complier:	No	
Significant Non-Complier with Compliance Schedule:	No	
Hazardous Waste Description		
1,2,3-PROPANETRIOL, TRINITRATE (R) (OR) NITROGLYCERINE (R)		
1,2-BENZENEDIOL, 4-[1-HYDROXY-2-(METHYLAMINO)ETHYL]-, (R)- (OR) EPINEPHRINE		
2H-1-BENZOPYRAN-2-ONE, 4-HYDROXY-3-(3-OXO-1-PHENYLBUTYL)-, & SALTS, WHEN PRESENT AT CONCENTRATIONS GREATER THAN 0.3% (OR) WARFARIN, & SALTS, WHEN PRESENT AT CONCENTRATIONS GREATER THAN 0.3%		
CORROSIVE WASTE		
IGNITABLE WASTE		
MERCURY		
NICOTINE, & SALTS (OR) PYRIDINE, 3-(1-METHYL-2-PYRROLIDINYL)-,(S)-, & SALTS		

Mapped Sites Details: RCRA GEN (MapID 8) TWDB Master Drainage Plan - S



Map ID #8	RCRA GEN - RCRA Generators	Source: EPA		
EPA Handler ID: TXR000074534	Handler Sequence Number: 1	Banks ID: TXR000074534		
ONE HOUR PRONTO CLEANERS 1106 S MCCOLL RD, EDINBURG, TX 78539		Rel. Loc.: 0.23 miles W Elevation: 97.6 feet (+97.6)		
Contact:				
Owner Name:				
Number of Owners:	0			
Operator Name:				
Number of Operators:	0			
Mailing Address:	1106 S MCCOLL RD, EDINBURG, TX 78539			
Contact Name:				
Contact Address:				
Contact Phone:				
Contact Email Address:				
Government Performance and Results Act (GPRA) Permit:		The facility does not exist on the Operating/Post-Closure Permit Baseline.		
Government Performance and Results Act (GPRA) Corrective Action:		No		
Workload Legend: L=Land Disposal I=Incineration B=Boiler/Industrial Furnace S=Storage T=Treatment				
Permit Workload:	-----			
Closure Workload:	-----			
Post-Closure Workload:	-----			
Subject to Corrective Action:	No			
Subject to Corrective Action 3004:	No			
Subject to Corrective Action Non-TSDF:	No			
Corrective Action Workload:	No			
Generator Status:	Conditionally Exempt Small Quantity Generator			
Nuclear Mixed Waste Handler:	No			
Onsite Burner Exemption:	No			
Furnace Exemption:	No			
Underground Injection Activity:	No			
NAIC Description 1:				
NAIC Description 2:				
NAIC Description 3:				
NAIC Description 4:				
Federal Generator Class:	Conditionally Exempt Small Quantity Generator			
State Generator Class:				
Environmental Controls in Place:	No			
Institutional Controls in Place:	No			
Groundwater Controls in Place:	No			
Significant Non-Compliance:	No			
Unaddressed Significant Non-Complier:	No			
Addressed Significant Non-Complier:	No			
Significant Non-Complier with Compliance Schedule:	No			
Enforcement Description	Responsible Enforcement Agency	Enforcement Date	Penalty Description	
Evaluation Description	Responsible Agency	Evaluation Date	Violation Found	
Violation Description	Violation Determined By	Violation Date	Actual Resolution Date	Scheduled Resolution Date

End of RCRA GEN Sites Section

Mapped Sites Details: LPST (MapID 10) TWDB Master Drainage Plan - SW



LPST - State/Tribal Leaking Storage Tank

Map ID #10	LPST - State/Tribal Leaking Storage Tank		Source: TCEQ
LPST ID: 112675	Facility ID: 0030782		Banks ID: 112675
DIAMOND TOP			Rel. Loc.: 0.27 miles W
3501 S SUGAR RD, EDINBURG, TX 78539			Elevation: 102.08 feet (+102.08)
Contact: JERRY BARTH			
Status:	Final concurrence issued, case close		
Leak Discovery Date:	9/27/1997		
Damage Description:	gw impacted, no apparent threats or impacts to receptors		
Leak Closure Date:			
Facility Contact Name:			
Facility Contact Phone:			
Facility Owner Name:	SUR SPECIAL COMPANY		
Facility Contact Name:	Jerry L Barth		
Facility Contact Phone:	956-262-4772		
Leak Substance:			
Tank #	#1	#2	
Status:	TEMP OUT OF SERVICE	TEMP OUT OF SERVICE	
Capacity:	8000	6000	
Comments:			
Install Date:	12/1/1985	12/1/1985	
Closure Certification Date:			
Above or Below Ground Tank:	below	below	
Unit ID:			
Construction Material:	Steel	Steel	
Piping Material:	FRP (fiberglass-reinforced plastic)	FRP (fiberglass-reinforced plastic)	
Tank Contents:	EMPTY	EMPTY	
Automatic Tank Gauge:			
Inventory Control:			

Mapped Sites Details: LPST (MapID 11) TWDB Master Drainage Plan - SW

Map ID #11	LPST - State/Tribal Leaking Storage Tank		Source: TCEQ
LPST ID: 116761	Facility ID: 0018428		Banks ID: 116761
ECONOMY DRIVE INN FFP 290		Rel. Loc.: 0.29 miles NW	
2015 S MCCOLL RD, EDINBURG, TX 78539		Elevation: 98.75 feet (+98.75)	
Contact: PAMELA PERKINS			
Status:	Preassessment / release determination		
Leak Discovery Date:	10/13/2005		
Damage Description:	gw impacted, no apparent threats or impacts to receptors		
Leak Closure Date:			
Facility Contact Name:			
Facility Contact Phone:			
Facility Owner Name:	JAR GROUP DEVELOPMENT LP		
Facility Contact Name:	JAIME A RODRIGUEZ		
Facility Contact Phone:			
Leak Substance:			
Tank #	#1	#2	#3
Status:	TEMP OUT OF SERVICE	TEMP OUT OF SERVICE	TEMP OUT OF SERVICE
Capacity:	8022	4011	4011
Comments:			
Install Date:	3/1/1974	3/1/1974	3/1/1974
Closure Certification Date:			
Above or Below Ground Tank:	below	below	below
Unit ID:			
Construction Material:	Steel	Steel	Steel
Piping Material:	FRP (fiberglass-reinforced plastic)	FRP (fiberglass-reinforced plastic)	FRP (fiberglass-reinforced plastic)
Tank Contents:	EMPTY	EMPTY	EMPTY
Automatic Tank Gauge:			
Inventory Control:			

Mapped Sites Details: LPST (MapID 12) TWDB Master Drainage Plan - SW



Map ID #12	LPST - State/Tribal Leaking Storage Tank		Source: TCEQ
LPST ID: 111886	Facility ID: 0048886		Banks ID: 111886
107 FOOD MART			Rel. Loc.: 0.38 miles E
2115 W UNIVERSITY TRIPLE H MART 15 UP TIL 4 90, EDINBURG, TX 78539			Elevation: 97.05 feet (+97.05)
Contact: ALONSO TREVINO			
Status:	Final concurrence issued, case close		
Leak Discovery Date:	11/13/1996		
Damage Description:	former vapor impact/napl near utility, potential vapor pathway		
Leak Closure Date:			
Facility Contact Name:			
Facility Contact Phone:			
Facility Owner Name:	TREVINO JR ALONSO AND SALINAS PETRA		
Facility Contact Name:	Alonso Trevino Jr		
Facility Contact Phone:	210-381-0719		
Leak Substance:			
Tank #	#1	#2	#3
Status:	Removed from Ground	Removed from Ground	Removed from Ground
Capacity:	10000	10000	2000
Comments:			
Install Date:	8/31/1987	8/31/1987	8/31/1987
Closure Certification Date:			
Above or Below Ground Tank:	below	below	below
Unit ID:			
Construction Material:	Steel	Steel	Steel
Piping Material:	Steel	Steel	Steel
Tank Contents:	Gasoline	Gasoline	Gasoline
Automatic Tank Gauge:			
Inventory Control:			

Mapped Sites Details: LPST (MapID 13) TWDB Master Drainage Plan - SW



Map ID #13	LPST - State/Tribal Leaking Storage Tank		Source: TCEQ
LPST ID: 112517	Facility ID: 0011192		Banks ID: 112517
SHORTYS CLOVER MART 5 2800 S HWY 281, EDINBURG, TX 78540 Contact: FELIPE HERRERA			Rel. Loc.: 0.39 miles NE Elevation: 101.72 feet (+101.72)
Status:	Final concurrence issued, case close		
Leak Discovery Date:	8/14/1997		
Damage Description:	gw impact, pub/dom water supply well w/in .25 - .5mi		
Leak Closure Date:			
Facility Contact Name:			
Facility Contact Phone:			
Facility Owner Name:	DOUBLE O ENTERPRISES LTD		
Facility Contact Name:	JOE QUIROGA		
Facility Contact Phone:	956-702-0456		
Leak Substance:			
Tank #	#1	#1A	#2
Status:	IN USE	REMOVED FROM GROUND	IN USE
Capacity:	12000	10000	10000
Comments:			
Install Date:	7/18/1997	1/1/1984	7/18/1997
Closure Certification Date:			
Above or Below Ground Tank:	below	below	below
Unit ID:			
Construction Material:	Composite (steel w/external FRP cladding)	Steel	Composite (steel w/external FRP cladding)
Piping Material:	Steel		
Tank Contents:	GASOLINE	GASOLINE	GASOLINE
Automatic Tank Gauge:			
Inventory Control:			
Tank #	#2A	#3	#4
Status:	REMOVED FROM GROUND	REMOVED FROM GROUND	REMOVED FROM GROUND
Capacity:	10000	6000	6000
Comments:			
Install Date:	1/1/1984	1/1/1984	1/1/1984
Closure Certification Date:			
Above or Below Ground Tank:	below	below	below
Unit ID:			
Construction Material:	Steel	Steel	Steel
Piping Material:	Steel	Steel	Steel
Tank Contents:	GASOLINE	DIESEL	GASOLINE
Automatic Tank Gauge:			
Inventory Control:			

Mapped Sites Details: LPST (MapID 14) TWDB Master Drainage Plan - SW

Map ID #14	LPST - State/Tribal Leaking Storage Tank	Source: TCEQ
LPST ID: 109466	Facility ID: 0066510	Banks ID: 109466
REGION 1 EDUCATION SERVICE CENTER 1900 SCHUNIOR, EDINBURG, TX 78539 Contact: ROBERT ZAMORA		Rel. Loc.: 0.41 miles E Elevation: 98.99 feet (+98.99)
Status:	Final concurrence issued, case close	
Leak Discovery Date:	5/15/1995	
Damage Description:	no gw impacted, no apparent threats or impacts to receptors	
Leak Closure Date:		
Facility Contact Name:		
Facility Contact Phone:		
Facility Owner Name:	REGION ONE EDUCATION SERVICE CENTER	
Facility Contact Name:	Roberto Zamora	
Facility Contact Phone:	210-383-5611	
Leak Substance:		
Tank #	#1	
Status:	REMOVED FROM GROUND	
Capacity:	5000	
Comments:		
Install Date:	8/31/1987	
Closure Certification Date:		
Above or Below Ground Tank:	below	
Unit ID:		
Construction Material:	Steel	
Piping Material:	Steel	
Tank Contents:	GASOLINE	
Automatic Tank Gauge:		
Inventory Control:		

Mapped Sites Details: LPST (MapID 15) TWDB Master Drainage Plan - SW



Map ID #15	LPST - State/Tribal Leaking Storage Tank		Source: TCEQ
LPST ID: 110326	Facility ID: 0033816		Banks ID: 110326
FRES GAS DEPOT			Rel. Loc.: 0.43 miles NE
2527 S HWY 281, EDINBURG, TX 78539			Elevation: 102.45 feet (+102.45)
Contact: FREDERICO PALACIOS			
Status:	Final concurrence pending documentation of well plugging		
Leak Discovery Date:			
Damage Description:	gw impacted, no apparent threats or impacts to receptors		
Leak Closure Date:			
Facility Contact Name:			
Facility Contact Phone:			
Facility Owner Name:	FREDERICO PALACIOS		
Facility Contact Name:	ROSA RODRIGUEZ		
Facility Contact Phone:	956-387-0250		
Leak Substance:			
Tank #	#1	#2	#3
Status:	REMOVED FROM GROUND	REMOVED FROM GROUND	REMOVED FROM GROUND
Capacity:	8000	8000	1000
Comments:			
Install Date:	1/1/1977	1/1/1977	1/1/1977
Closure Certification Date:			
Above or Below Ground Tank:	below	below	below
Unit ID:			
Construction Material:	Steel	Steel	Steel
Piping Material:	Steel	Steel	Steel
Tank Contents:	GASOLINE	GASOLINE	GASOLINE
Automatic Tank Gauge:			
Inventory Control:			
Tank #	#4	#5	#6
Status:	REMOVED FROM GROUND	REMOVED FROM GROUND	REMOVED FROM GROUND
Capacity:	1000	1000	1000
Comments:			
Install Date:	1/1/1977	8/31/1987	8/31/1987
Closure Certification Date:			
Above or Below Ground Tank:	below	below	below
Unit ID:			
Construction Material:	Steel	Steel	Steel
Piping Material:	Steel	FRP (fiberglass-reinforced plastic)	FRP (fiberglass-reinforced plastic)
Tank Contents:	GASOLINE	GASOLINE	GASOLINE
Automatic Tank Gauge:			
Inventory Control:			
Tank #	#7	#8	
Status:	REMOVED FROM GROUND	REMOVED FROM GROUND	
Capacity:	1000	1000	
Comments:			
Install Date:	8/31/1987	8/31/1987	
Closure Certification Date:			
Above or Below Ground Tank:	below	below	
Unit ID:			
Construction Material:	Steel	Steel	
Piping Material:	FRP (fiberglass-reinforced plastic)	FRP (fiberglass-reinforced plastic)	
Tank Contents:	GASOLINE	GASOLINE	
Automatic Tank Gauge:			
Inventory Control:			

End of LPST Sites Section

Mapped Sites Details: PST (MapID 2) TWDB Master Drainage Plan - SW



PST - State/Tribal Storage Tank

Map ID #2	PST - State/Tribal Storage Tank	Source: TCEQ
Facility #: 0079277	TCEQ Customer ID: 122726	Banks ID: 0079277
LOWES OF EDINBURG TX 2485		Rel. Loc.: 0.16 miles NW
2802 W UNIVERSITY DR, EDINBURG, TX 78539		Elevation: 99.34 feet (+99.34)
Contact:		
Facility Owner Name:	LOWES HOME CENTERS INC	
Facility Owner Address:	1605 CURTIS BRIDGE RD	
Facility Owner City:	WILKESBORO	
Facility Owner State:	NC	
Facility Owner Zip:	286972231	
Facility Contact Name:	BRIAN PEACE	
Facility Contact Phone:	704-758-2794	
Number of ASTs:	0001	
Number of USTs:	0000	
Total Number of Tanks:		
Tank #	#248501	
Status:		
Capacity:	1500	
Comments:		
Install Date:	12/6/2006	
Closure Certification Date:		
Above or Below Ground Tank:	above	
Unit ID:	209923	
Construction Material:	Steel	
Piping Material:		
Tank Contents:	DIESEL	
Automatic Tank Gauge:		
Inventory Control:		

Mapped Sites Details: PST (MapID 3) TWDB Master Drainage Plan - SW

Map ID #3	PST - State/Tribal Storage Tank	Source: TCEQ
Facility #: 0069949	TCEQ Customer ID: 106237	Banks ID: 0069949
HEB 431		Rel. Loc.: 0.18 miles N
2700 W FREDDY GONZALEZ DR, EDINBURG, TX 78539		Elevation: 97.18 feet (+97.18)
Contact:		
Facility Owner Name:	HEB GROCERY COMPANY LP	
Facility Owner Address:	11843 STARCREST DR, STE G	
Facility Owner City:	SAN ANTONIO	
Facility Owner State:	TX	
Facility Owner Zip:	782474113	
Facility Contact Name:	TERRY PARR	
Facility Contact Phone:	210-938-4040	
Number of ASTs:	0000	
Number of USTs:	0001	
Total Number of Tanks:		
Tank #	#1	
Status:	IN USE	
Capacity:	20000	
Comments:		
Install Date:	9/2/1997	
Closure Certification Date:		
Above or Below Ground Tank:	below	
Unit ID:		
Construction Material:	FRP (fiberglass-reinforced plastic)	
Piping Material:	FRP (fiberglass-reinforced plastic)	
Tank Contents:	GASOLINE	
Automatic Tank Gauge:		
Inventory Control:		

Mapped Sites Details: PST (MapID 4) TWDB Master Drainage Plan - SW

Map ID #4	PST - State/Tribal Storage Tank		Source: TCEQ
Facility #: 0065176	TCEQ Customer ID: 096922		Banks ID: 0065176
MCALLEN YARD			Rel. Loc.: 0.2 miles S
3721 S MCCOLL RD, EDINBURG, TX 78539			Elevation: 104.08 feet (+104.08)
Contact: WILLIAM M BROWN			
Facility Owner Name:	MO-VAC ENVIRONMENTAL INC		
Facility Owner Address:			
Facility Owner City:	MCALLEN		
Facility Owner State:	TX		
Facility Owner Zip:	785022677		
Facility Contact Name:	MIKE FLANAGAN		
Facility Contact Phone:	956-631-9121		
Number of ASTs:	0003		
Number of USTs:	0000		
Total Number of Tanks:			
Tank #	#1	#2	#3
Status:			
Capacity:	12600	12600	10000
Comments:			
Install Date:	1/1/1993	1/1/1993	1/1/1993
Closure Certification Date:			
Above or Below Ground Tank:	above	above	above
Unit ID:	167133	167134	167135
Construction Material:	Steel	Steel	Steel
Piping Material:			
Tank Contents:	DIESEL	GASOLINE	DIESEL
Automatic Tank Gauge:			
Inventory Control:			

Mapped Sites Details: PST (MapID 5) TWDB Master Drainage Plan - SW

Map ID #5	PST - State/Tribal Storage Tank	Source: TCEQ
Facility #: 0072993	TCEQ Customer ID: 111160	Banks ID: 0072993
SPRAGUE PROPERTY 2101 W SPRAGUE ST, EDINBURG, TX 78539 Contact: JAIME RODRIGUEZ		Rel. Loc.: 0.21 miles E Elevation: 97.48 feet (+97.48)
Facility Owner Name:	SPRAGUE PROPERTY JOINT VENTURE	
Facility Owner Address:	2101 W SPRAGUE	
Facility Owner City:	EDINBURG	
Facility Owner State:	TX	
Facility Owner Zip:	78539	
Facility Contact Name:	JAIME RODRIGUEZ	
Facility Contact Phone:	956-384-9290	
Number of ASTs:	0	
Number of USTs:	0	
Total Number of Tanks:		
Tank #	#1	
Status:	REMOVED FROM GROUND	
Capacity:	12000	
Comments:		
Install Date:	9/20/1998	
Closure Certification Date:		
Above or Below Ground Tank:	below	
Unit ID:		
Construction Material:	FRP (fiberglass-reinforced plastic)	
Piping Material:		
Tank Contents:	GASOLINE	
Automatic Tank Gauge:		
Inventory Control:		

Mapped Sites Details: PST (MapID 6) TWDB Master Drainage Plan - SW

Map ID #6	PST - State/Tribal Storage Tank		Source: TCEQ
Facility #: 0072716	TCEQ Customer ID: 110702		Banks ID: 0072716
EL TIGRE FOOD STORE 18 2847 W UNIVERSITY DR, EDINBURG, TX 78539			Rel. Loc.: 0.22 miles W Elevation: 99.78 feet (+99.78)
Contact:			
Facility Owner Name:	DOS TIENDAS INC		
Facility Owner Address:	2105 REMINGTON AVE		
Facility Owner City:	EDINBURG		
Facility Owner State:	TX		
Facility Owner Zip:	78539		
Facility Contact Name:	MAURO GARZA		
Facility Contact Phone:	956-287-8077		
Number of ASTs:	0000		
Number of USTs:	0003		
Total Number of Tanks:			
Tank #	#1	#2	#3
Status:	IN USE	IN USE	IN USE
Capacity:	20000	12000	10000
Comments:			
Install Date:	6/3/1999	6/3/1999	8/5/2004
Closure Certification Date:			
Above or Below Ground Tank:	below	below	below
Unit ID:			
Construction Material:	Composite (steel w/external FRP cladding)	Composite (steel w/external FRP cladding)	Composite (steel w/external FRP cladding)
Piping Material:	FRP (fiberglass-reinforced plastic)	FRP (fiberglass-reinforced plastic)	FRP (fiberglass-reinforced plastic)
Tank Contents:	GASOLINE	GASOLINE	DIESEL
Automatic Tank Gauge:			
Inventory Control:			

Mapped Sites Details: PST (MapID 9) TWDB Master Drainage Plan - SW

Map ID #9	PST - State/Tribal Storage Tank		Source: TCEQ
Facility #: 0057748	TCEQ Customer ID: 084513		Banks ID: 0057748
STRIPES 9110			Rel. Loc.: 0.24 miles SW
2824 W FREDDY GONZALEZ DR, EDINBURG, TX 78539			Elevation: 99.07 feet (+99.07)
Contact: RICK MENDOZA			
Facility Owner Name:	STRIPES LLC		
Facility Owner Address:	4525 AYERS ST		
Facility Owner City:	CORPUS CHRISTI		
Facility Owner State:	TX		
Facility Owner Zip:	78415		
Facility Contact Name:	CRAIG SCOTTON		
Facility Contact Phone:	361-884-2463		
Number of ASTs:	0000		
Number of USTs:	0003		
Total Number of Tanks:			
Tank #	#1	#2	#3
Status:	IN USE	IN USE	IN USE
Capacity:	10079	6059	6059
Comments:			
Install Date:	2/1/1991	2/1/1991	2/1/1991
Closure Certification Date:			
Above or Below Ground Tank:	below	below	below
Unit ID:			
Construction Material:	Composite (steel w/external FRP cladding)	Composite (steel w/external FRP cladding)	Composite (steel w/external FRP cladding)
Piping Material:	FRP (fiberglass-reinforced plastic)	FRP (fiberglass-reinforced plastic)	FRP (fiberglass-reinforced plastic)
Tank Contents:	GASOLINE	GASOLINE	GASOLINE
Automatic Tank Gauge:			
Inventory Control:			

End of PST Sites Section

Mapped Sites Details: HW (MapID 4) TWDB Master Drainage Plan - SW



HW - State/Tribal Hazardous Waste

Map ID #4	HW - State/Tribal Hazardous Waste	Source: TCEQ
Register #: 23036	EPA ID: TXR000014779	Banks ID: 23036

MO VAC ENVIRONMENTAL
 3721 S McColl Rd, Edinburg, TX 78539
 Contact: RICK CARPER

Rel. Loc.: 0.2 miles S
 Elevation: 104.08 feet (+104.08)

Status:	ACTIVE
Waste Description:	
Location Description:	3721 S McColl Rd, Edinburg, TX
Additional State ID:	7245
Permit Number:	
Business Type:	Corporation
Facility Type:	
Facility Owner Name:	MO-VAC ENVIRONMENTAL INC
Facility Owner Phone:	1-956-6319121
Facility Contact Name:	
Facility Contact Phone:	
Company Name:	MO-VAC ENVIRONMENTAL INC
Operator Address:	PO BOX 2677, MCALLEN, TX 78502

Waste ID	Waste Code	Waste Description	Disposal Method	Storage Method	Total Annual Waste (lbs)
127641	00014891	this waste stream pertains to the clean up of oil-base mud that may have been sp			
127639	00021012	This waste is generated by the clean-out of oil-based mud from our tanker trucks			
127640	00039022				
192222	0004211H	PAINT WASTE AND THINNERS. PAINTING EQUIPMENT CLEANUP. 1/30/01			

Mapped Sites Details: HW (MapID 4) TWDB Master Drainage Plan - SW

Map ID #4	HW - State/Tribal Hazardous Waste	Source: TCEQ
Register #: 40370	EPA ID: TXD988062378	Banks ID: 40370
MO VAC		Rel. Loc.: 0.2 miles S
N McColl Road , McAllen, TX		Elevation: 104.08 feet (+104.08)
Contact: MICHAEL M MINGUS		
Status:	INACTIVE	
Waste Description:		
Location Description:	N McColl Road, McAllen, TX	
Additional State ID:	16791	
Permit Number:		
Business Type:	Individual	
Facility Type:		
Facility Owner Name:	GLENN ANDREWS	
Facility Owner Phone:		
Facility Contact Name:		
Facility Contact Phone:		
Company Name:	GLENN ANDREWS	
Operator Address:		

End of HW Sites Section

Mapped Sites Details: RCRA (MapID 4) TWDB Master Drainage Plan - SW



RCRA - RCRA

Map ID #4	RCRA - RCRA	Source: EPA	
EPA Handler ID: TXD988062378	Handler Sequence Number: 3	Banks ID: TXD988062378	
MO VAC ENVIRONMENTAL		Rel. Loc.: 0.2 miles S	
N MCCOLL ROAD, MCALLEN, TX 78501		Elevation: 104.08 feet (+104.08)	
Contact: MICHAEL M MINGUS			
Owner Name:	ANDREWSGLENN		
Number of Owners:	1		
Operator Name:	ANDREWSGLENN		
Number of Operators:	1		
Mailing Address:	PO BOX 2677, MCALLEN, TX 78501		
Contact Name:	MICHAEL M MINGUS		
Contact Address:	PO BOX 2677, MCALLEN, TX 78501		
Contact Phone:	956-685-2742		
Contact Email Address:			
Government Performance and Results Act (GPRA) Permit:	The facility does not exist on the Operating/Post-Closure Permit Baseline.		
Government Performance and Results Act (GPRA) Corrective Action:	No		
Workload Legend: L=Land Disposal I=Incineration B=Boiler/Industrial Furnace S=Storage T=Treatment			
Permit Workload:	-----		
Closure Workload:	-----		
Post-Closure Workload:	-----		
Subject to Corrective Action:	No		
Subject to Corrective Action 3004:	No		
Subject to Corrective Action Non-TSDF:	No		
Corrective Action Workload:	No		
Generator Status:	Not a Generator		
Nuclear Mixed Waste Handler:	No		
Onsite Burner Exemption:	No		
Furnace Exemption:	No		
Underground Injection Activity:	No		
NAIC Description 1:			
NAIC Description 2:			
NAIC Description 3:			
NAIC Description 4:			
Federal Generator Class:	Not a Generator, Verified		
State Generator Class:			
Environmental Controls in Place:	No		
Institutional Controls in Place:	No		
Groundwater Controls in Place:	No		
Significant Non-Compliance:	No		
Unaddressed Significant Non-Complier:	No		
Addressed Significant Non-Complier:	No		
Significant Non-Complier with Compliance Schedule:	No		
Enforcement Description	Responsible Enforcement Agency	Enforcement Date	Penalty Description
Evaluation Description	Responsible Agency	Evaluation Date	Violation Found
Violation Description	Violation Determined By	Violation Date	Actual Resolution Date Scheduled Resolution Date
Hazardous Waste Description			
BENZENE			

Mapped Sites Details: RCRA (MapID 4) TWDB Master Drainage Plan - SW



Continued from Previous Page

DESCRIPTION

IGNITABLE WASTE

End of RCRA Sites Section

Mapped Sites Details: DRYC (MapID 1) TWDB Master Drainage Plan - SW



DRYC - Dry Cleaners

Map ID #1	DRYC - Dry Cleaners	Source: TCEQ
Registration #: RN104094453	Customer #: CN602503518	Banks ID: RN104094453
1.50 CLEANERS		Rel. Loc.: 0.08 miles SW
2524 W FREDDY GONZALEZ DR, EDINBURG, TX 78539		Elevation: 97.58 feet (+97.58)
Contact:		
Details #1		
Status:	ACTIVE	
Site Type:	DROP STATION REGISTRATION	
Owner:	AMERICAN DRY CLEAN INC	
Solvent:		
Details #2		
Status:	ACTIVE	
Site Type:	DROP STATION REGISTRATION	
Owner:	FELIPE AVILA & SAMUEL AVILA & SANDRA E TAMEZ	
Solvent:		

Mapped Sites Details: DRYC (MapID 1) TWDB Master Drainage Plan - SW



Map ID #1	DRYC - Dry Cleaners	Source: TCEQ
Registration #: RN106623218	Customer #: CN602966905	Banks ID: RN106623218
1.50 CLEANERS 2600 W FREDDY GONZALEZ DR, EDINBURG, TX 78539 Contact:		Rel. Loc.: 0.1 miles SW Elevation: 97.42 feet (+97.42)
Details #1		
Status:	ACTIVE	
Site Type:	DROP STATION REGISTRATION	
Owner:	FELIPE AVILA & SAMUEL AVILA & SANDRA E TAMEZ	
Solvent:		

Mapped Sites Details: DRYC (MapID 8) TWDB Master Drainage Plan - SW

Map ID #8	DRYC - Dry Cleaners	Source: TCEQ
Registration #: RN104094594	Customer #: CN603649245	Banks ID: RN104094594
OASIS ONE DRY CLEANERS 1106 S MCCOLL RD, EDINBURG, TX 78539 Contact:		Rel. Loc.: 0.23 miles W Elevation: 97.6 feet (+97.6)
Details #1		
Status:	ACTIVE	
Site Type:	DROP STATION REGISTRATION	
Owner:	OASIS CAR WASH ENTERPRISES INC	
Solvent:		
Details #2		
Status:	ACTIVE	
Site Type:	DROP STATION REGISTRATION	
Owner:	TWO LAC INC	
Solvent:		
Details #3		
Status:	ACTIVE	
Site Type:	FACILITY REGISTRATION	
Owner:	ROM PROPERTIES LLC	
Solvent:	PERCHLOROETHYLENE (TETRACHLOROETHYLENE)	

End of DRYC Sites Section



CER NFRAP - CERCLIS NFRAP

CER NFRAP - CERCLIS NFRAP

Source: EPA

Site ID: 0603061

EPA ID: TXD981047871

Banks ID: 0603061

ILLINI HELICOPTER

P.O. BOX 1601, EDINBURG, TX 78539

Contact:

National Priority List Status: Not on the NPL
Facility Type: Not a federal facility

Aliases:

Additional Info: <http://cfpub.epa.gov/supercpad/cursites/calinfo.cfm?id=0603061>

Action	Start Date	Completion Date
DISCOVERY		1/1/1985 12:00:00 AM
PRELIMINARY ASSESSMENT	3/1/1986	3/1/1986 12:00:00 AM
ARCHIVE SITE		3/1/1986 12:00:00 AM

Unmapped Sites Details: CER NFRAP (MapID) TWDB Master Drainage Plan**CER NFRAP - CERCLIS NFRAP****Source: EPA****Site ID: 0603122****EPA ID: TXD981048499****Banks ID: 0603122**

MARTIN FARM & RANCH
 ROUTE 4 BOX 473, EDINBURG, TX 78539

Contact:

National Priority List Status: Not on the NPL
Facility Type: Not a federal facility

Aliases:**Additional Info:** <http://cfpub.epa.gov/supercpad/cursites/calinfo.cfm?id=0603122>

Action	Start Date	Completion Date
DISCOVERY		1/1/1985 12:00:00 AM
PRELIMINARY ASSESSMENT	3/1/1986	3/1/1986 12:00:00 AM
ARCHIVE SITE		3/1/1986 12:00:00 AM

End of CER NFRAP Sites Section

ERNS - ERNS List

ERNS - ERNS List

Source: EPA/National Response Center

NRC Report #: 812479

Secondary ID: NA

Banks ID: 812479

ROUTE 7 BOX 980, EDINBURG, TX 78541

Contact:

Responsible Party:	NB EXPRESS
Incident Location:	
Incident Date/Time:	9/24/2006 7:00 AM
Cause of Incident:	NATURAL PHENOMENON
Description of Incident:	THE CALLER IS REPORTING THAT DUE TO HEAVY RAIN, THERE WAS A RELEASE OF MATERIALS ONTO THE GROUND AND INTO STANDING WATER FROM CAR PARTS.
Incident Type:	FIXED
Additional Information:	THE CALLER HAD NO ADDITIONAL INFORMATION
Any Fatalities:	No
Number of Fatalities:	
Remedial Action Taken:	NONE
Medium Affected:	WATER
Medium Description:	LAND>STANDING WATER
Materials Spilled:	UNKNOWN OIL
Railroad Involved:	
Pipeline Type Involved:	
Source:	TELEPHONE

End of ERNS Sites Section

PST - State/Tribal Storage Tank

PST - State/Tribal Storage Tank

Source: TCEQ

Facility #: 0011107

TCEQ Customer ID: 045329

Banks ID: 0011107

ALANIZ GROCERY

TX 78539

Contact:

Facility Owner Name: B CANTRELL OIL COMPANY

Facility Owner Address:

Facility Owner City: RIO HONDO

Facility Owner State: TX

Facility Owner Zip: 78583

Facility Contact Name: TED VEGA

Facility Contact Phone: 956-748-2368

Number of ASTs: 0

Number of USTs: 0

Total Number of Tanks:

Tank #	#1	#2
Status:	REMOVED FROM GROUND	REMOVED FROM GROUND
Capacity:	8000	8000
Comments:		
Install Date:	1/1/1981	1/1/1981
Closure Certification Date:		
Above or Below Ground Tank:	below	below
Unit ID:		
Construction Material:	Steel	Steel
Piping Material:	Steel	Steel
Tank Contents:	GASOLINE	GASOLINE
Automatic Tank Gauge:		
Inventory Control:		

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - SW



PST - State/Tribal Storage Tank

Source: TCEQ

Facility #: 0018450

TCEQ Customer ID: 072830

Banks ID: 0018450

FFP 680

RT 2, EDINBURG, TX 78539

Contact:

Facility Owner Name: FFP OPERATING PARTNERS LP

Facility Owner Address: 2801 GLENDA ST

Facility Owner City: FORT WORTH

Facility Owner State: TX

Facility Owner Zip: 761174326

Facility Contact Name: MARK LIPSCOMB

Facility Contact Phone: 817-838-4701

Number of ASTs: 0

Number of USTs: 0

Total Number of Tanks:

Tank #	#1	#2	#3
Status:	REMOVED FROM GROUND	REMOVED FROM GROUND	REMOVED FROM GROUND
Capacity:	8000	4000	4000
Comments:			
Install Date:	1/1/1977	1/1/1977	1/1/1977
Closure Certification Date:			
Above or Below Ground Tank:	below	below	below
Unit ID:			
Construction Material:	Steel	Steel	Steel
Piping Material:	Steel	Steel	Steel
Tank Contents:	GASOLINE	GASOLINE	GASOLINE

Automatic Tank Gauge:

Inventory Control:

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - SW



PST - State/Tribal Storage Tank

Source: TCEQ

Facility #: 0034676

TCEQ Customer ID: 067146

Banks ID: 0034676

MC ALLEN PRODUCTION UNIT OFFICE

EDINBURG, TX 78539

Contact: J R ABLE

Facility Owner Name: SHELL WESTERN E & P INC

Facility Owner Address:

Facility Owner City: HOUSTON

Facility Owner State: TX

Facility Owner Zip: 77001

Facility Contact Name: J R ABLE

Facility Contact Phone: 713-870-3443

Number of ASTs: 0

Number of USTs: 0

Total Number of Tanks:

Tank # #1

Status: REMOVED FROM GROUND

Capacity: 10000

Comments:

Install Date: 1/1/1976

Closure Certification Date:

Above or Below Ground Tank: below

Unit ID:

Construction Material: FRP (fiberglass-reinforced plastic)

Piping Material: Steel

Tank Contents: GASOLINE

Automatic Tank Gauge:

Inventory Control:

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - SW



PST - State/Tribal Storage Tank

Source: TCEQ

Facility #: 0043072

TCEQ Customer ID: 071887

Banks ID: 0043072

SUN-UP THE FOOD STORE

RT 2, EDINBURG, TX 78539

Contact: JOSE LUIS SALINAS

Facility Owner Name: JOSE LUIS SALINAS

Facility Owner Address:

Facility Owner City: EDINBURG

Facility Owner State: TX

Facility Owner Zip: 78539

Facility Contact Name:

Facility Contact Phone: 512-383-0551

Number of ASTs: 0000

Number of USTs: 0003

Total Number of Tanks:

Tank #	#1	#2	#3
Status:	IN USE	IN USE	IN USE
Capacity:	8000	8000	4000
Comments:			
Install Date:	1/1/1966	1/1/1966	1/1/1966
Closure Certification Date:			
Above or Below Ground Tank:	below	below	below
Unit ID:			
Construction Material:	Steel	Steel	Steel
Piping Material:	Steel	Steel	Steel
Tank Contents:	GASOLINE	GASOLINE	GASOLINE

Automatic Tank Gauge:

Inventory Control:

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - SW



PST - State/Tribal Storage Tank

Source: TCEQ

Facility #: 0046156

TCEQ Customer ID: 045375

Banks ID: 0046156

M & R DRIVE INN

TX 78539

Contact:

Facility Owner Name: B CANTRELL OIL COMPANY

Facility Owner Address:

Facility Owner City: RIO HONDO

Facility Owner State: TX

Facility Owner Zip: 78583

Facility Contact Name: TED VEGA

Facility Contact Phone: 956-748-2368

Number of ASTs: 0

Number of USTs: 0

Total Number of Tanks:

Tank #	#1	#2
Status:	REMOVED FROM GROUND	REMOVED FROM GROUND
Capacity:	8000	8000
Comments:		
Install Date:	1/1/1986	1/1/1986
Closure Certification Date:		
Above or Below Ground Tank:	below	below
Unit ID:		
Construction Material:	Steel	Steel
Piping Material:	FRP (fiberglass-reinforced plastic)	FRP (fiberglass-reinforced plastic)
Tank Contents:	GASOLINE	GASOLINE
Automatic Tank Gauge:		
Inventory Control:		

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - SW



PST - State/Tribal Storage Tank

Source: TCEQ

Facility #: 0051533

TCEQ Customer ID: 060113

Banks ID: 0051533

OTTO WAGNER SR

RT 3 D, EDINBURG, TX 78539

Contact:

Facility Owner Name: BROWNIES OIL CO INC

Facility Owner Address:

Facility Owner City: MCALLEN

Facility Owner State: TX

Facility Owner Zip: 78502

Facility Contact Name:

Facility Contact Phone: 2106863791

Number of ASTs: 0

Number of USTs: 0

Total Number of Tanks:

Tank # #1

Status:

Capacity: 1900

Comments:

Install Date: 1/1/1974

Closure Certification Date:

Above or Below Ground Tank: above

Unit ID: 157445

Construction Material: Steel

Piping Material:

Tank Contents: DIESEL

Automatic Tank Gauge:

Inventory Control:

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - SW**PST - State/Tribal Storage Tank****Source: TCEQ****Facility #: 0058911****TCEQ Customer ID: 089290****Banks ID: 0058911**

RON WILSHER

RT 7, EDINBURG, TX 78539

Contact: RON WILSHER

Facility Owner Name:	WILSHER RON
Facility Owner Address:	2201 W MONTE CRISTO
Facility Owner City:	EDINBURG
Facility Owner State:	TX
Facility Owner Zip:	78539
Facility Contact Name:	RON WILSHER
Facility Contact Phone:	5123833442
Number of ASTs:	0001
Number of USTs:	0000

Total Number of Tanks:**Tank #** #1**Status:****Capacity:** 3000**Comments:****Install Date:** 1/1/1990**Closure Certification Date:****Above or Below Ground Tank:** above**Unit ID:** 163733**Construction Material:** Steel**Piping Material:****Tank Contents:** DIESEL**Automatic Tank Gauge:****Inventory Control:**

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - SW**PST - State/Tribal Storage Tank****Source: TCEQ****Facility #: 0068255****TCEQ Customer ID: 103085****Banks ID: 0068255**

EDINBURG WELL SERVICE

RR 3, EDINBURG, TX 78539

Contact: GEORGE GELLERSEN

Facility Owner Name:	DAWSON WELL SERVICING INC
Facility Owner Address:	6 DESTA DR, STE 4400
Facility Owner City:	MIDLAND
Facility Owner State:	TX
Facility Owner Zip:	76902
Facility Contact Name:	FRANK CASTANEDA
Facility Contact Phone:	830-277-1451
Number of ASTs:	0
Number of USTs:	0

Total Number of Tanks:

Tank #	#J
Status:	
Capacity:	6000
Comments:	
Install Date:	12/21/1995
Closure Certification Date:	
Above or Below Ground Tank:	above
Unit ID:	178881
Construction Material:	Steel
Piping Material:	
Tank Contents:	DIESEL
Automatic Tank Gauge:	
Inventory Control:	

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - SW



PST - State/Tribal Storage Tank

Source: TCEQ

Facility #: 0074043

TCEQ Customer ID: 112895

Banks ID: 0074043

LUNAS DRIVE IN 2

RR 7 BOX 11500, EDINBURG, TX 78541

Contact: HECTOR LUNA

Facility Owner Name: VICTORIA MARTINEZ

Facility Owner Address:

Facility Owner City: EDINBURG

Facility Owner State: TX

Facility Owner Zip: 78540

Facility Contact Name: VICTORIA MARTINEZ

Facility Contact Phone: 956-451-2021

Number of ASTs: 0000

Number of USTs: 0001

Total Number of Tanks:

Tank # #1

Status: IN USE

Capacity: 10000

Comments:

Install Date: 7/1/1996

Closure Certification Date:

Above or Below Ground Tank: below

Unit ID:

Construction Material:

Piping Material: FRP (fiberglass-reinforced plastic)

Tank Contents: GASOLINE

Automatic Tank Gauge:

Inventory Control:

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - SW



PST - State/Tribal Storage Tank

Source: TCEQ

Facility #: 0011132

TCEQ Customer ID: 045350

Banks ID: 0011132

WESTSIDE KOUNTRY STORE

TX 78572

Contact: B CANTRELL

Facility Owner Name: B CANTRELL OIL COMPANY

Facility Owner Address:

Facility Owner City: RIO HONDO

Facility Owner State: TX

Facility Owner Zip: 78583

Facility Contact Name: TED VEGA

Facility Contact Phone: 956-748-2368

Number of ASTs: 0

Number of USTs: 0

Total Number of Tanks:

Tank #	#1	#2	#3
Status:	REMOVED FROM GROUND	REMOVED FROM GROUND	REMOVED FROM GROUND
Capacity:	8000	4000	4000
Comments:			
Install Date:	1/1/1985	1/1/1985	1/1/1985
Closure Certification Date:			
Above or Below Ground Tank:	below	below	below
Unit ID:			
Construction Material:	Steel	Steel	Steel
Piping Material:	FRP (fiberglass-reinforced plastic)	FRP (fiberglass-reinforced plastic)	FRP (fiberglass-reinforced plastic)
Tank Contents:	GASOLINE	GASOLINE	GASOLINE

Automatic Tank Gauge:

Inventory Control:

Tank #	#4
Status:	REMOVED FROM GROUND
Capacity:	4000
Comments:	
Install Date:	1/1/1985
Closure Certification Date:	
Above or Below Ground Tank:	below
Unit ID:	
Construction Material:	Steel
Piping Material:	FRP (fiberglass-reinforced plastic)
Tank Contents:	DIESEL

Automatic Tank Gauge:

Inventory Control:

Unmapped Sites Details: PST (MapID) TWDB Master Drainage Plan - SW**PST - State/Tribal Storage Tank****Source: TCEQ****Facility #: 0011140****TCEQ Customer ID: 045356****Banks ID: 0011140**

HERNANDEZ GROC

TX 78572

Contact: BOB CANTRELL

Facility Owner Name: B CANTRELL OIL COMPANY**Facility Owner Address:****Facility Owner City:** RIO HONDO**Facility Owner State:** TX**Facility Owner Zip:** 78583**Facility Contact Name:** TED VEGA**Facility Contact Phone:** 956-748-2368**Number of ASTs:** 0**Number of USTs:** 0**Total Number of Tanks:**

Tank #	#1	#2
Status:	REMOVED FROM GROUND	REMOVED FROM GROUND
Capacity:	8000	8000
Comments:		
Install Date:	1/1/1985	1/1/1985
Closure Certification Date:		
Above or Below Ground Tank:	below	below
Unit ID:		
Construction Material:	Steel	Steel
Piping Material:	Steel	Steel
Tank Contents:	GASOLINE	GASOLINE
Automatic Tank Gauge:		
Inventory Control:		

End of PST Sites Section

Dataset Descriptions and Sources *TWDB Master Drainage Plan - SW*



Dataset	Source	Dataset Description	Update Schedule	Data Requested	Data Obtained	Data Updated	Source Updated
NPL -- National Priority List	EPA	NPL is the list of high priority hazardous waste sites in the United States eligible for long-term remedial action financed under the federal Superfund program and CERCLIS. Also known as Superfund sites, the EPA will only add sites to the NPL list based upon completion of the Hazard Ranking System (HRS) screening, public solicitation of comments about the proposed site, and after all comments have been addressed.	Quarterly	07/18/2013	11/05/2013	11/05/2013	10/25/2013
DNPL -- Delisted National Priority List	EPA	DNPL is a list of all sites that have been deleted from the EPA NPL list. These sites are taken off the NPL list usually due to no further response or remedial action being required on them. Notices to delete NPL sites are published in the Federal Register and become effective unless the EPA receives significant adverse or critical comments during the 30-day public comment period.	Quarterly	07/18/2013	11/05/2013	11/05/2013	10/25/2013
CER -- CERCLIS	EPA	CERCLIS sites come from the Comprehensive Environmental Response, Compensation, and Liability Act, a federal law designed to clean up abandoned hazardous waste sites. These sites are either proposed, listed or under review currently to be a part of the National Priority List.	Quarterly	07/18/2013	11/05/2013	11/05/2013	10/25/2013
CER NFRAP -- CERCLIS NFRAP	EPA	CERCLIS sites designated 'No Further Remedial Action Planned' NFRAP have been removed from CERCLIS. NFRAP sites may be sites where, following an initial investigation, no contamination was found, contamination was removed quickly without the site being placed on the NPL, or the contamination was not serious enough to require Federal Superfund action or NPL consideration.	Quarterly	07/18/2013	11/05/2013	11/05/2013	10/25/2013
RCRA COR -- RCRA CORRACTS	EPA	These sites are registered hazardous waste generators or handlers that fall under the Resource Conservation and Recovery Act (RCRA), and subject to corrective action activity.	Quarterly	11/19/2013	11/19/2013	11/19/2013	11/14/2013
RCRA TSD -- RCRA non-CORRACTS TSD	EPA	This database lists all treatment, storage and disposal of hazardous material sites that fall under the Resource Conservation and Recovery Act (RCRA). All hazardous waste TSD facilities are required to notify EPA of their existence.	Quarterly	11/19/2013	11/19/2013	11/19/2013	11/14/2013
RCRA GEN -- RCRA Generators	EPA	The EPA regulates all Hazardous Waste Generators subject to the Resource Conservation and Recovery Act (RCRA). They are classified by the quantity of hazardous waste generated. A Small Quantity Generator (SQG) generates between 100kg and 1,000 kg of waste per month. A Large Quantity Generator (LQG) generates over 1,000 kg of waste per month. A Conditionally Exempt SQG (CEG) generates less than 100 kg of waste per month.	Quarterly	11/19/2013	11/19/2013	11/19/2013	11/14/2013
FED BWN -- Federal Brownfields	EPA	A listing of sites that assist the EPA in collecting, tracking, and updating information of sites in relation to the Small Business Liability Relief and Brownfields Revitalization Act. These sites are real property that is either abandoned or underutilized where redevelopment or expansion is complicated by real or perceived environmental contamination.	Quarterly	11/05/2013	11/12/2013	11/12/2013	11/05/2013
FED IC -- Federal Institutional Control	EPA	This is a listing of Brownfield Management System (BMS) sites that have had Institutional Controls (ICs) placed on them. ICs are administrative restrictions, such as legal controls, that help minimize the potential for human exposure to known contamination by ensuring appropriate land or resource use. ICs are meant to supplement Engineering Controls and will rarely be the sole remedy at a site. ICs are a type of Activity and Use Limitation (AUL).	Quarterly	11/05/2013	11/12/2013	11/12/2013	11/05/2013
FED EC -- Federal Engineering Control	EPA	This is a listing of Brownfield Management System (BMS) sites that have had Engineering Controls (ECs) placed on them. ECs are physical methods or modifications put into place on a site to reduce or eliminate the possibility of human exposure to known contamination. ECs are a type of Activity and Use Limitation (AUL).	Quarterly	11/05/2013	11/12/2013	11/12/2013	11/05/2013

Dataset Descriptions and Sources *TWDB Master Drainage Plan - SW*



Dataset	Source	Dataset Description	Update Schedule	Data Requested	Data Obtained	Data Updated	Source Updated
ERNS -- ERNS List	EPA/National Response Center	ERNS is a national database used to store information on unauthorized releases of oil and hazardous substances that have been reported to the National Response Center since 2001. The NRC is the sole federal point of contact for reporting oil and chemical spills. Prior to 2001 this information was maintained by the EPA.	Annually	01/11/2013	01/18/2013	01/18/2013	12/31/2012
ST NPL -- State/Tribal Equivalent NPL	TCEQ	This database contains sites determined by the TCEQ that may constitute an imminent and substantial endangerment to public health and safety or to the environment due to a release or threatened release of hazardous substances into the environment.	Quarterly	11/05/2013	11/06/2013	11/06/2013	11/06/2013
ST CER -- State/Tribal Equivalent CERCLIS	NA	This database is not currently available from this state. If this state does make this database available in the future, Banks Environmental Data will obtain it for reporting purposes.	NA	N/A	N/A	N/A	N/A
SWLF -- State/Tribal Disposal or Landfill	TCEQ	The SWLF database contains records of municipal solid waste facilities that may accept various types of municipal solid waste for processing or disposal, depending on the type of facility. A Municipal Solid Waste facility may also accept certain special wastes and non-hazardous industrial solid wastes if approved by the TCEQ executive director.	Quarterly	01/07/2014	01/07/2014	01/07/2014	01/03/2014
SWLF -- State/Tribal Disposal or Landfill	TCEQ	This database is a listing of closed and abandoned municipal solid waste landfills. The sites included are either unauthorized (UNUM_) or permitted (PERMAPP_).	NA	N/A	N/A	N/A	N/A
LPST -- State/Tribal Leaking Storage Tank	TCEQ	This database contains information on leaking storage tanks, equipment failures, compliance, and releases in the state.	Quarterly	11/08/2013	11/08/2013	11/08/2013	11/07/2013
LPST -- State/Tribal Leaking Storage Tank	EPA	The Tribal LUST database (maintained by EPA Region 6) provides information on leaking underground storage tank on tribal lands in Louisiana, Arkansas, Oklahoma, New Mexico and Tribal Nations.	Quarterly	10/28/2013	10/30/2013	10/30/2013	10/30/2013
PST -- State/Tribal Storage Tank	TCEQ	This database contains information on above and underground storage tanks, compliance, and releases in the state.	Quarterly	11/08/2013	11/08/2013	11/08/2013	11/07/2013
PST -- State/Tribal Storage Tank	EPA	The Tribal UST database (maintained by EPA Region 6) provides underground storage tank information on tribal lands in Louisiana, Arkansas, Oklahoma, New Mexico and Tribal Nations.	Quarterly	10/28/2013	10/30/2013	10/30/2013	10/30/2013
ST IC -- State/Tribal Institutional Control	TCEQ	This database includes Voluntary Cleanup Program (VCP) or Innocent Operator Program (IOP) sites that have been remediated and have had Institutional Controls (ICs) placed on them. ICs are administrative restrictions, such as legal controls, that help minimize the potential for human exposure to known contamination by ensuring appropriate land or resource use.	Quarterly	11/13/2013	11/18/2013	11/18/2013	11/04/2013
ST IC -- State/Tribal Institutional Control	RRC	The Railroad Commission of Texas Voluntary Cleanup Program provides an incentive to remediate Oil & Gas related pollution by participants as long as they did not cause or contribute to the contamination.	Quarterly	11/08/2013	11/13/2013	11/18/2013	11/13/2013
ST EC -- State/Tribal Engineering Control	TCEQ	This database includes Voluntary Cleanup Program (VCP) or Innocent Operator Program (IOP) sites that have been remediated and have had Engineering Controls (ECs) placed on them. ECs are physical methods or modifications put into place on a site to reduce or eliminate the possibility of human exposure to known contamination.	Quarterly	11/13/2013	11/18/2013	11/18/2013	11/04/2013

Dataset Descriptions and Sources *TWDB Master Drainage Plan - SW*



Dataset	Source	Dataset Description	Update Schedule	Data Requested	Data Obtained	Data Updated	Source Updated
VCP -- State/Tribal Voluntary Cleanup	TCEQ	This database contains sites from both the Voluntary Cleanup Program (VCP) and the Innocent Operator Program (IOP). The VCP records contain information on contaminated sites that private parties have cleaned up through assistance from the State in the form of administrative, technical, and legal incentives. The IOP records are sites that have received certificates from the State acknowledging that their property is contaminated as a result of a release or migration of contaminants from a source or sources not located on the property, and they did not cause or contribute to the source or sources of contamination.	Quarterly	11/13/2013	11/18/2013	11/18/2013	11/04/2013
VCP -- State/Tribal Voluntary Cleanup	RRC	The Railroad Commission of Texas Voluntary Cleanup Program provides an incentive to remediate Oil & Gas related pollution by participants as long as they did not cause or contribute to the contamination.	Quarterly	11/08/2013	11/13/2013	11/18/2013	11/13/2013
ST BWN -- State/Tribal Brownfield	TCEQ	Brownfield sites are former industrial properties that lie dormant or underutilized due to liability associated with real or perceived contamination. In Texas, the TCEQ, in close partnership with the EPA and other federal, state, and local redevelopment agencies, and stakeholders, is facilitating cleanup, transferability, and revitalization of Brownfield's through the development of regulatory, tax, and technical assistance tools.	Quarterly	11/18/2013	11/18/2013	11/19/2013	11/04/2013
ST BWN -- State/Tribal Brownfield	RRC	The Railroad Commission of Texas' Voluntary Cleanup Program (RRC-VCP) provides an incentive to remediate Oil & Gas related pollution by participants as long as they did not cause or contribute to the contamination. Applicants to the program receive a release of liability to the state in exchange for a successful cleanup.	Quarterly	11/08/2013	11/13/2013	11/19/2013	11/13/2013
HW -- State/Tribal Hazardous Waste	TCEQ	This database contains information on facilities which store, process, or dispose of hazardous waste as maintained by the Industrial and Hazardous Waste Permits section of the TCEQ.	Quarterly	11/08/2013	11/13/2013	11/13/2013	10/05/2013
RCRA -- RCRA	EPA	This database lists all sites that fall under the Resource Conservation and Recovery Act (RCRA) and are not classifiable as treatment, storage, disposers of hazardous material, hazardous waste generator or subject to corrective action activity.	Quarterly	11/19/2013	11/19/2013	11/19/2013	11/14/2013
DRYC -- Dry Cleaners	TCEQ	Dry Cleaner data houses both the DCRP Program information and PERC information released by the TCEQ. The DCRP database contains records funded for state-lead clean up of dry cleaner related contaminated sites. The DCRP administers the Dry Cleaning Facility Release Fund to assist with remediation of contamination caused by dry cleaning solvents. There are two listings from this program: LIST#1 - A historic listing of any facility that registered with the DCRP indicating whether or not the facility has used Perchloroethylene (PERC) in the past. LIST#2 - A Prioritization list of dry cleaner sites Facilities on this list will be investigated in order to determine the existence and or extent of possible contamination. Facilities which are not current on their DCRP payments get dropped from the program. Banks Environmental Data DOES NOT REMOVE these listings from our database so that we may present a more complete historical listing of facilities that may or may not have used PERC in the past.	Quarterly	11/05/2013	11/06/2013	11/07/2013	11/06/2013

Disclaimer TWDB Master Drainage Plan - SW

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ATTACHMENT D

CONSTRAINTS MAP

