Upper Goose Creek and Twomile Canyon Creek Flood Mapping Study Update

Hydraulic Report

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SEPTEMBER 2013 FLOODING SUMMARY

S.1 Background

The Upper Goose Creek and Twomile Canyon Creek Flood Mapping Study Update project was originally initiated in October of 2011. A final hydraulic report was presented to the City of Boulder on January 11, 2013. The City began the process of presenting the floodplain update to the public and the Water Resources Advisory Board (WRAB) in the spring of 2013. In light of public feedback and the anticipated collection of LiDAR data in early 2013, completion of the mapping update was delayed until the new information was available and past results could be further verified.

In September of 2013 the City of Boulder and the Upper Goose Creek and Twomile Canyon Creek watersheds experienced significant rainfall resulting in substantial flooding and damage throughout the Twomile Canyon Creek and Goose Creek corridors. The overall flooding extent, particularly from flows originating along Twomile Canyon Creek was widespread. Similarly, damage to residences and private infrastructure was also significant. Once again, finalization of the floodplain update project was delayed to allow time to digest conclusions from the flood that had occurred ramifications on the floodplain mapping update.

The paragraphs below describe the September 2013 flood as it relates to rainfall, runoff, and damages, as well as how these real-world observations have been incorporated into this update of the Upper Goose Creek and Twomile Canyon Creek Flood Mapping Study hydraulics report.

S.2 Rainfall

Rainfall contributing to the September 2013 flood event primarily began in the evening hours of Wednesday September 11th. According to a summary report provided by Wright-Water Engineers, Inc., the initial rainfall event produced approximately 4.6 inches of rain in 5.5 hours over the Twomile Canyon Creek drainage basin upstream of Broadway. The next wave of rainfall occurred in the morning on September 12th with an additional 1.7 inches of rain. The last major wave of rainfall occurred in the afternoon of September 12th and added approximately 2.5 inches of rain in 6 hours. Figure S.1 illustrates the estimated incremental 5-minute rainfall depth, the cumulative storm rainfall depth, the 100-year design storm incremental rainfall depth, and the 100-year design storm cumulative rainfall depth. As shown in Figure S.1, the September 2013 storm was a long duration and low intensity event compared to the short duration and high intensity rainfall used to represent the regulatory 100-year rainfall event in this study.

S.3 Runoff

Bob Jarrett (formerly of the USGS) was commissioned by the Urban Drainage and Flood Control District and the Colorado Department of Transportation

Figure S.1: Rainfall Data for Twomile Canyon Creek at Broadway

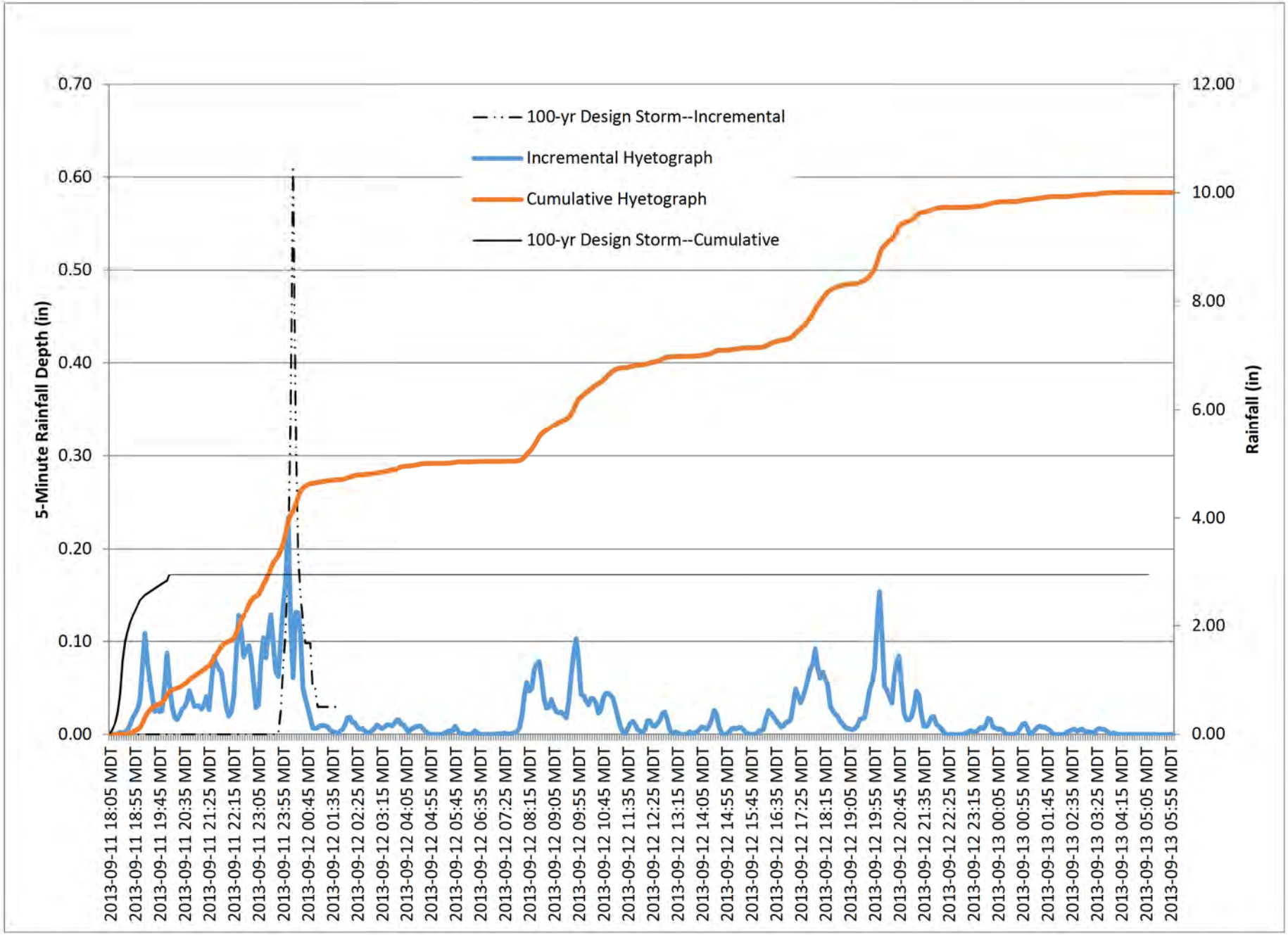

*Figure taken from Wright Water Engineers Inc. - Preliminary Goose and Twomile Canyon Watershed Analysis - September 3, 2014

(CDOT) to estimate flood flows throughout the areas impacted by the September 2013 flooding events. Mr. Jarrett completed a discharge estimate on Twomile Canyon Creek near North Cedar Brook Road (just upstream of the mouth of Twomile Canyon Creek, approximately 4,400 feet upstream of Spring Valley Road). Mr. Jarrett's estimate for the peak discharge in Twomile Canyon Creek at this location was 1,210 cfs. This discharge value is estimated to have an accuracy of +/- 20%, and reflects bulking effects due to entrained mud and debris. Mr. Jarrett indicated that the bulking effects on Twomile Canyon Creek near his discharge estimate location would likely be on the order of 20%. Therefore, the equivalent clearwater discharge value, as used in hydraulic modeling for this project, would be estimated to range from 775 cfs to 1160 cfs.

In comparison, the 100-year regulatory discharge used at the canyon mouth for the floodplain update project is 699 cfs. With that, it was the general consensus of the project team that Twomile Canyon Creek experienced an event very close to the 100-year regulatory flood, particularly at the canyon mouth location.

S.4 Flooding Extents / Damages

Following the September 2013 flood, the City and ICON collected substantial data along Upper Goose Creek and Twomile Canyon Creek related to the extent of the flooding limits, as well as photographic documentation of damages. This work was completed within the two weeks following the flood event. The City also received significant input from community members impacted. Figure S.2 illustrates the flooding extents, as compiled by the City of Boulder and presented on the City's GIS website. Representative photographs depicting channel and floodplain areas, as well as damage to public and private infrastructure along Twomile Canyon Creek are included in Figures S.3 through S.7. As noted by both sources, both flooding and damage was widespread with a higher concentration of damage to buildings occurring west of Broadway, along Linden, Kalmia, Juniper, and Iris Avenues. In this area, flooding deviated significantly from the main channel alignment and extended to concentrated flow paths both east and west of Twomile Canyon Creek before again converging near Broadway. East of Broadway, concentrated flow generally followed roadways, or other low lying areas prior to converging with Elmers Twomile Creek, east along Iris Avenue, or Upper Goose Creek, south of 19th Street.

Given the alluvial fan nature of the Twomile Canyon Creek topography, flooding along Twomile Canyon Creek, within the City limits, was generally relatively shallow in nature. In comparison, flooding along Upper Goose Creek was more concentrated to the historic riverine system and lower ground elevations. A higher level of flood damage occurred to business and homes in close proximity to Broadway, where the drainageway has been supplanted with urban stormwater infrastructure which became overwhelmed or ineffective during the flood.

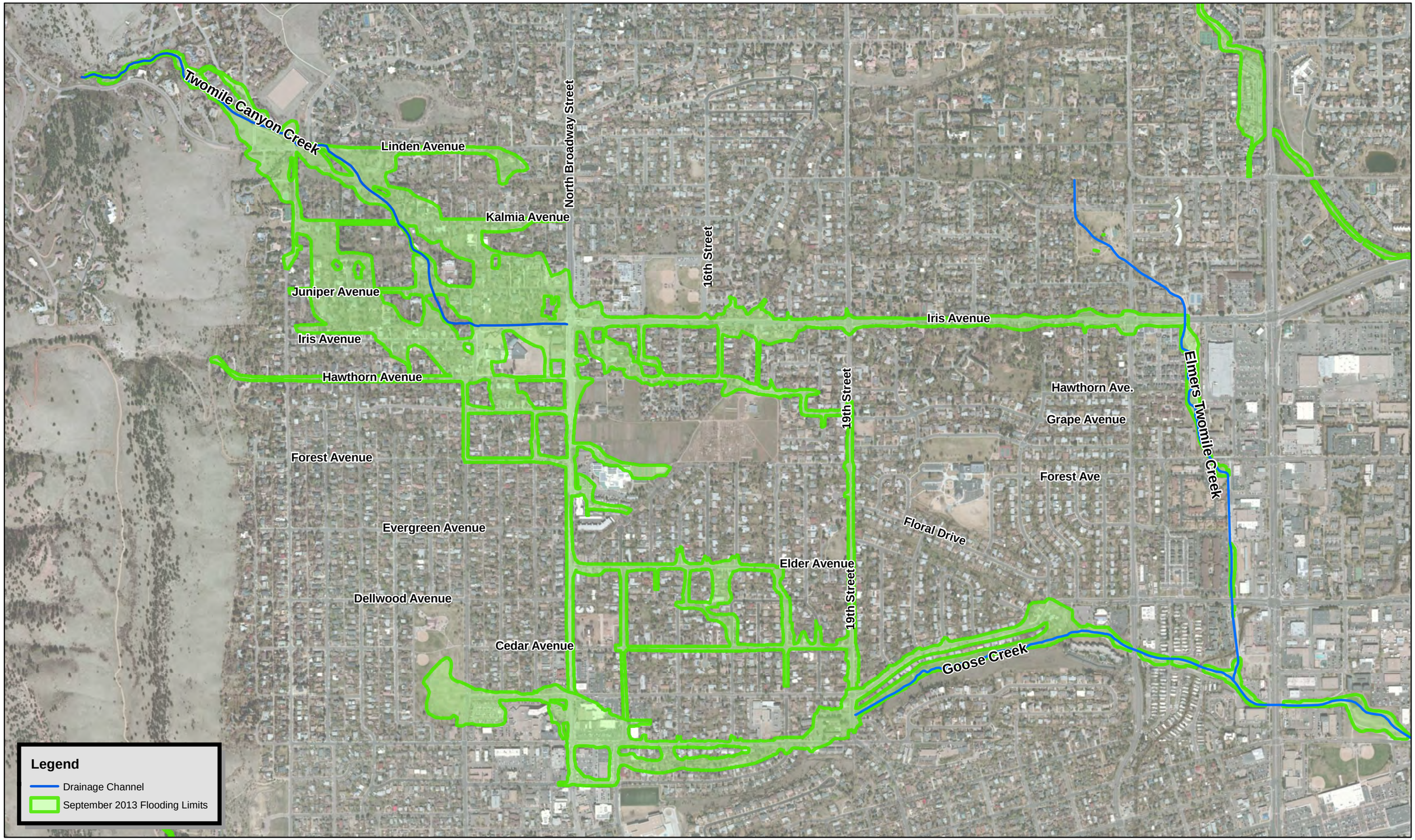

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Figure S.2 - Upper Goose Creek and Twomile Canyon Creek

September 2013 Flooding Extents

N

800 Feet

S.3.A: Main channel of Twomile Canyon Creek downstream of Spring Valley Road

S.3.B: Main channel of Twomile Canyon Creek upstream of Spring Valley Road

S.3.C: Looking East along Linden Avenue upstream of 4th Street

S.3.D: Main channel of Twomile Canyon Creek upstream of Linden Avenue (note filled sediment basin)

ICON ENGINEERING, INC.

Figure S.3 - Upper Goose Creek and Twomile Canyon Creek

September 2013 Flooding Photographs

S.4.A: Split Flow 1 near 4th Street and Kalmia Avenue

S.4.B: Main channel of Twomile Canyon Creek downstream of Kalmia Avenue

S.4.C: Typical street flooding - Kalmia Avenue

S.4.D: Typical street flooding - Kalmia Avenue

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Figure S.4 - Upper Goose Creek and Twomile Canyon Creek

September 2013 Flooding Photographs

S.5.A: Main channel of Twomile Canyon Creek at Broadway

S.5.B: Main channel of Twomile Canyon Creek upstream of Broadway

S.5.C: Clean up efforts near Iris Avenue and 9th Street

S.5.D: Residential flooding south east of Iris Avenue and Broadway

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Figure S.5 - Upper Goose Creek and Twomile Canyon Creek

September 2013 Flooding Photographs

S.6.A: Sediment removal adjacent to Iris Avenue and 17th Street

S.6.B: Main channel of Twomile Canyon Creek at 16th and Iris Avenue

S.6.C: Typical street flooding near 16th Street and Cedar Avenue

S.6.D: Residential flooding near Delwood Avenue and 14th Street

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Figure S.6 - Upper Goose Creek and Twomile Canyon Creek

September 2013 Flooding Photographs

S.7.A: Structure damage on Goose Creek near Balsam Avenue and 9th Street (note high water line on house)

S.7.B: Typical overland flooding from Goose Creek near Alpine Avenue and 13th Street

S.7.C: Apartment structure inundation from Goose Creek at Alpine Avenue and 19th Street

S.7.D: Flooding response along Edgewood Drive (Goose Creek)

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Figure S.7 - Upper Goose Creek and Twomile Canyon Creek

September 2013 Flooding Photographs

S.5 Revisions to the Floodplain Mapping Update Study

As discussed above, the September flood was estimated to be on the order of magnitude of a 100-year flood event. As a result, the past floodplain mapping update (January 2013) was compared and contrasted with observations made regarding the flood limits form September 2013. In general the January 2013 proposed floodplains, including areas of shallow flooding, compared reasonably with the observed flooding extents, particularly west of Broadway. However, several flow paths proposed did not materialize to the extent anticipated, and new flow paths were introduced based on field observations. Therefore, moderate revisions were shown to be warranted. Figure S.8 shows differences between the observed flood limits and January 2013 flood estimates. Figure S.9 illustrates the September 2013 flooding extents along with the changes that were made to the flow paths in the current floodplain mapping update.

An updated FLO-2D model was also developed based on the City's 2013 LiDAR data and has been used to refine flood discharge values throughout Twomile Canyon Creek along the major flow paths. This model is discussed in detail in Section 4.2 of this report.

S.6 September 2013 Flooding Extents vs. Proposed 100-year Floodplain

Although the comparisons between the 2013 flood and the current 100-year floodplain revision are very similar, some areas of difference still exist. It should be recognized that the 2013 flood and the theoretical flood used in the mapping update are different. These two floods have many different attributes including:

- Rainfall intensity and volume of the flood versus the design storm;
- Erosion, deposition, and sediment transport features that occurred during the September flood, but not included in the theoretical flood analysis;
- Impact of flood debris on the flood extent and limits;
- Human induced emergency flood response to control runoff and reduce flood damage;
- Extent of runoff from side tributaries and minor drainages shown in the 2013 flood extent, but not directly from Twomile Canyon Creek or Goose Creek.

Figures S.10 through S.18 illustrate the current 100-year floodplain revisions (including areas of 100-year shallow flooding) compared to the observed extent of the September 2013 event.

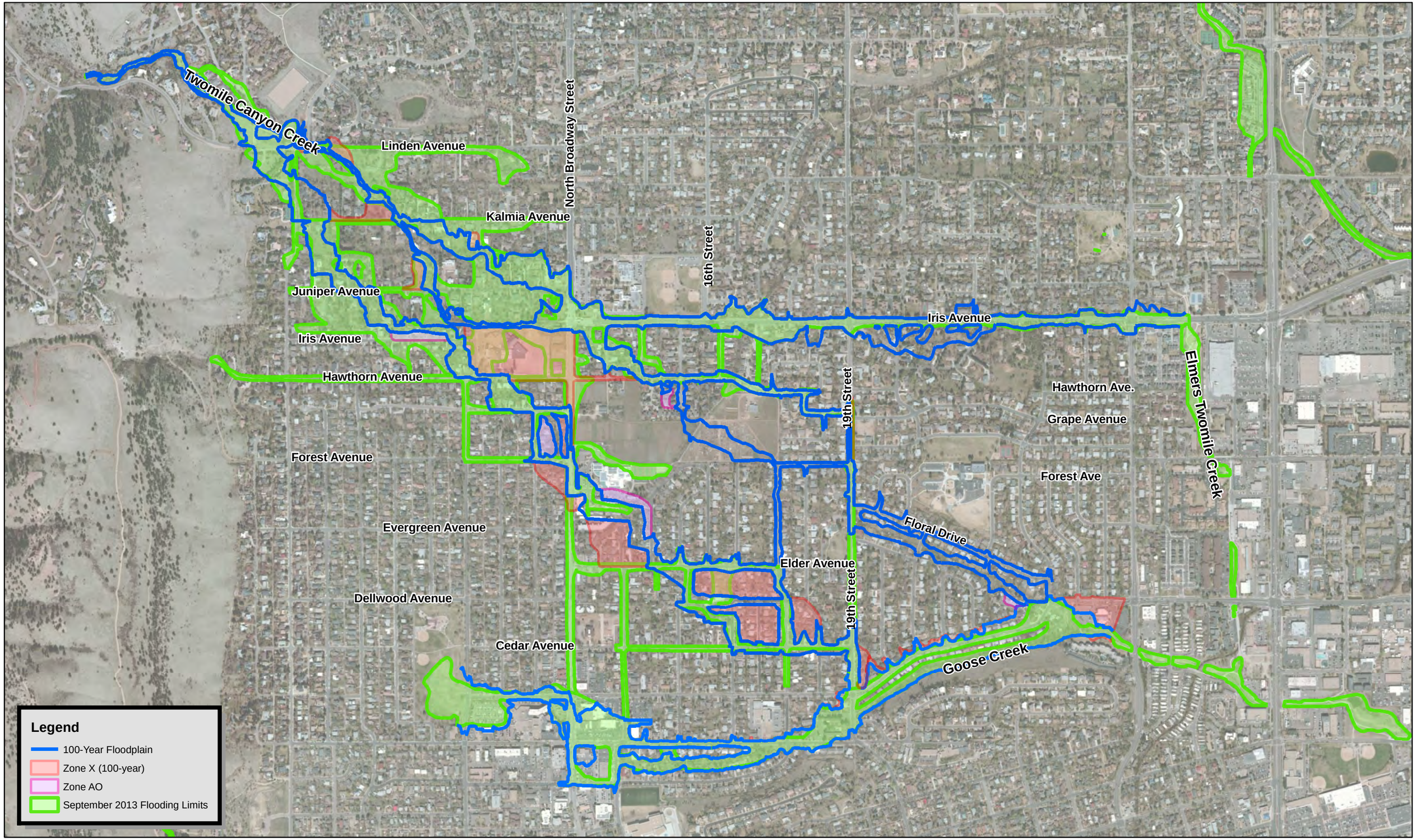

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Figure S.8 - Upper Goose Creek and Twomile Canyon Creek

September 2013 Flooding Extents vs. January 2013 Proposed 100-year Floodplain

N

800 Feet

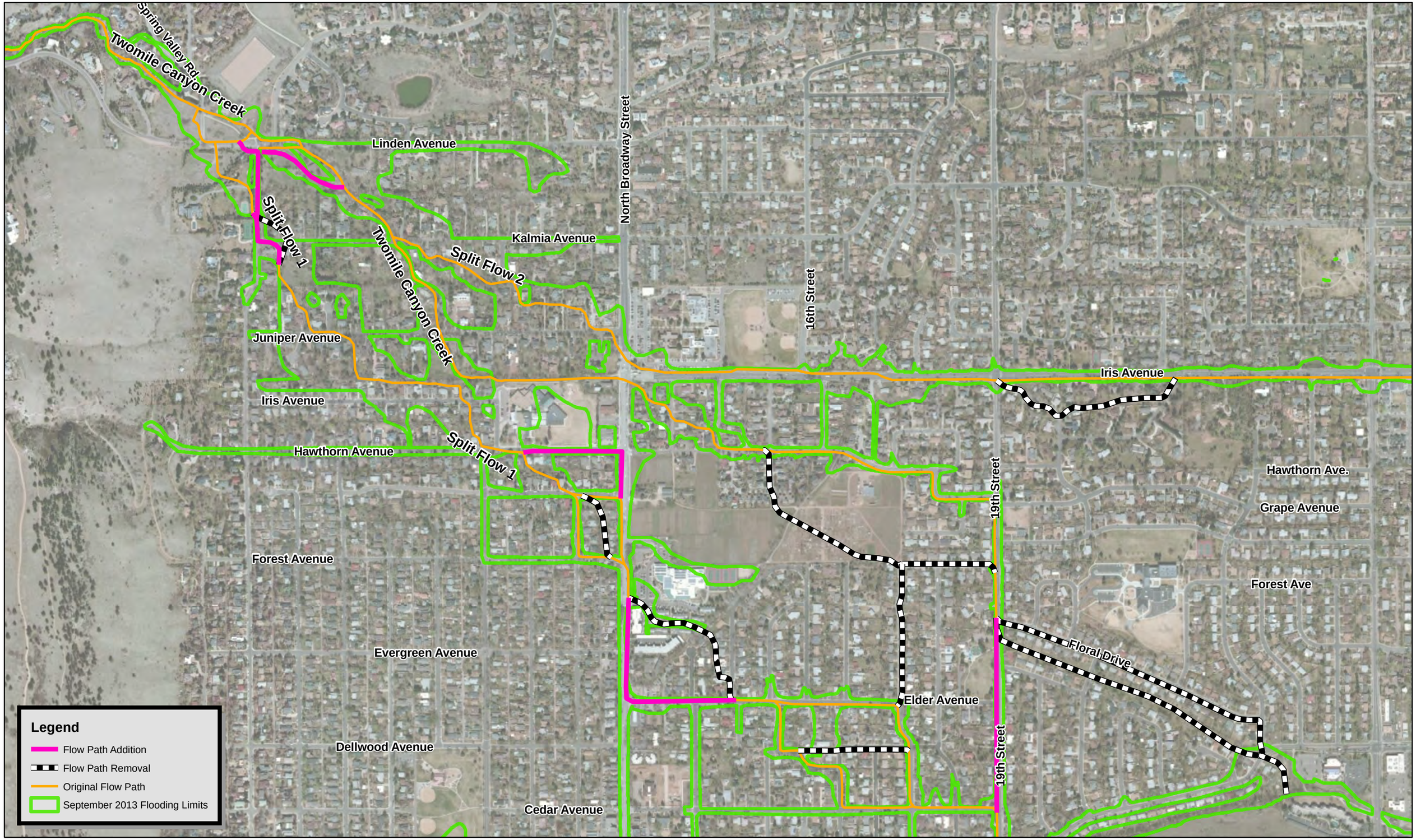

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Figure S.9 - Upper Goose Creek and Twomile Canyon Creek

Flow Path Revisions Following September 2013 Flooding Event

N

600 Feet

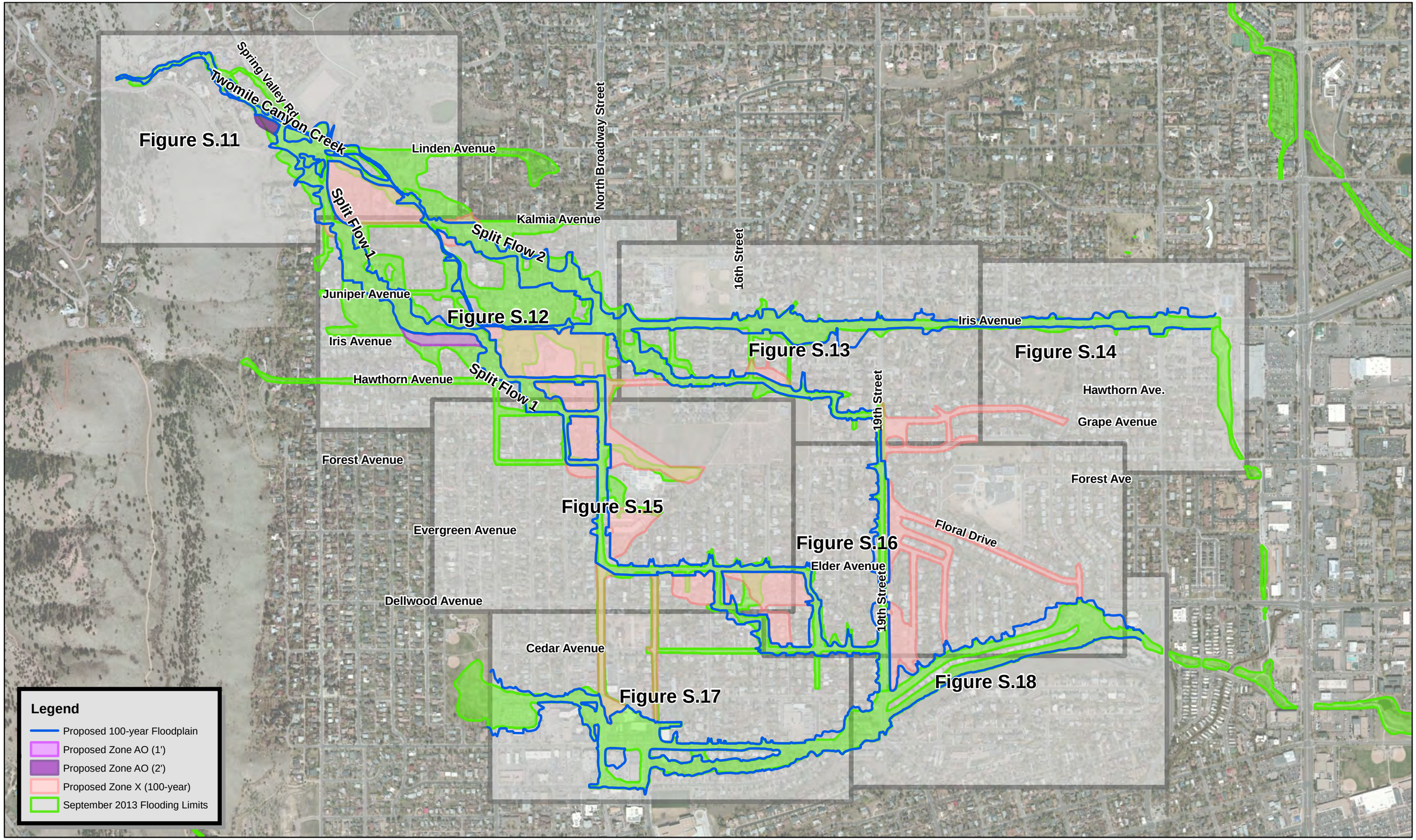

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Figure S.10 - Upper Goose Creek and Twomile Canyon Creek

September 2013 Flood Extents vs. Proposed 100-year Flooding - INDEX

N

800 Feet

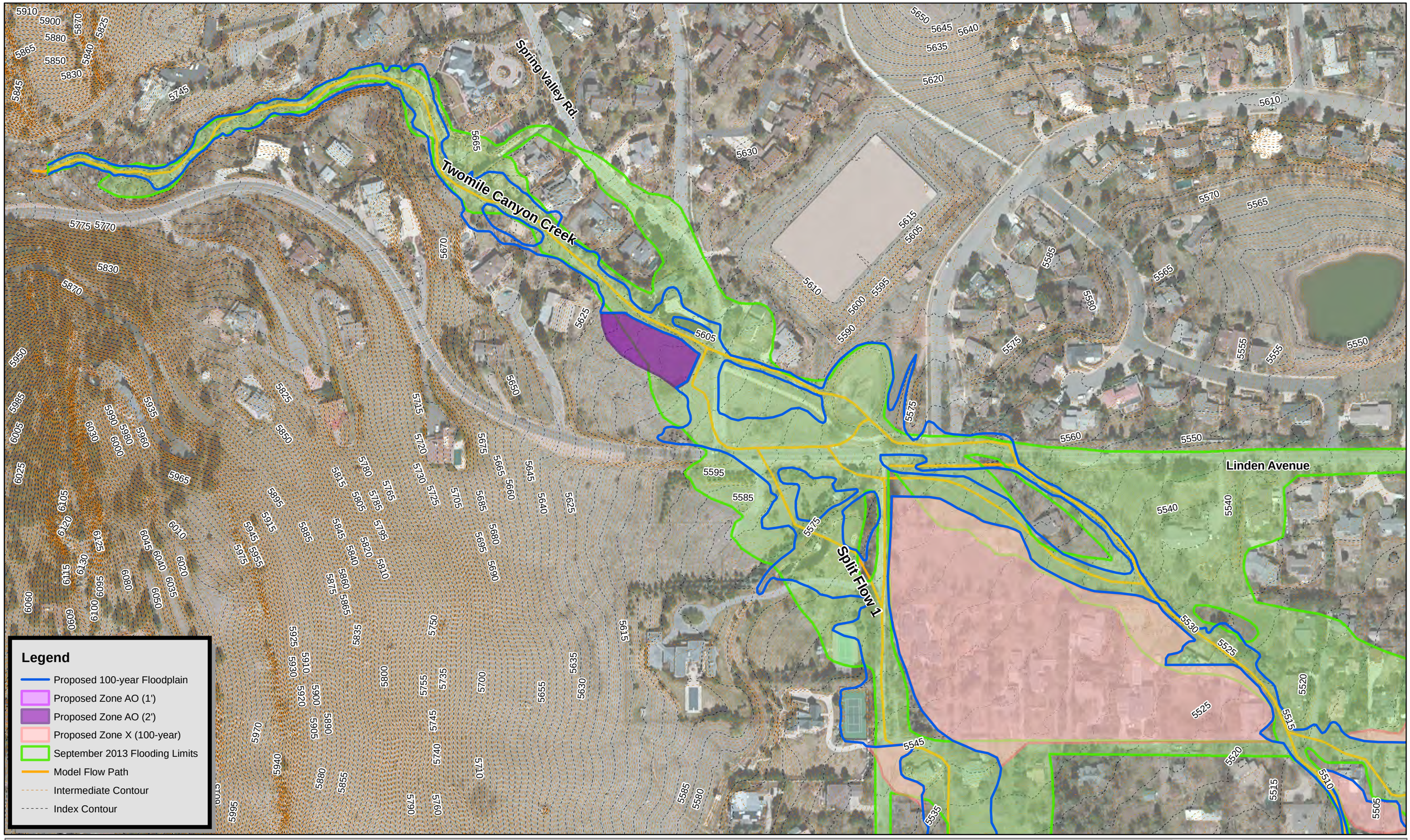

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Figure S.11 - Upper Goose Creek and Twomile Canyon Creek

September 2013 Flood Extents vs. Proposed 100-year Flooding

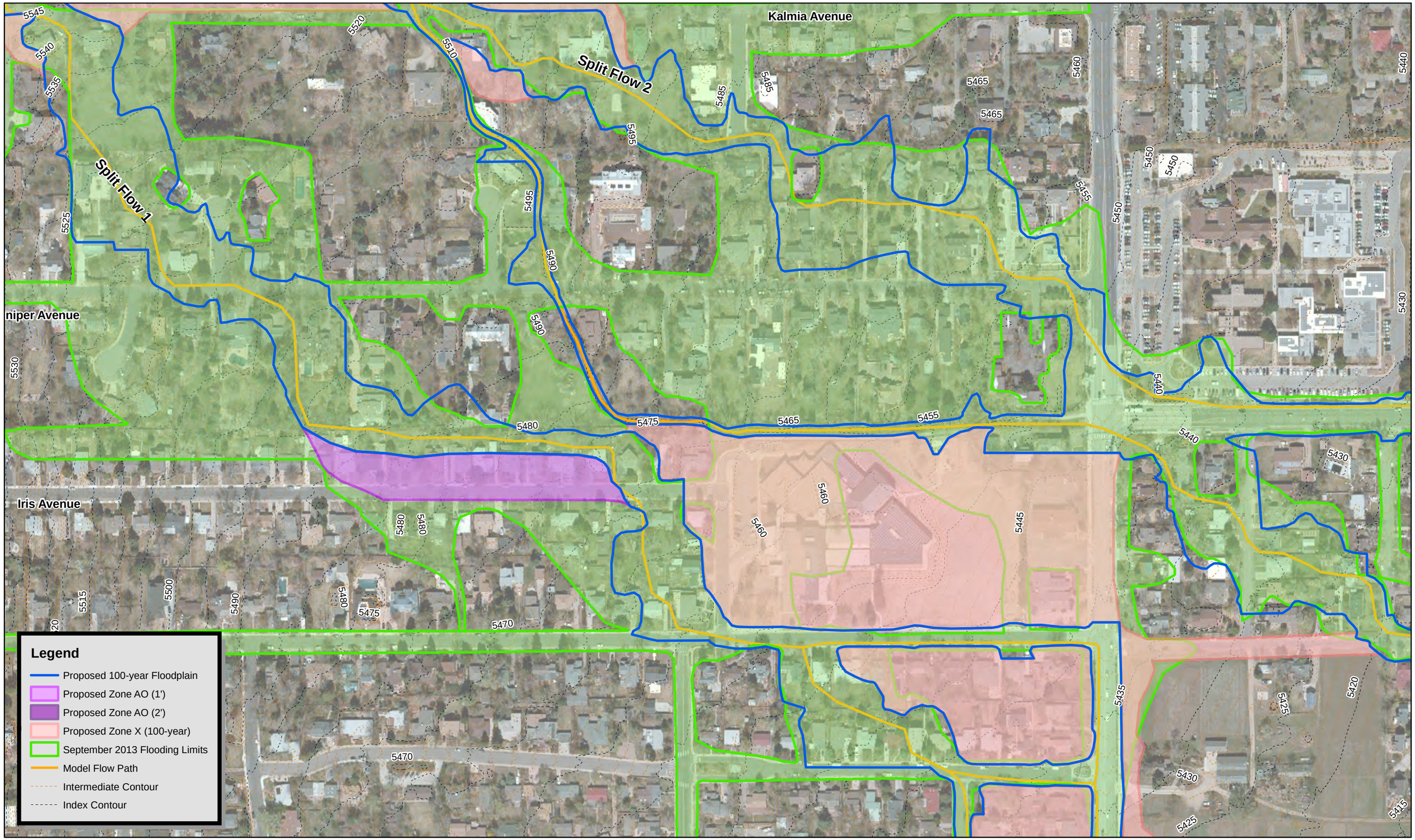

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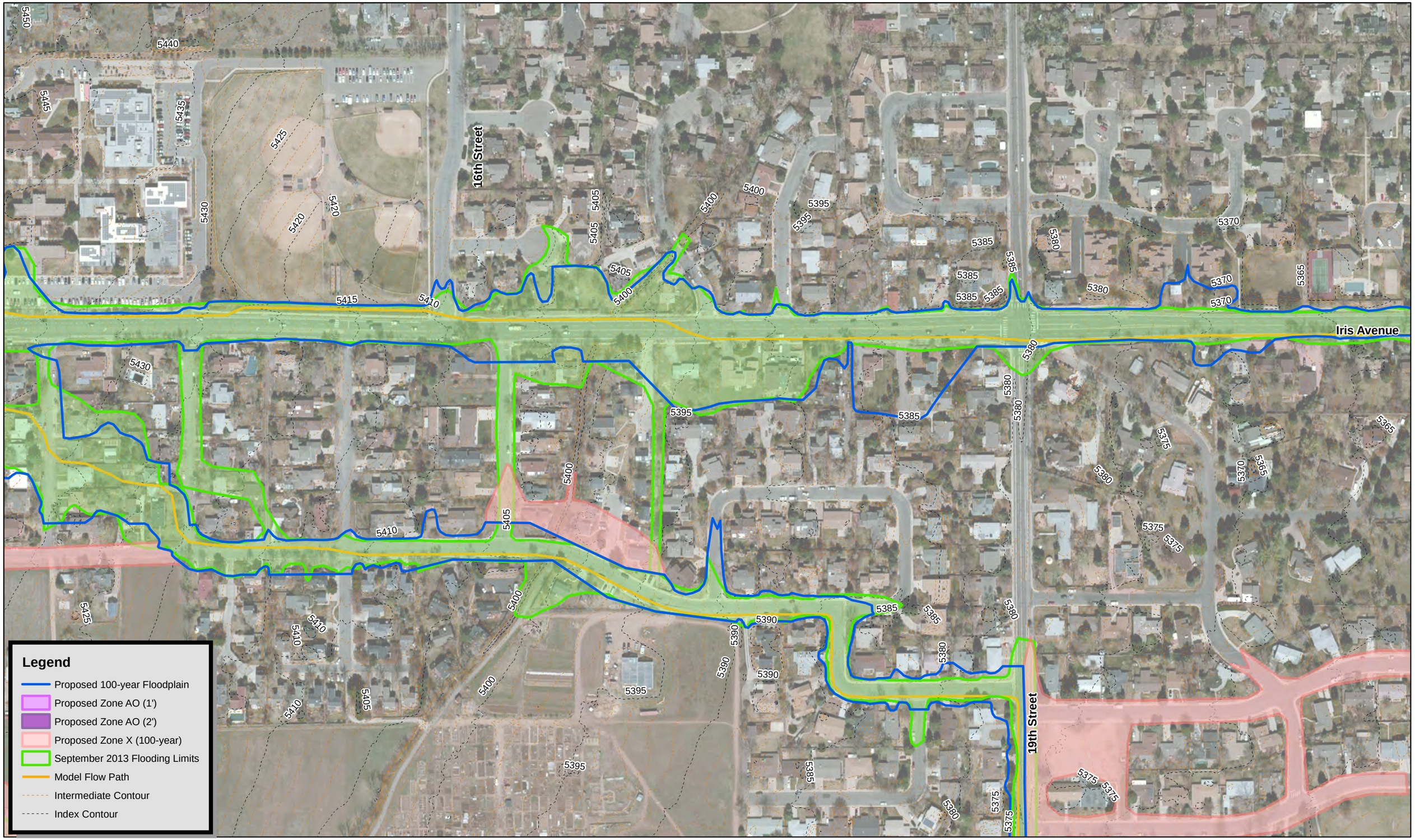
Figure S.12 - Upper Goose Creek and Twomile Canyon Creek

September 2013 Flood Extents vs. Proposed 100-year Flooding

N

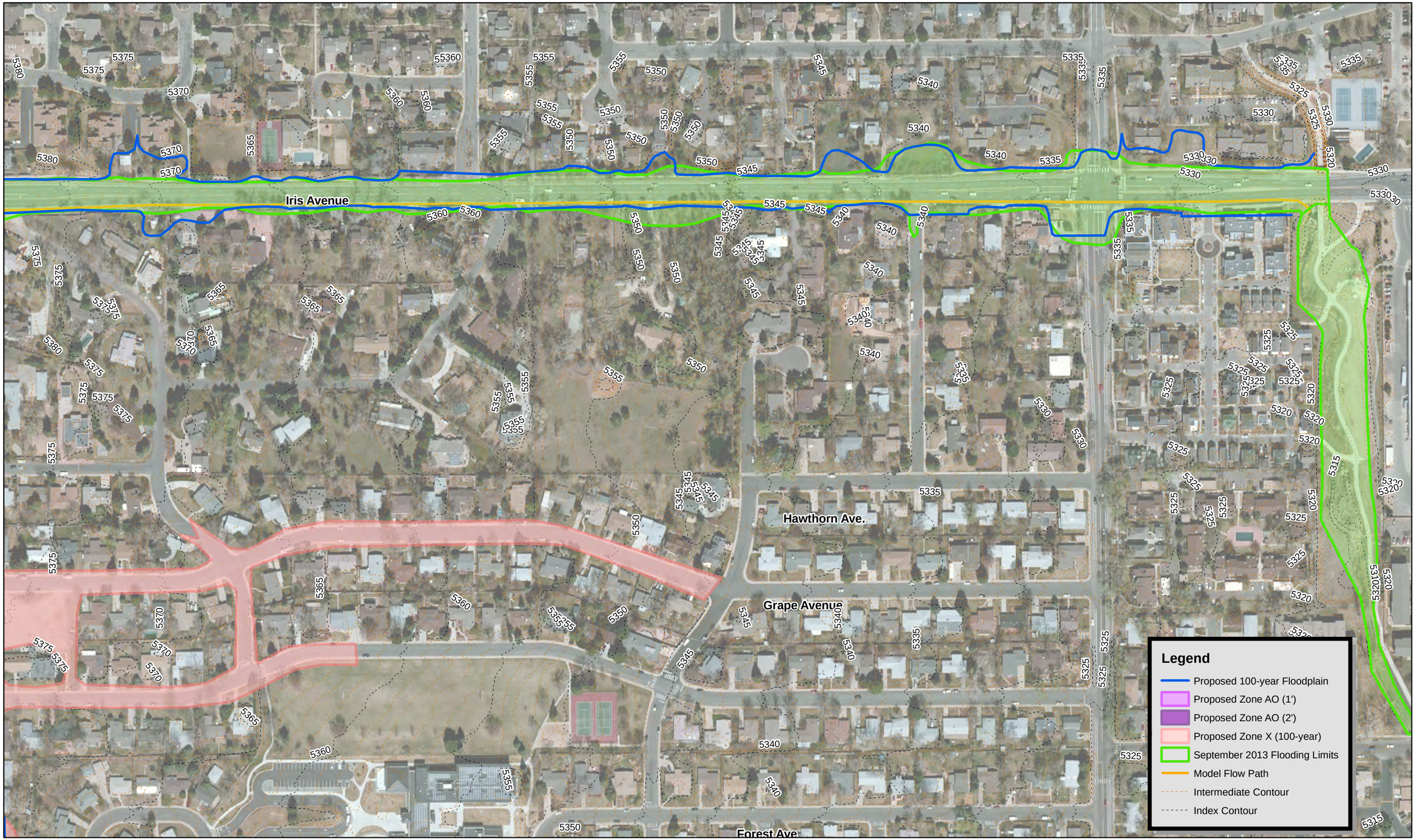
200 Feet



ICON ENGINEERING, INC.

Figure S.13 - Upper Goose Creek and Twomile Canyon Creek

September 2013 Flood Extents vs. Proposed 100-year Flooding



ICON ENGINEERING, INC.

Figure S.14 - Upper Goose Creek and Twomile Canyon Creek

September 2013 Flood Extents vs. Proposed 100-year Flooding

N

200 Feet

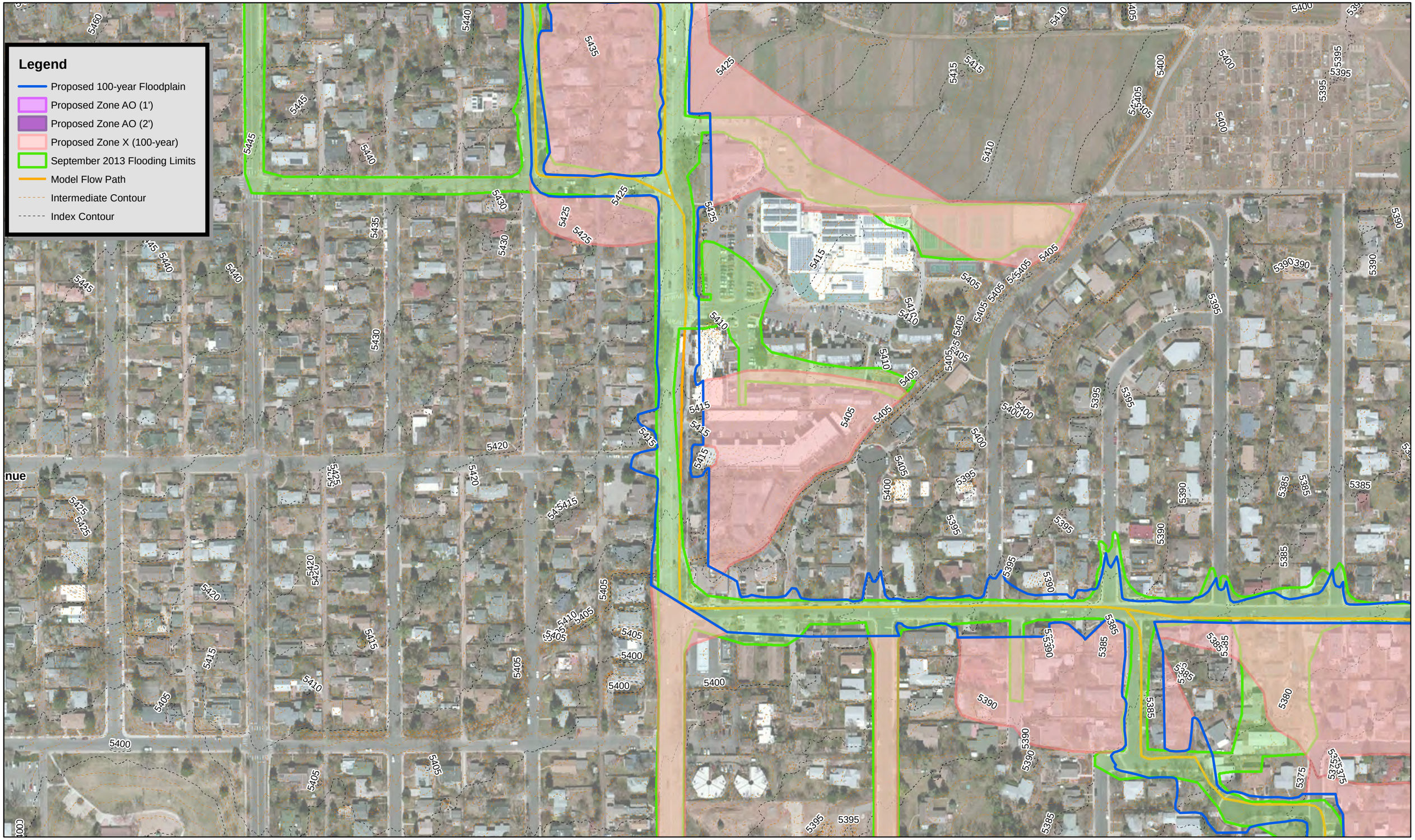


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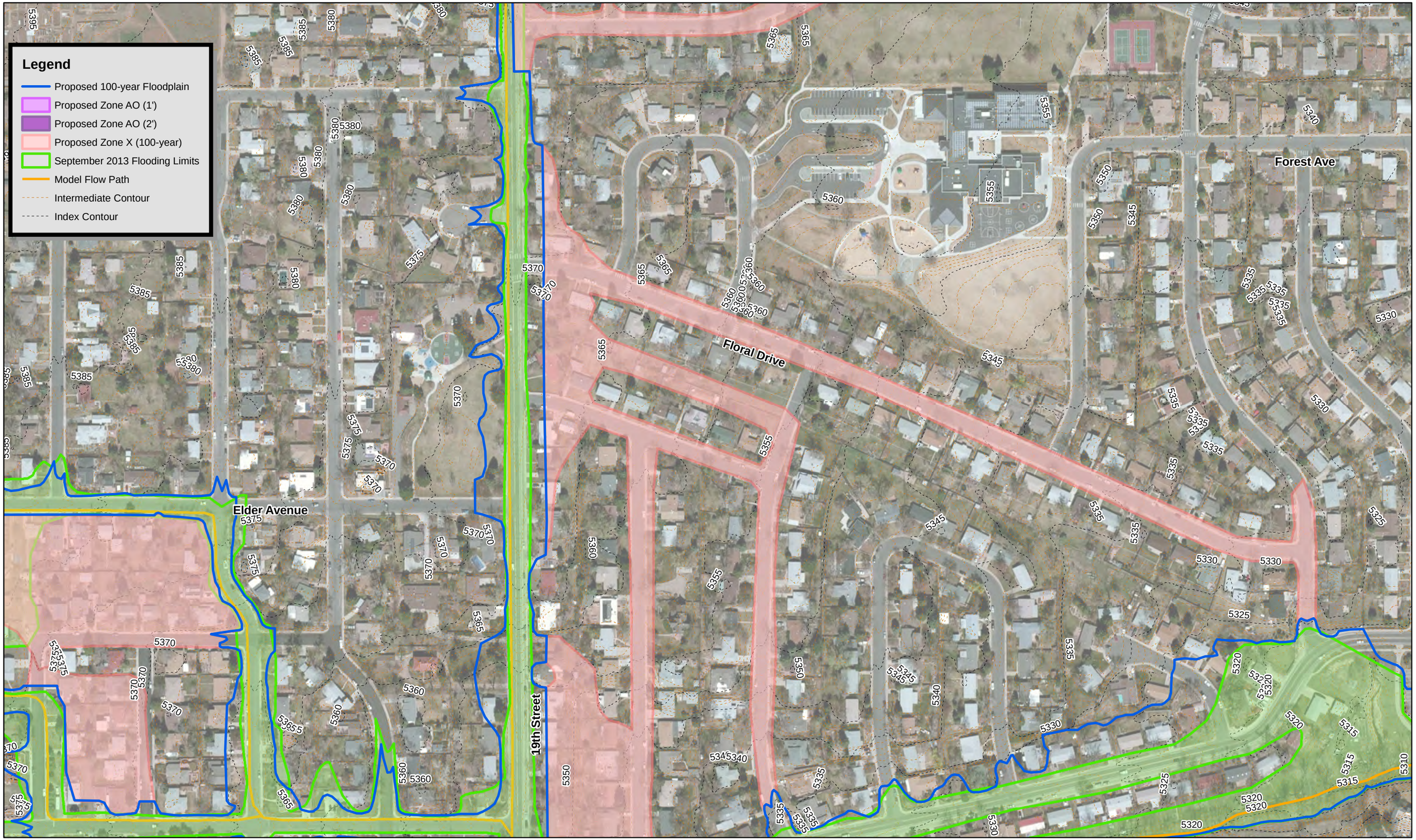
Figure S.15 - Upper Goose Creek and Twomile Canyon Creek

September 2013 Flood Extents vs. Proposed 100-year Flooding

N

200 Feet



ICON ENGINEERING, INC.

Figure S.16 - Upper Goose Creek and Twomile Canyon Creek

September 2013 Flood Extents vs. Proposed 100-year Flooding

N

200 Feet

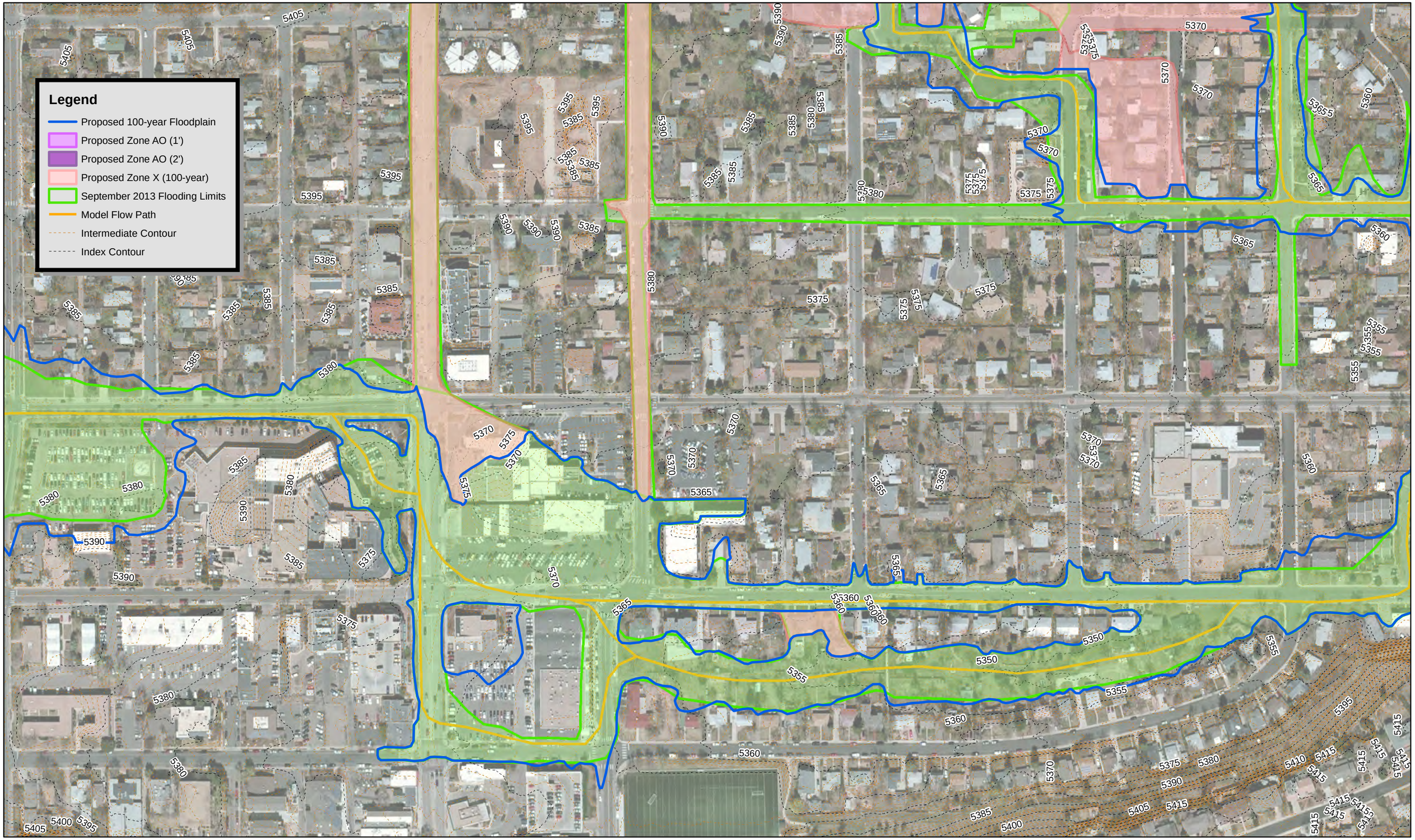


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Figure S.17 - Upper Goose Creek and Twomile Canyon Creek

September 2013 Flood Extents vs. Proposed 100-year Flooding

N

200 Feet

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Figure S.18 - Upper Goose Creek and Twomile Canyon Creek

September 2013 Flood Extents vs. Proposed 100-year Flooding

N

200 Feet

SECTION 1.0: INTRODUCTION

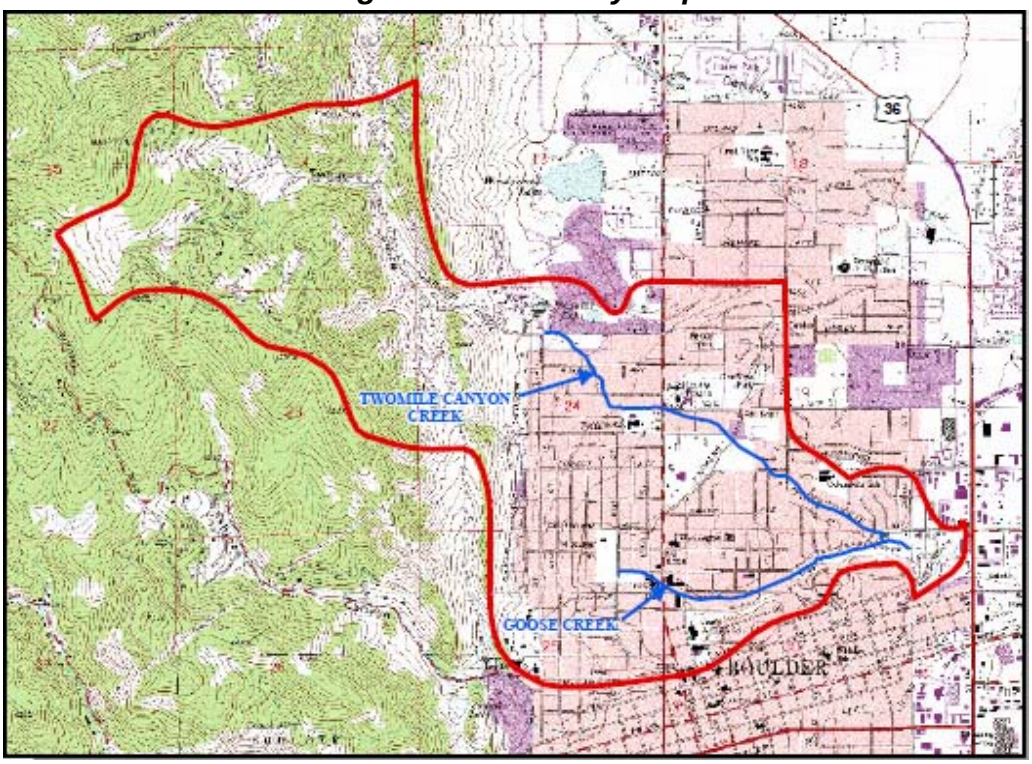
1.1 Purpose

ICON Engineering, Inc. has been placed under contract by the City of Boulder (COB) to prepare a Hydraulic Report for the Twomile Canyon Creek and Upper Goose Creek watersheds. The purpose of this report is to document the approach taken to update the regulatory 100-year (1% annual chance) floodplain along with the 5-, 10-, 25-, 50-, and 500-year floodplains and the conveyance and high hazard areas. Ultimately this hydraulic information will be incorporated into a Letter of Map Revision (LOMR) request for the project area in order to revise the Flood Insurance Rate Map (FIRM). A separate "Hydrology Verification Report" and a "Field Documentation Memorandum" for this project have been previously submitted and approved by the City.

1.2 Project Area

Twomile Canyon Creek and Upper Goose Creek are located on the northwest side of the City of Boulder. The project area is bounded on the north by the Fourmile Canyon Creek drainage basin, on the east by Folsom Street, on the south by North Street and Balsam Drive, and on the west by the Sunshine Canyon Creek drainage basin. A vicinity map for the Twomile Canyon Creek and Upper Goose Creek study area is shown in Figure 1.1.

Figure 1.1 – Vicinity Map



1.3 Background

Hydraulic information for Twomile Canyon Creek and Upper Goose Creek was previously developed as part of the May 1987 Flood Hazard Area Delineation (1987 FHAD) for Boulder and Adjacent County Drainageways. The 1987 FHAD was prepared by Greenhorne & O'Mara, Inc. The hydrologic and hydraulic information presented in the 1987 FHAD was originally prepared by the MSM/SP Group (Greiner Engineering Services) as part of the original Flood Insurance Study update. Floodplain exerts from the 1987 FHAD are included in Appendix A.

Effective hydraulic information for Twomile Canyon Creek and Upper Goose Creek is also provided in the December 18, 2012 Flood Insurance Study (FIS). Excerpts from the 2012 FIS are also included in Appendix A.

The City of Boulder and the Urban Drainage and Flood Control District (UDFCD) have partnered to complete this study in order to update the effective floodplain information to reflect current topographic mapping and hydraulic modeling methods.

ICON Engineering has previously prepared a "Hydrology Verification Report" and a "Field Documentation Memorandum" for this project. Both of these reports have been approved by the City and their respective information has been incorporated into this hydraulic report.

1.4 Methodology and Approach

Based on the anticipated number of split flow reaches for Twomile Canyon Creek a 2-dimensional floodplain analysis was initially used as a guide for determining the major floodplain flow paths. The FLO-2D software (reference 4) was utilized to develop a 2-dimensional floodplain model for Twomile Canyon Creek from which major flow paths and resulting discharge values were identified. Additionally, the observed flow path behavior during the September 2013 event was used to identify and confirm major flow paths. Based on these preliminary FLO-2D floodplain results and the September 2013 event, 1-dimensional HEC-RAS modeling was developed with channel alignments following the major flow paths as identified by FLO-2D and the September 2013 flooding. Additional detail for split flow locations and final split flow discharges have been determined by the HEC-RAS model. Figure 4.1 illustrates the FLO-2D floodplain, FLO-2D cross section discharges, and the resulting HEC-RAS flow paths. Additional discussion on the FLO-2D modeling is provided in Section 4.2 of this report, September 2013 flooding is discussed in the September 2013 Flooding Summary, and discussion on the HEC-RAS modeling is provided in Section 4.4.

Minor floodplain flow paths that were determined by FLO-2D to have a discharge of 50 cubic feet per second (cfs) or less, were not further carried forward to define regulatory floodplain flow paths in the HEC-RAS modeling (unless otherwise related to the major flow paths as described above). Notable areas

meeting this criteria include Broadway Street south of Cedar Avenue and Grape Avenue east of 19th Street.

Upper Goose Creek and Twomile Canyon Creek both include storm sewer facilities. At the request of the project sponsors, storm sewers of 36-inches or greater diameter were evaluated for an approximate capacity. The approximate capacity was then reduced by a 10% blockage factor and then subtracted from discharge values for the floodplain modeling. Additional discussion on the storm sewer capacity is provided in Section 4.3 of this report.

Based on the topography of the split flow paths for Twomile Canyon Creek, there are extensive reaches of HEC-RAS modeling that result in vertically extended cross sections. For these areas, shallow flooding limits were defined beyond the cross section designations. For reaches of vertically extended cross sections that averaged spill depths less than 0.5 feet, no shallow flooding zone was shown. For reaches that averaged spill depths between 0.5 feet and 1.0 feet, Zone X shallow flooding zones were established. For reaches that averaged spill depths greater than 1.0 feet, Zone AO shallow flooding zones were established with depth values based on the average spill depth of the extended cross sections. Zone X and Zone AO shallow flooding areas were delineated based on the mapping data and the shallow flooding extents. No additional calculations or modeling was completed for shallow flooding areas. Additional discussion on the shallow flooding zones is provided in Section 5.2 of this report. This approach meets the criteria as developed by the Federal Emergency Management Agency (FEMA).

Conveyance zones throughout the major flow paths were developed based on a 0.5 foot rise criteria. For flow paths along City of Boulder streets, the conveyance zone encroachment was generally limited to the City's right-of-way limits on each side of the roadway. No additional optimization of the conveyance zone was completed provided the encroachment limited the conveyance zone to within the City of Boulder roadway right-of-way. For conveyance zones within channels or other low-lying areas, the conveyance zone was optimized in greater detail in order to maximize the 0.5 foot rise encroachment criteria. For minor split flow reaches where the full discharge could be carried within the more dominant flow path and still meet the 0.5 foot rise criteria, a conveyance zone was not developed for the minor split flow reach. Additional discussion on the conveyance zone is provided in Section 5.3 of this report.

High hazard areas were delineated based on depth and product of depth and velocity values per the City of Boulder Criteria. This was completed using GIS output from the HEC-RAS model and the 2013 LiDAR data.

The Twomile Canyon Creek confluence with Goose Creek was modeled by using common cross sections that span the entirety of Goose Creek. Discharges at

these common cross sections reflect the full discharge within Goose Creek, resulting in a coincident peak backwater effect for Twomile Canyon Creek.

SECTION 2.0: HYDROLOGIC ANAYSIS

ICON Engineering, Inc. previously developed hydrologic information for Upper Goose Creek and Twomile Canyon Creek for use in this hydraulic report. A separate "Hydrology Verification Report" was submitted to the project sponsors on February 16, 2012 and subsequently approved.

Table 2.1 below provides the recommended discharges from the Hydrology Verification Report. In addition to the recommended discharges, the peak inflow for each sub-basin and the required inflow value for each sub-basin to facilitate a steady state condition are provided. The steady state discharge value is simply the increase in discharge relative to the upstream junction for use in the HEC-RAS floodplain modeling.

A FLO-2D model was also run based on a steady state condition to determine split flow distributions at various locations in the watershed, as the 2D model more accurately models the existing ground topography and landscape features prevalent in the watershed.

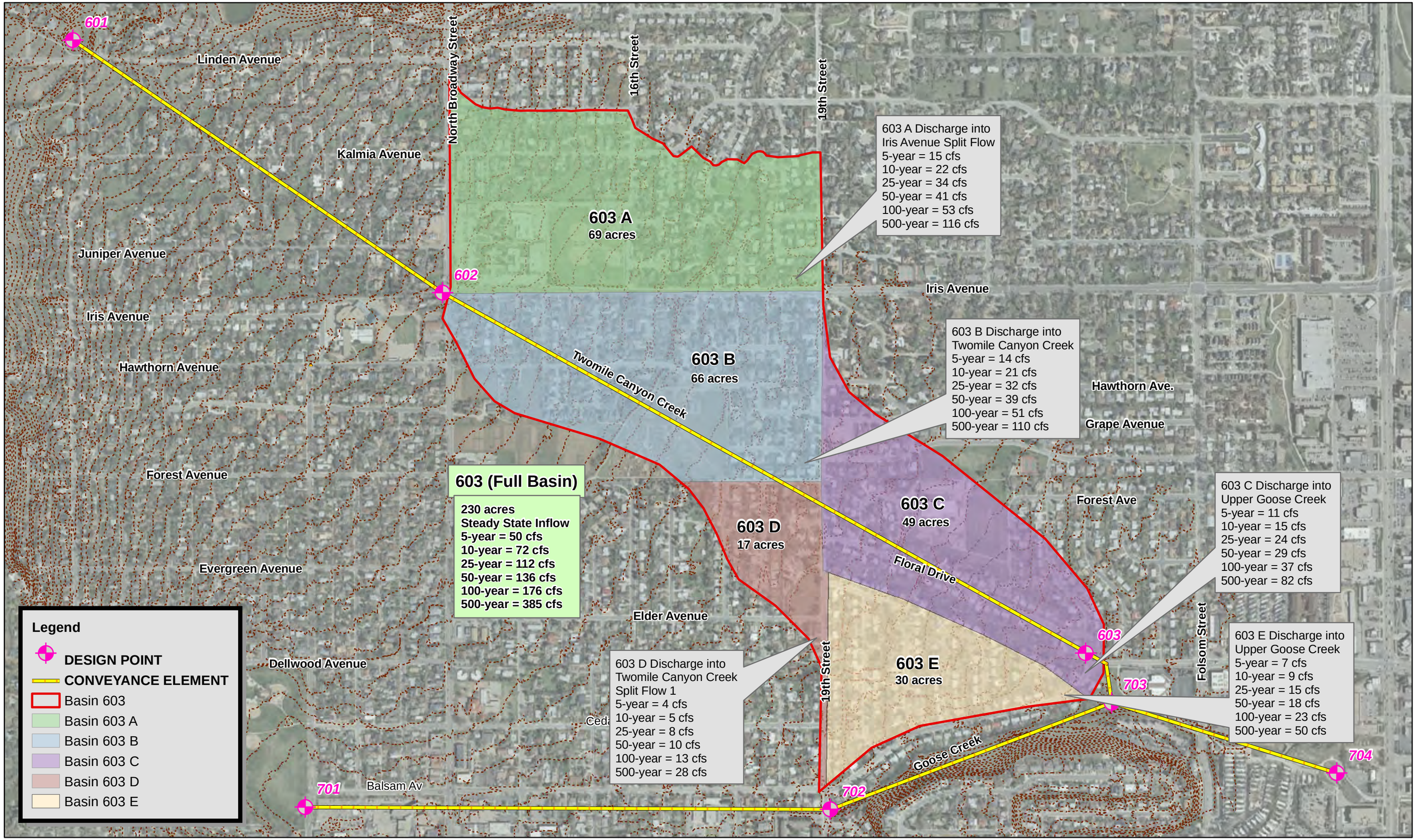
Based on preliminary FLO-2D flow paths and discharge values, it was noted that significant discharges would leave the Twomile Canyon Creek area and flow east along Iris Avenue. This was also observed during the September 2013 flooding event. Based on this determination, sub-basin 603 (as shown in the approved Hydrology Verification Report) was further divided in order to reflect the inflow locations for use in the FLO-2D model. The division of sub-basin 603 is illustrated in Figure 2.1 below and is based on an area weighted division of the total discharge as the basin land use is similar throughout the basin. As noted in Figure 2.1, the 603 A and 603 B sub-basin inflow values were incorporated into the FLO-2D model. Sub-basins 603 C, 603 D, and 603 E were not incorporated into the FLO-2D model as concentrated flows from these sub-basins are not expected to enter the main hydraulic flow paths, but rather drain directly into Upper Goose Creek. It should be noted that the sub-basin 603 D inflow has been directly applied to the split flow path at 19th Street (immediately upstream of where the split flow path confluences with Upper Goose Creek).

There was no change made to the hydrologic analysis following the September 2013 flooding event.

Table 2.1 - Recommended Discharges

Location	SWMM Element	Drainage Basin Area (sq. mi.)	5-Year (cfs)	10-Year (cfs)	25-Year (cfs)	50-Year (cfs)	100-Year (cfs)	500-Year (cfs)
Twomile Canyon Creek								
Linden Avenue	**JUNCT_601**	**1.38**	**91**	**186**	**415**	**533**	**699**	**997**
	INFLOW_601		91	186	415	533	699	997
	INFLOW_601_Steady State		91	186	415	533	699	997
North Broadway Street	**JUNCT_602**	**1.59**	**123**	**235**	**501**	**643**	**838**	**1187**
	INFLOW_602		56	81	141	174	210	392
	INFLOW_602_Steady State		32	49	86	110	139	190
Confluence with Goose Creek	**JUNCT_603**	**1.95**	**173**	**307**	**613**	**779**	**1014**	**1572**
	INFLOW_603		54	77	123	147	192	831
	INFLOW_603_Steady State		50	72	112	136	176	385
Upper Goose Creek								
Balsam Avenue	**JUNCT_701**	**0.43**	**141**	**212**	**347**	**434**	**521**	**661**
	INFLOW_701		141	212	347	434	521	661
	INFLOW_701_Steady State		141	212	347	434	521	661
19th Street	**JUNCT_702**	**1.41**	**499**	**733**	**1160**	**1426**	**1741**	**2706**
	INFLOW_702		393	558	849	1029	1256	2131
	INFLOW_702_Steady State		358	521	813	992	1220	2045
Upstream of Confluence with Twomile Creek	**JUNCT_703**	**1.48**	**498**	**733**	**1179**	**1451**	**1785**	**2760**
	INFLOW_703		28	40	65	78	99	142
	INFLOW_703_Steady State		-1	0	19	25	44	54
Downstream of Folsom Street	**JUNCT_704**	**3.55**	**645**	**964**	**1669**	**2080**	**2624**	**4275**

Note: negative or zero value steady state discharges reflect attenuation in the SWMM model, HEC-RAS discharges do not reflect attenuation.



ICON ENGINEERING, INC.

Figure 2.1 - Sub-Basin 603 Inflow Distribution Workmap

N

600 Feet

SECTION 3.0: FIELD SURVEY AND DOCUMENTATION

ICON Engineering, Inc. previously developed a "Field Documentation Memorandum" for Upper Goose Creek and Twomile Canyon Creek. This report included detailed crossing structure information and FLO-2D and HEC-RAS Manning's 'n' value information for use in this hydraulic report. The Field Documentation Memorandum was submitted to the project sponsors on February 29, 2012 and subsequently approved.

Table 3.1 below summarizes the detailed crossing structure information from the Field Documentation Memorandum. Expanded FLO-2D and HEC-RAS Manning's 'n' value workmaps are included in Appendix B.

The survey information for crossing structures, channel cross sections, and channel inverts was obtained by ICON/Aspen Joint Venture in October 2011. The field survey information references the Colorado State Plane NAD 83 HARN North Zone horizontal control and the North American Vertical Datum (NAVD) of 1988 vertical control. Complete survey information is included in GIS format in Appendix F.

Table 3.1: Channel Crossing Summary
Upper Goose Creek and Twomile Canyon Creek Flood Mapping Study Update
ICON Engineering, Inc.

	Channel Crossing				Critical Elevations			Inclusion in Hydraulic Models		HEC-RAS Coefficients		Recommended Debris Blockage							
Channel	**Name**	**Type**	**Culvert / Bridge Size**	**Approximate Hydraulic Area**	**Invert In**	**Crest**	**Invert Out**	**2D (FLO-2D)**	**1D (HEC-RAS)**	**Contraction**	**Expansion**	**5-yr**	**10-yr**	**25-yr**	**50-yr**	**100-yr**	**500-yr**	**Debris Blockage Reasoning**	**Recommended Railing Debris Blockage Approach**
Twomile Canyon Creek	Private Crossing (Q)	wood bridge	2" thick, 3' wide; 7' span, 3' max rise	11 sf	n/a	n/a	n/a	No	No	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	Private Crossing (P)	wood bridge	6" thick, 4' wide; 6' span, 2' max rise	6 sf	n/a	n/a	n/a	No	No	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	Spring Valley Road	double CMP culvert	5.33' wide, 4' high	32 sf	5599.60 / 5599.44	5605.56	5599.17 / 5599.16	Yes	Yes	0.6	0.8	50%	75%	100%	100%	100%	100%	medium opening, sediment, high debris load	n/a
	Multi-Use Trail (O)	steel truss, wood deck	1.8' thick, 10' wide; 23' span, 3.3-foot max rise	38 sf	5577.40	5581.42	5576.30	No	Yes	0.3	0.5	0%	0%	0%	10%	30%	50%	large opening, high debris load	100% blockage due to potential cloging
	Wonderland Hill Avenue	single CMP culvert	32" high, 54" wide	9 sf	5568.86	5573.32	5566.67	Yes	Yes	0.6	0.8	50%	75%	100%	100%	100%	100%	small opening, high debris load	n/a
	Linden Avenue	double CMP culvert	14" by 36", and 32" by 43"	12 sf	5560.74 / 5561.89	5565.13	5558.71 / 5558.53	Yes	Yes	0.6	0.8	25%	50%	75%	100%	100%	100%	medium opening, high debris load	n/a
	Private Crossing (N)	wood bridge	10" thick, 3' wide; 12' span, 2' max rise	12 sf	n/a	n/a	n/a	No	No	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	Private Crossing (M)	steel truss	4" thick, 3' wide; 16' span, 3.9' max rise	50 sf	5524.08	5528.37	5523.43	No	Yes	0.3	0.5	0%	0%	0%	10%	30%	50%	large opening, high debris load	100% blockage due to potential cloging
	Private Crossing (L)	steel truss	1' thick, 8' wide; 17' span, 4.2' max rise	65 sf	5523.22	5528.12	5522.88	No	Yes	0.3	0.5	0%	0%	0%	10%	30%	50%	large opening, high debris load	n/a
	Kalmia Avenue	single CMP culvert	5.0' wide, 3.0' high	12 sf	5512.93	5517.01	5511.15	Yes	Yes	0.6	0.8	25%	50%	75%	100%	100%	100%	medium opening, high debris load	n/a
	Private Crossing (K)	wood bridge	15" thick, 21' long, 6' wide; 21' span, 5.2' max rise	55 sf	5499.64	5505.75	5499.55	No	Yes	0.3	0.5	0%	0%	0%	10%	30%	50%	large opening, high debris load	0% blockage due to open railing style
	Private Crossing (J)	CMP crossing, wood deck	15" thick, 12" wide; 18' span, 4.3' max rise	40 sf	5496.26	5501.37	5495.94	No	Yes	0.3	0.5	0%	0%	0%	10%	30%	50%	large opening, high debris load	n/a
	Private Crossing (I)	wood bridge	0.55' thick, 3.0' wide; 13' span, 3.5' max rise	45 sf	5495.39	5499.40	5495.34	No	Yes	0.3	0.5	0%	0%	0%	10%	30%	50%	large opening, high debris load	100% blockage due to potential cloging
	Private Crossing (H)	wood bridge	4" thick, 1" wide; 16' span, 3' max rise	25 sf	n/a	n/a	n/a	No	No	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	Juniper Avenue	single CMP culvert	54-inch wide, 36-inch high	12 sf	5488.03	5491.98	5486.49	Yes	Yes	0.6	0.8	25%	50%	75%	100%	100%	100%	medium opening, high debris load	n/a
	Private Crossing (A)	wood bridge	11" thick, 4' wide; 25' span, 3.5' max rise	60 sf	n/a	n/a	n/a	No	Yes (lid)	0.1	0.3	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	Private Crossing (B)	wood bridge	10" thick, 3' wide; 22' span, 3' max rise	33 sf	5478.63	5482.46	5478.63	No	Yes (lid)	0.1	0.3	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	Private Crossing (C)	wood bridge	12" thick, 4' wide; 25' span, 5.5' max rise	69 sf	5464.94	5471.54	5464.94	No	Yes (lid)	0.1	0.3	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0% blockage due to open railing style
	Private Crossing (D)	wood bridge	12.75" thick, 4' wide; 16' span, 1.7' max rise	14 sf	5463.05	5465.68	5462.77	No	Yes (lid)	0.1	0.3	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	Private Crossing (E, E')	wood bridge	12.75" / 8.75" thick, 4' wide; 18' span, 2.6' max rise	23 sf	5452.01	5455.20	5451.96	No	Yes (lid)	0.1	0.3	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	Private Crossing (F)	wood bridge	7" thick, 3' wide; 12' span, 2.4' max rise	14 sf	5451.26	5453.55	5450.91	No	Yes (lid)	0.1	0.3	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	Multi-Use Trail (G)	steel truss, concrete deck	7" thick deck, 11' wide; 70' span, 4.7' max rise	66 sf (skew)	5450.00	5454.35	5449.04	No	Yes	0.3	0.5	0%	0%	0%	10%	30%	50%	large opening, high debris load	100% blockage due to potential cloging
	North Broadway Street	single RCP culvert	28" by 44", trans. to 36"	7 sf	5438.33	5446.99	5421.62	Yes	No	n/a	n/a	50%	75%	100%	100%	100%	100%	small opening, high debris load	n/a
	16th Street	single RCP culvert	4' wide, 3' high	9 sf	5406.93	5411.25	--	No	No	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Upper Goose Creek	9th Street to Broadway	storm sewer system	24" to 36" pipe	3 sf - 7 sf	n/a	n/a	n/a	--	No	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	Broadway to 19th Street	storm sewer system	36" to 54" pipe	7 sf - 16 sf	n/a	n/a	n/a	--	No	n/a	n/a	10%	10%	10%	10%	10%	10%	inlet capacity at Broadway, minimal blockage	n/a
	Multi-Use Trail (R)	concrete bridge	1.4' thick, 16' wide; 20' span, 2.6' max rise	52 sf	5308.68	5312.60	5308.55	--	Yes	0.3	0.5	0%	0%	0%	10%	30%	50%	large opening, high debris load	n/a

SECTION 4.0: HYDRAULIC ANALYSIS

4.1 Mapping

Topographic LiDAR data used in this hydraulic analysis was provided by the City of Boulder. The parameters of this data are as follows:

Date of Mapping:	2013
Source of Mapping:	City of Boulder
Horizontal Datum:	Colorado State Plane NAD 83 HARN North Zone
Vertical Datum:	NAVD 88
Units:	US Survey Feet
Contour Interval:	1-foot

This topographic LiDAR data was also used to develop a digital elevation surface (DEM) for use in GIS and ultimately for cross section station and elevation data imported into HEC-RAS using the GeoRAS software.

Building footprint information was also provided by the City of Boulder. This information was used to create areas of blocked obstruction in both the FLO-2D and HEC-RAS models.

4.2 FLO-2D Modeling

As previously noted, a FLO-2D hydraulic model was developed in order to determine the major flow paths along Twomile Canyon Creek. These major flow paths were used as a roadmap to develop the HEC-RAS hydraulic model. Parameters used within the FLO-2D model are discussed below. Figure 4.1 illustrates the 100-year FLO-2D floodplain and the associated peak discharges. FLO-2D input and output files are included in Appendix F.

Elevation Data

Elevation data used in the FLO-2D model was taken directly from the 2013 LiDAR data provided by the City of Boulder.

Grid Size

The FLO-2D grid size was set at 10-foot by 10-foot. All LiDAR elevation data points that fall within a given 10-foot grid are then averaged by the FLO-2D software and a typical elevation is set for each grid cell.

Manning's 'n' Values

Manning's 'n' values for the FLO-2D model were selected based on the typical values provided in the FLO-2D user manual. A Manning's 'n' value workmap is provided in Appendix B for reference. The Manning's 'n' values were set based on GIS shape files that were imported in to the FLO-2D software. This approach allows FLO-2D to calculate a weighted Manning's 'n' value for each grid cell based on the area of the grid covered by a particular Manning's 'n' value (i.e. a

grid that had 50% of its area covering an n value of 0.4 and 50% of the area covering a value of 0.2 would be given a weighted Manning's 'n' value of 0.3).

Buildings

Building footprint information provided by the City of Boulder was imported into the FLO-2D software. FLO-2D then calculates and sets the appropriate width and area reduction factors for each grid cell based on the amount and location of the building obstruction within the grid cell.

Without Berm and Without Floodwall Models

The main channel of Twomile Canyon Creek includes a berm along the right (south) bank as the channel bends due east just north of Iris Avenue and extends to just upstream of Broadway Street. In an effort to investigate the effects of a "without berm" condition along Twomile Canyon Creek, a separate FLO-2D model was run. For this "without berm" model the elevations of cells located on the berm were lowered to effective remove the berm from the model, allowing discharges to be modeled as if the berm was not in place. Resulting discharges are included on Figure 4.1.

The split flow 1 flow path of Twomile Canyon Creek includes a rock wall that was originally built to deflect floodwaters that spill out of the main channel of Twomile Canyon Creek. This floodwall runs east from 4th Street for approximately 500 feet and is located approximately 340 feet south of Linden Avenue. In an effort to investigate the effects of a "without floodwall" condition along Twomile Canyon Creek, a separate FLO-2D model was run. For this "without floodwall" model the wall element in the model was removed, allowing discharges to be modeled as if the berm was not in place. Resulting discharges are included on Figure 4.1.

A separate FLO-2D model was run to reflect both a "without berm" and "without floodwall" condition. Resulting discharges are included on Figure 4.1.

Additional discussion regarding the without floodwall / berm HEC-RAS modeling and floodplain delineation is provided in Section 4.5 of this report.

Inflow

Inflow hydrographs were based on the steady state discharge values as shown in Table 2.1 and discussed in Section 2. The locations of these inflow hydrographs are shown in Figure 4.1 below.

Outflow

Outflow grid elements were placed along the entire south and east boundary of the FLO-2D model. Discharges that enter these grid elements are removed from the model.

Cross Sections / Peak Discharges

Seven floodplain cross sections were used to show results from the FLO-2D model. Peak discharge values through these cross sections were used as the basis for split flow distributions in the HEC-RAS model. Cross section locations and peak discharges are shown on Figure 4.1. The equivalent HEC-RAS cross sections and discharges used in the HEC-RAS models are illustrated in Figure 4.7.

Model Run time

The FLO-2D model was run over a 20 hour period of time to match inflows and outflows consistent with a steady state condition needed for the HEC-RAS analysis. In general a steady state computational condition is achieved after 10 hours of the simulation.

Model Output

All FLO-2D modeling information and output files are included in Appendix F as electronic files. Peak discharges and the 100-year FLO-2D floodplain are illustrated in Figure 4.1. The floodplain is separated by color into areas of depth less than 0.5 foot (yellow), and areas greater than 0.5 foot depth (blue).

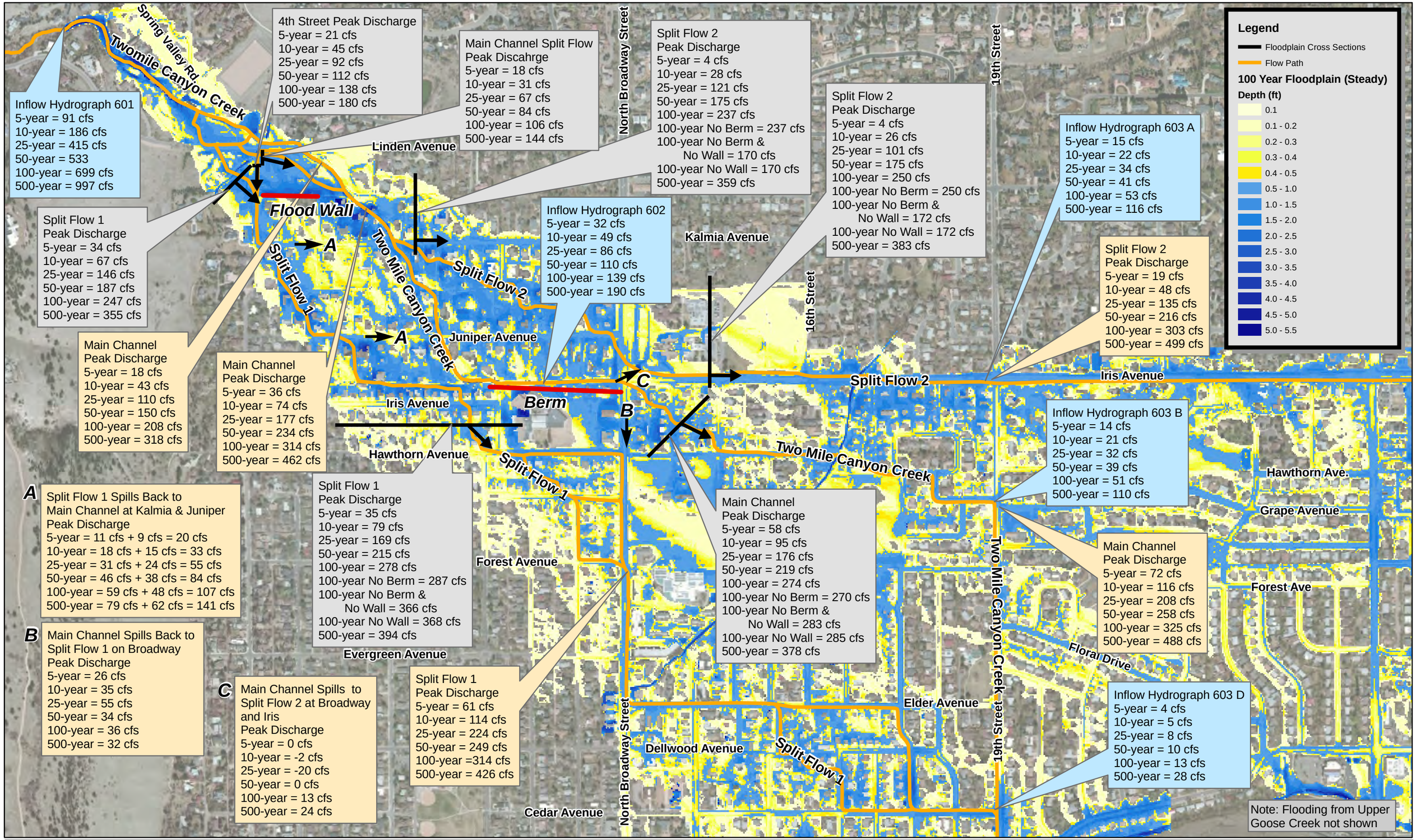


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Figure 4.1 - Twomile Canyon Creek Flo-2D Discharge Workmap

(Steady State)

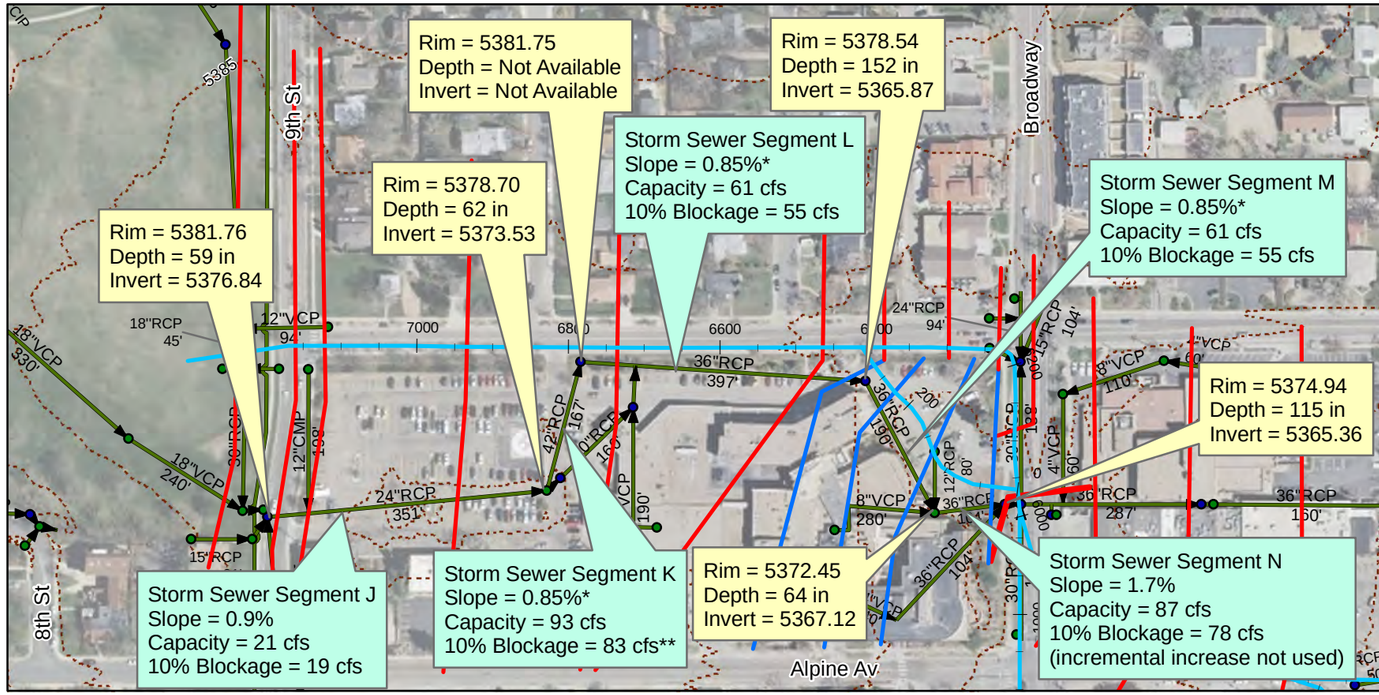
4.3 Storm Sewer Analysis

As agreed upon with the project sponsors, portions of the storm sewer systems along the Upper Goose Creek and Twomile Canyon Creek (Iris Avenue) were evaluated for capacity. The estimated capacity was then reduced by 10% to reflect a typical blockage factor as used for this project. The resulting capacity of the storm sewer system was then subtracted from the surface flows in order to account for storm sewer capacity when modeling the adjacent floodplain.

It should be noted that the storm sewer system in Broadway is currently unfinished and includes a 60-inch by 38-inch stub headed east below Elder Avenue. South of Elder Avenue the storm sewer system is reduced to a 24-inch pipe. This storm sewer system was not analyzed for capacity and full spill flow discharges have been added into the Upper Goose Creek Floodplain at Broadway and Balsam Avenue. Similarly, flow reductions were not made along Broadway north of Elder, including at the Broadway / Iris intersection where flood flows are conveyed from west to east.

The Upper Goose Creek storm sewer system includes 24-inch up to 54-inch reinforced concrete pipe that generally runs from 9th Street to 19th Street along Balsam and Alpine Avenues. Capacity calculations estimate that this system has an approximate capacity of 19 cfs near 9th street increasing to 135 cfs at 14th Street. This storm sewer system and the calculated capacities are illustrated in Figure 4.2 below. Resultant floodplain discharges are shown on Figures 4.4 and 4.5. Storm sewer capacity calculations are included in Appendix D.

The Iris Avenue storm sewer system evaluated for capacity includes 30-inch up to 48-inch reinforced concrete pipe that runs from 19th Street east to Elmer's Twomile Creek. The portion of the Iris Avenue storm sewer system west of 19th Street was not evaluated for capacity as full inlet and storm sewer capacity is not anticipated until the flood discharges have traveled to the east of 19th Street. Capacity calculations estimate that this system has an approximate capacity of 45 cfs increasing to 81 cfs (+36 cfs). This storm sewer system and the calculated capacities are illustrated in Figure 4.3 below. Resultant floodplain discharges are shown on Figure 4.7. Storm sewer capacity calculations are included in Appendix D.



Storm Sewer West of Broadway

*City's storm sewer data west of Broadway inconclusive to determine actual pipe slopes or indicated an adverse slope for storm sewer segments K, L, and M individually. As a result, the average slope for all three segments was calculated (0.85%) and applied to each individual segment.

**Segment K capacity restricted to 55 cfs due to reduction in pipe diameter in segments L and M.

Legend

- Index Contour
- Storm Sewer

Cross Sections

River

- Alpine Split
- Broadway Split
- Hospital Split
- Upper Goose Creek

Storm Sewer East of Broadway

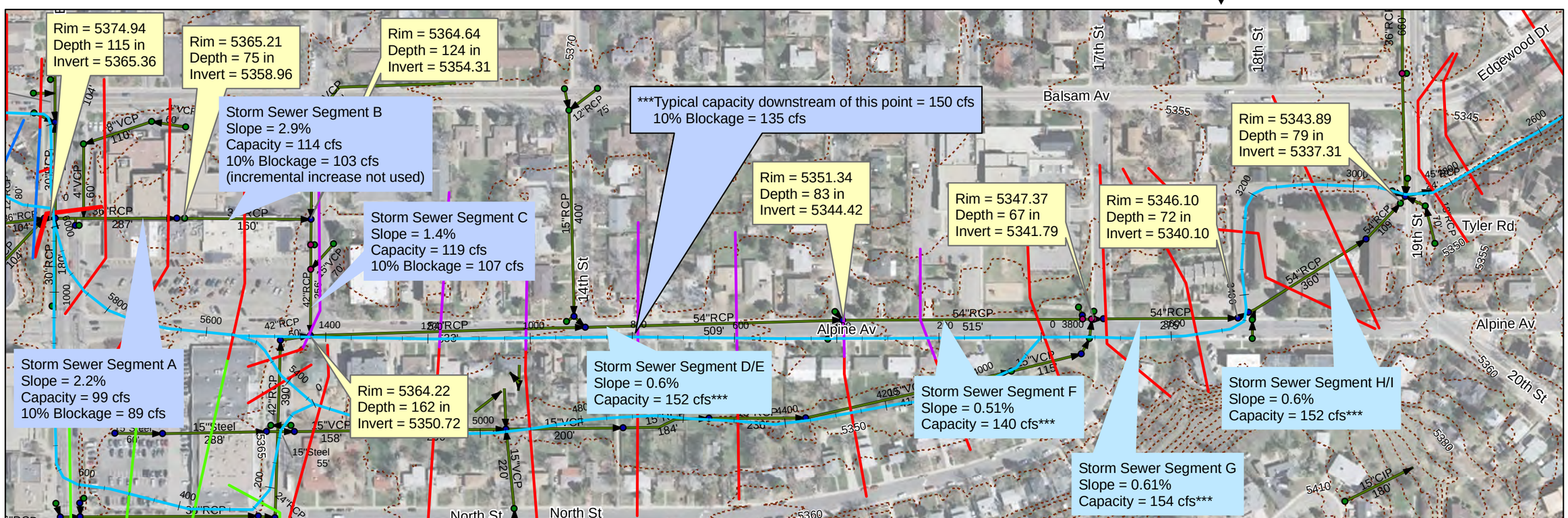


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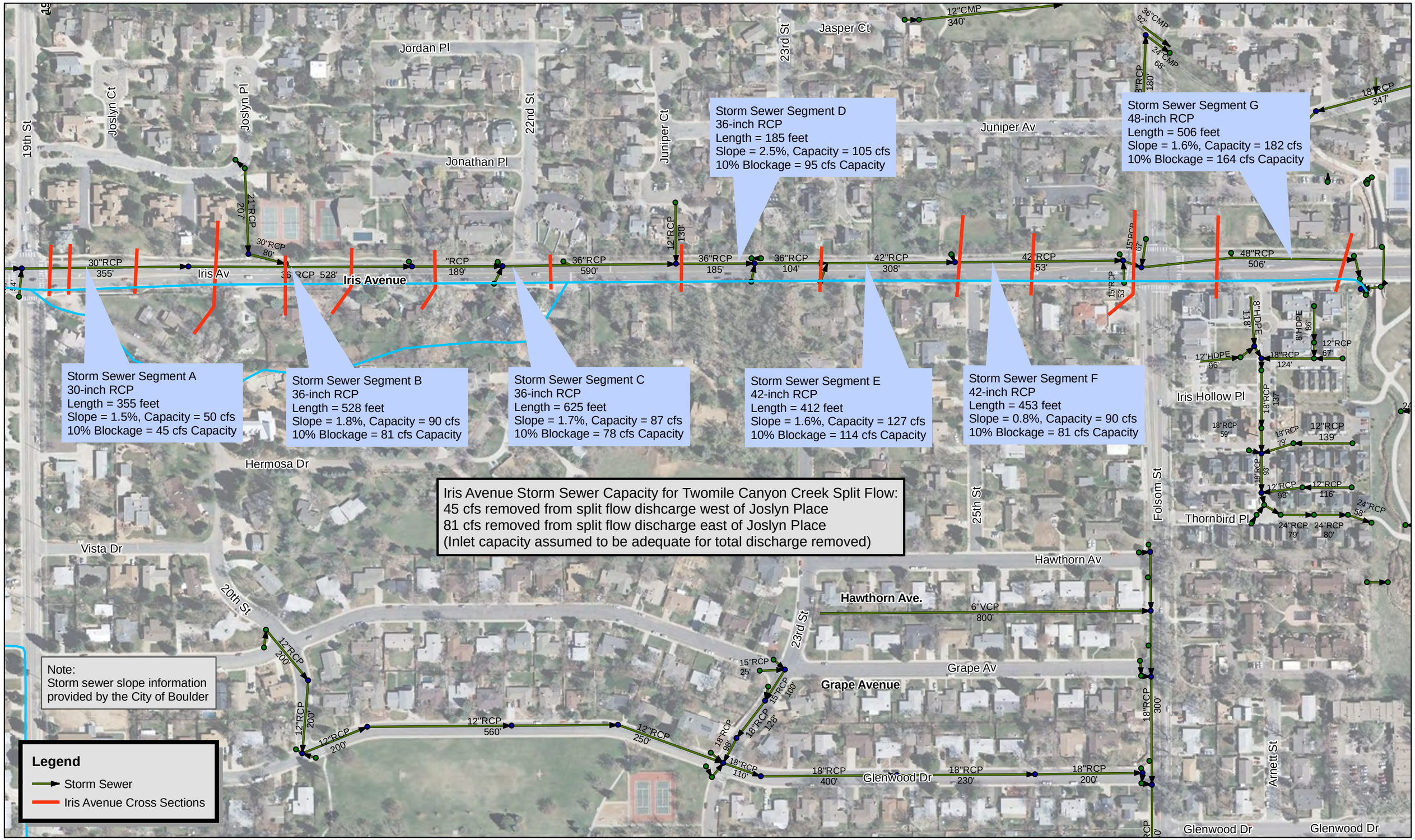
Figure 4.2 - Upper Goose Creek Storm Sewer Capacity Workmap

N

200 Feet



ICON ENGINEERING, INC.

Figure 4.3 - Iris Avenue Storm Sewer Capacity Workmap

N

200 Feet

4.4 HEC-RAS Modeling

As previously noted, a HEC-RAS hydraulic model was developed based on flow paths as identified by the FLO-2D model and as observed during the September 2013 flooding event. Peak discharges identified by the FLO-2D model were used in the HEC-RAS model. Parameters used within the HEC-RAS hydraulic model are discussed below. HEC-RAS model reports and cross sections are provided in Appendix C. Floodplain and conveyance zone data for Upper Goose Creek and Twomile Canyon Creek are provided in Tables 4.2 and 4.3 and the end of this report section.

Cross Section Station and Elevation Data

Cross section station and elevation data was extracted from the GIS DEM created from the 2013 LiDAR data provided by the City of Boulder. Additional cross section modifications were completed in the areas of the main channel upstream (west) of Broadway to reflect the survey information including channel invert elevations and typical channel cross section geometry.

Bank Stations

Bank station locations were estimated in GIS and extracted to HEC-RAS. Bank station locations were then modified as needed based on the actual cross section shape and preferred bank station location in HEC-RAS.

Downstream Reach Lengths

Downstream reach lengths were calculated based on the flow paths as assigned in GIS.

Ineffective Flow Areas

Ineffective flow areas were initially estimated and assigned in GIS based on structure locations in close proximity to cross sections. The ineffective flow areas were then adjusted or otherwise modified directly in HEC-RAS as needed for continuity and elevation. Additional areas of ineffective flow were added to reflect ground obstructions.

Blocked Obstructions

Blocked obstructions were extracted from GIS based on the building footprint data provided by the City of Boulder.

Manning's n Values

Manning's n values were selected based on typical values as determined in the field documentation report. Manning's n value workmaps are provided in Appendix B for reference.

Starting Water Surface Conditions

Starting water surface conditions for the main Twomile Canyon Creek flow path, is based on backwater from the respective confluence location along Upper Goose Creek. This was accomplished by use of cross sections that are common

to the Goose Creek hydraulic model and span the entirety of Goose Creek. Discharges at these common cross sections reflect the full discharge within Goose Creek. Starting water surface conditions for Split Flow 2 reflect a normal depth slope condition as it is expected that discharges will flow off of Iris Avenue and enter Elmers Twomile Creek at the confluence location. All other starting water surface elevations for Twomile Canyon Creek are based on the respective junction calculations. The starting water surface elevation for Upper Goose Creek is based on the effective hydraulic model at an elevation of 5312.6 NAVD 88 (DFIRM cross section J - 10778)

Channel Crossing Structures

Channel crossing structures were added into the HEC-RAS model at all crossing structure locations as noted in Table 3.1. The crossing deck elevations, invert in and invert out elevations, bridge width, and railing information (as applicable) were taken from the field survey documentation and incorporated into the HEC-RAS model. Expansion and contraction coefficients were adjusted at cross sections adjacent to channel crossing structures as noted in Table 3.1. In order to achieve the recommended debris blockage for culverts, the pipe segment(s) were blocked to 0.1 foot below the full rise of the pipe (full blockage resulted in model instability). For bridge crossings the low chord of the upstream bridge deck was lowered in order to reduce the opening area per the recommended blockage factor. Table 4.1 below summarizes the adjustments made to each channel crossing location to achieve the desired blockage value for the 100-year event. The crossing value in Table 4.1 references the station and HEC-RAS identification for each crossing structure location.

Table 4.1: Channel Crossing Debris Blockage Adjustment Summary

Upper Goose Creek and Twomile Canyon Creek Flood Mapping Study Update

ICON Engineering, Inc.

				10-yr				25-yr				50-yr				100-yr				500-yr			
HEC-RAS Crossing ID	Name	Bridge / Culvert	Full Opening Area (sf)	Recommended % Blocked	Depth Blocked / Low Chord Lowered (ft)	Open Area (sf)	Resultant % Blocked	Recommended % Blocked	Depth Blocked / Low Chord Lowered (ft)	Open Area (sf)	Resultant % Blocked	Recommended % Blocked	Depth Blocked / Low Chord Lowered (ft)	Open Area (sf)	Resultant % Blocked	Recommended % Blocked	Depth Blocked / Low Chord Lowered (ft)	Open Area (sf)	Resultant % Blocked	Recommended % Blocked	Depth Blocked / Low Chord Lowered (ft)	Open Area (sf)	Resultant % Blocked
Twomile Canyon Creek																							
9937	Spring Valley Drive	Culvert	32	75	2.25	--	75	100	3.9	0	100	100	3.9	0	100	100	3.9	0	100	100	3.9	0	100
9467	Multi-Use Trail (O)	Bridge	23.69	0	0	23.69	0	0	0	23.69	0	10	0.1	22.07	6.8	30	0.5	15.96	33	50	0.8	11.8	50
9368	Wonderland Hill Avenue	Culvert	9	75	2	--	75	100	2.6	--		100	2.6	0	100	100	2.6	0	100	100	2.6	0	100
9168	Linden Avenue	Culvert	12	50	.58 / 1.33	--	50	75	.87 / 2	--		100	1.1 / 2.6	0	100	100	1.1 / 2.6	0	100	100	1.1 / 2.6	0	100
8461	Private Crossing (M)	Bridge	41.19	0	0	41.19	0	0	0	41.19	0	10	0.3	36.94	10	30	0.9	28.85	30	50	1.6	20.02	51
8427	Private Crossing (L)	Bridge	38.09	0	0	38.09	0	0	0	38.09	0	10	0.3	33.87	11	30	0.8	27.17	29	50	1.4	19.61	49
8201	Kalmia Avenue	Culvert	12	50	1.5	--	50	75	2.25	--	75	100	2.9	0	100	100	2.9	0	100	100	2.9	0	100
7850	Private Crossing (K)	Bridge	60.08	0	0	60.08	0	0	0	60.08	0	10	0.3	53.84	10	30	0.9	42.01	30	50	1.6	29.88	50
7749	Private Crossing (J)	Bridge	25.74	0	0	25.74	0	0	0	25.74	0	10	1	22.86	11	30	1.5	17.53	32	50	2	12.65	51
7719	Private Crossing (I)	Bridge	20.96	0	0	20.96	0	0	0	20.96	0	10	0.2	19.1	9	30	0.7	14.79	29	50	1.3	10.25	51
7426	Juniper Avenue	Culvert	12	50	1.5	--	50	75	2.25	--	75	100	2.9	0	100	100	2.9	0	100	100	2.9	0	100
6209	Multi-Use Trail (G)	Bridge	91.27	0	0	91.27	0	0	0	91.27	0	10	0.1	84.27	8	30	0.4	65.8	28	50	0.8	47.35	48
Upper Goose Creek																							
511	Multi-Use Trail (R)	Bridge	21.7	0	0	21.7	0	0	0	21.7	0	10	0.1	20.1	7	30	0.4	15.54	28	50	0.7	11.36	48

Floodplain Tie-in to Effective Information
Floodplain tie-ins to the effective floodplain information will be finalized for the LOMR submittal. The Boulder County and Incorporated Areas FIS and DFIRM became effective on December 18, 2012.

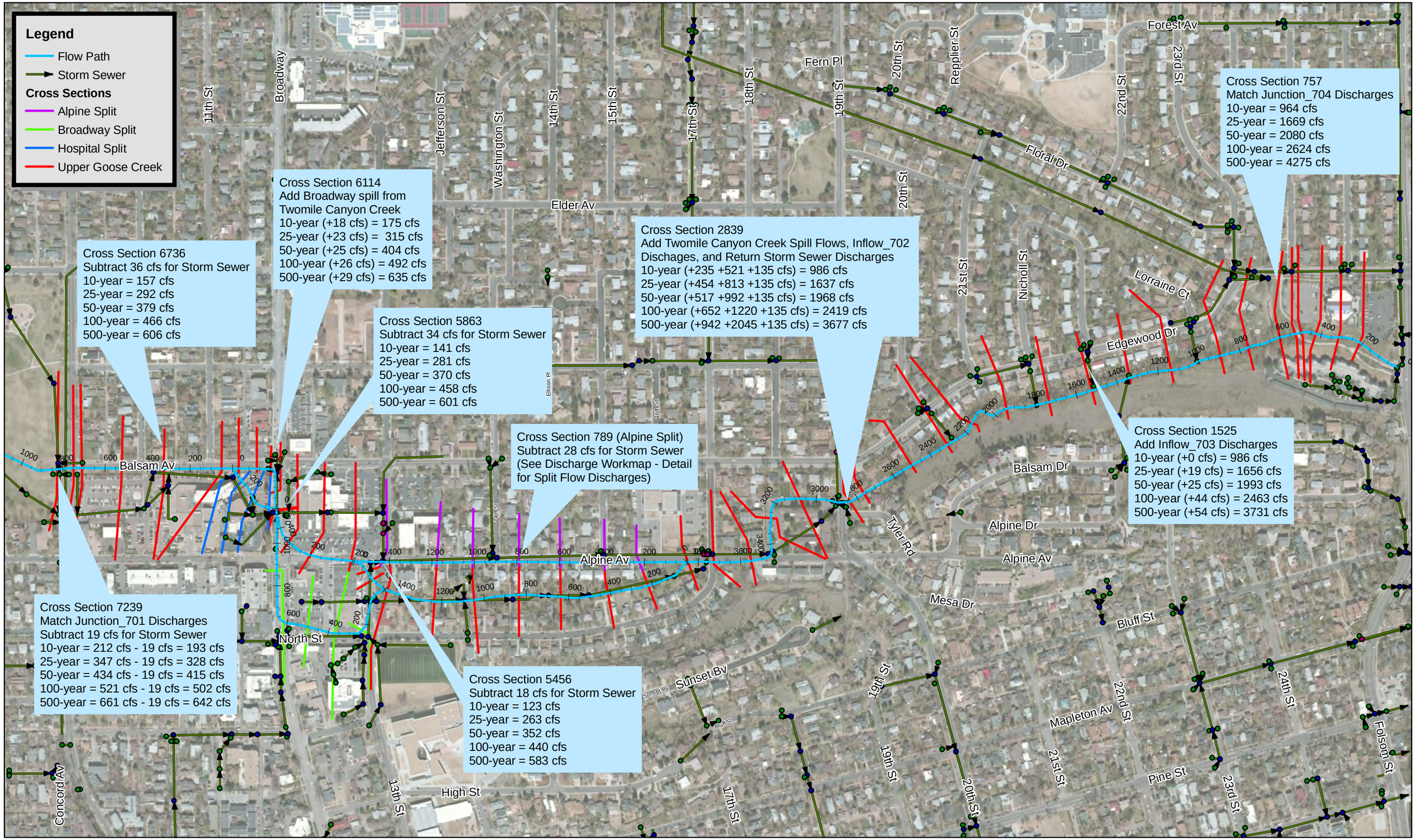
The downstream tie-in for Upper Goose Creek will occur at cross section 212 which is the FIS cross section J (10778) in the effective DFIRM. This tie-in location utilized a duplicate effective cross section which results in an acceptable tie-in for both elevation and top width. The upstream limit of study for Upper Goose Creek occurs at the same location as the effective limit of study. The detailed study portion of Upper Goose Creek as presented in this report will be tied into the effective approximate study Zone A upstream of the study reach.

The Iris Avenue split flow will be tied directly into the floodplain for Elmers Twomile Creek.

The upstream tie-in for Twomile Canyon Creek is expected to occur at the downstream limit of the 04-08-0494P (November 2004) LOMR. This will entail truncating the upstream end of the Twomile Canyon Creek hydraulic model as presented in this report.

Discharges – Upper Goose Creek
Discharges used in the Upper Goose Creek HEC-RAS model were taken directly from the Hydrology Verification Report. These discharges were then adjusted to account for spill discharges from Twomile Canyon Creek and for storm sewer capacity. The general overview of discharges along Upper Goose Creek is illustrated in Figure 4.4 below.

The general discharges along Upper Goose Creek were then run in the HEC-RAS model which includes the split flow paths and their respective junctions. The three junctions along Upper Goose Creek were optimized and the resulting discharges were then entered into an optimized discharge file. The optimized discharges were then incorporated into the 100-year model that does not optimize any of the junctions. Figure 4.5 below illustrates the junction and discharge details along Upper Goose Creek. Both HEC-RAS models are included in Appendix F. An output report and cross sections for the final 100-year model are included in Appendix C. Figure 4.6 below illustrates the junction and reach information along Upper Goose Creek.

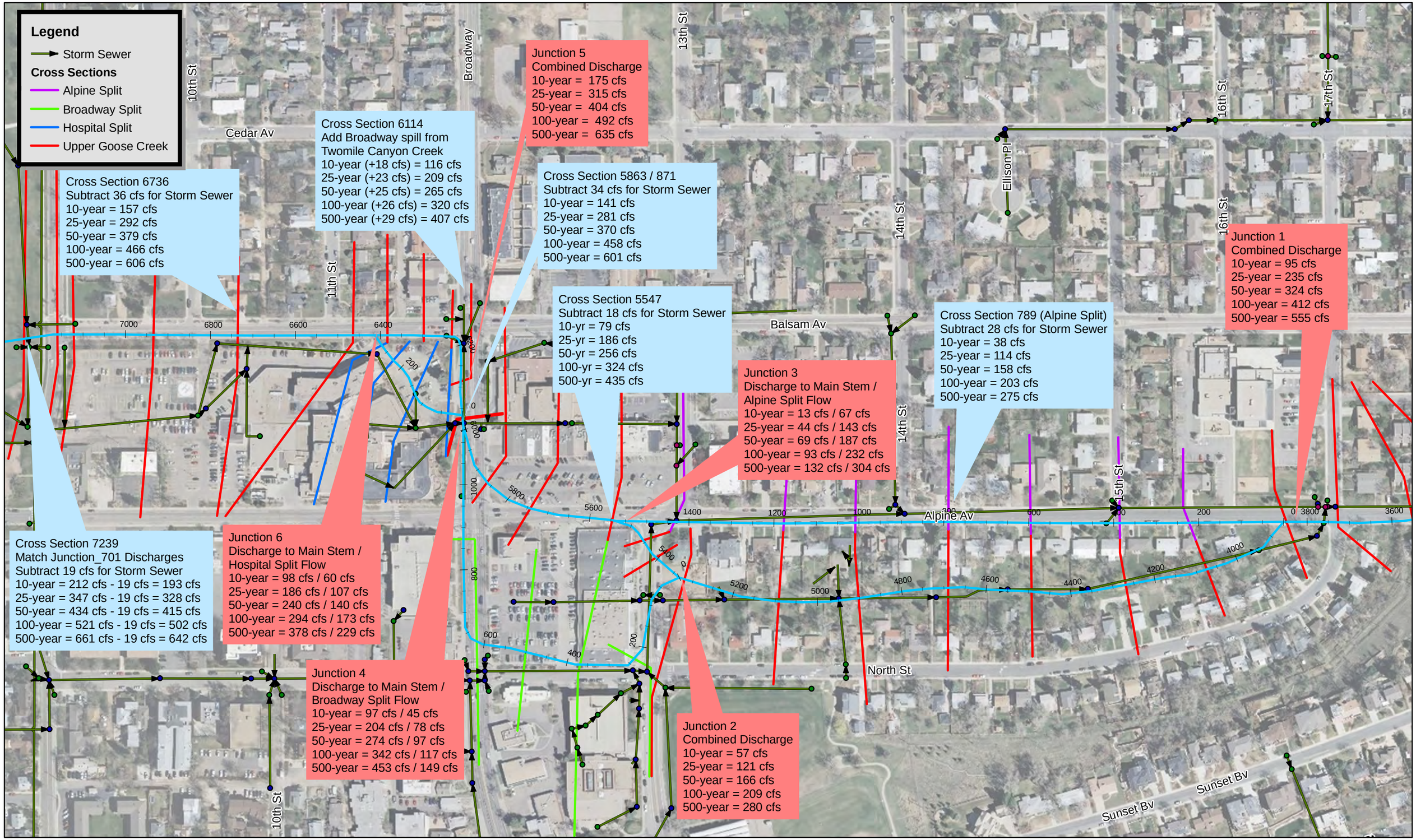


ICON ENGINEERING, INC.

Figure 4.4 - Upper Goose Creek Discharge Workmap - Overview

N

400 Feet



ICON ENGINEERING, INC.

Figure 4.5 - Upper Goose Creek Discharge Workmap - Detail

N

200 Feet

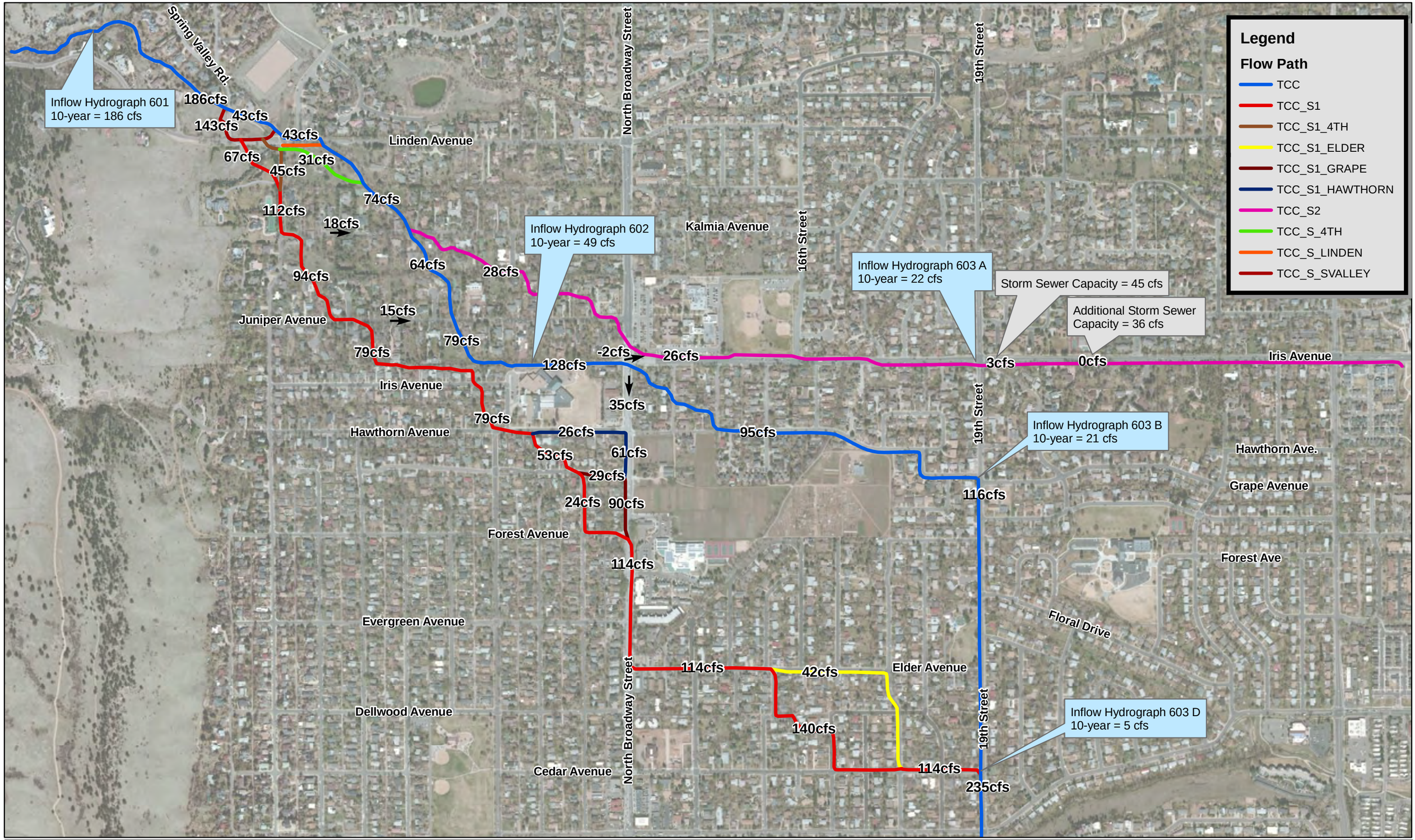
ICON ENGINEERING, INC.

Figure 4.6 - Upper Goose Creek HEC-RAS Reach Workmap

Discharges – Twomile Canyon Creek

Discharges used in the Twomile Canyon Creek HEC-RAS model were taken from the FLO-2D floodplain cross section peak discharge values as shown in Figure 4.1. The discharges for Iris Avenue were adjusted to reflect the approximate storm sewer capacity as noted in Section 4.3 of this report. The discharge for each reach of Twomile Canyon Creek is illustrated in Figures 4.7 through 4.11 below.

The HEC-RAS model for Twomile Canyon Creek is included in Appendix F. An output report and cross sections are included in Appendix C.

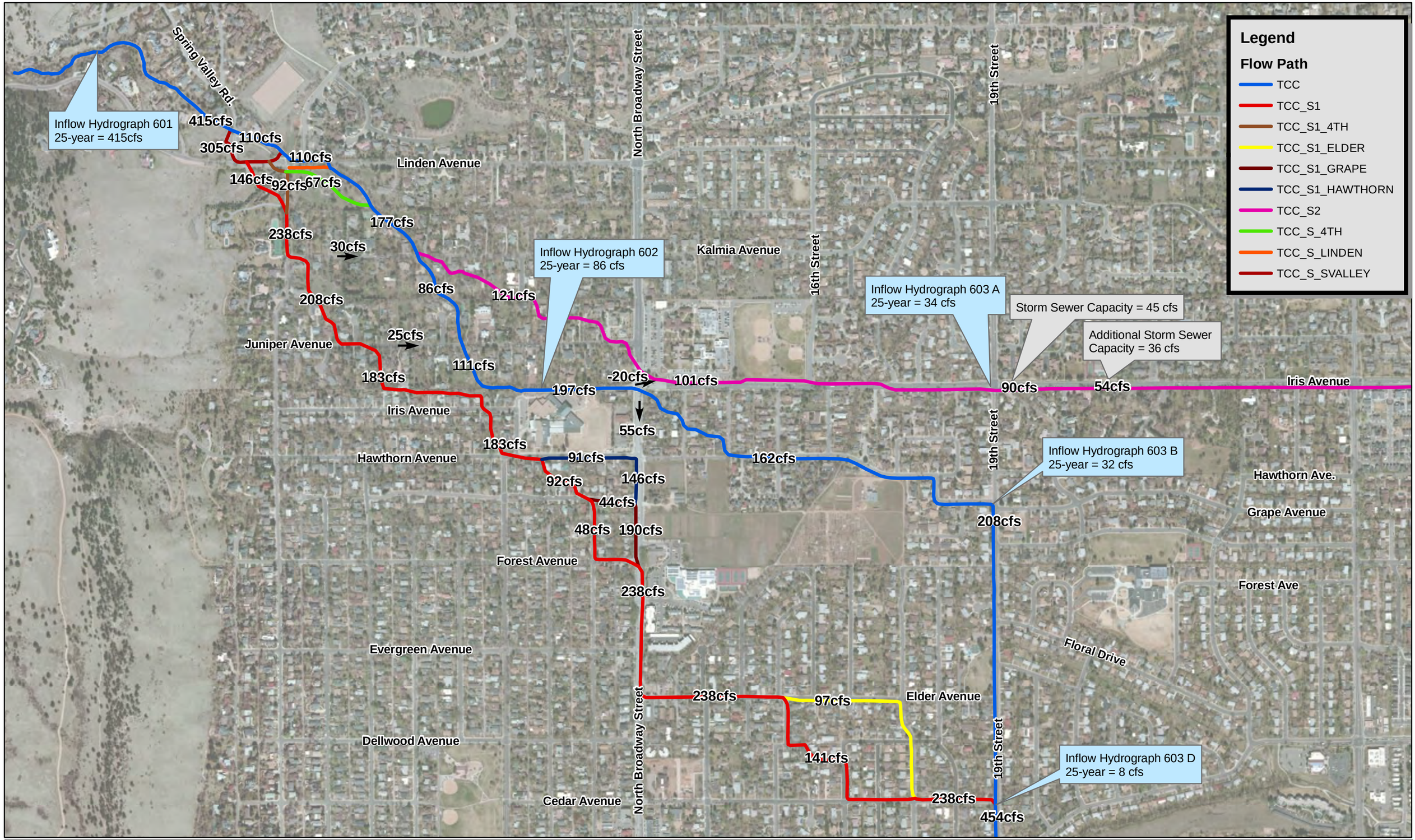


ICON ENGINEERING, INC.

Figure 4.7 - Twomile Canyon Creek 10-Year
HEC-RAS Peak Discharges

N

600 Feet

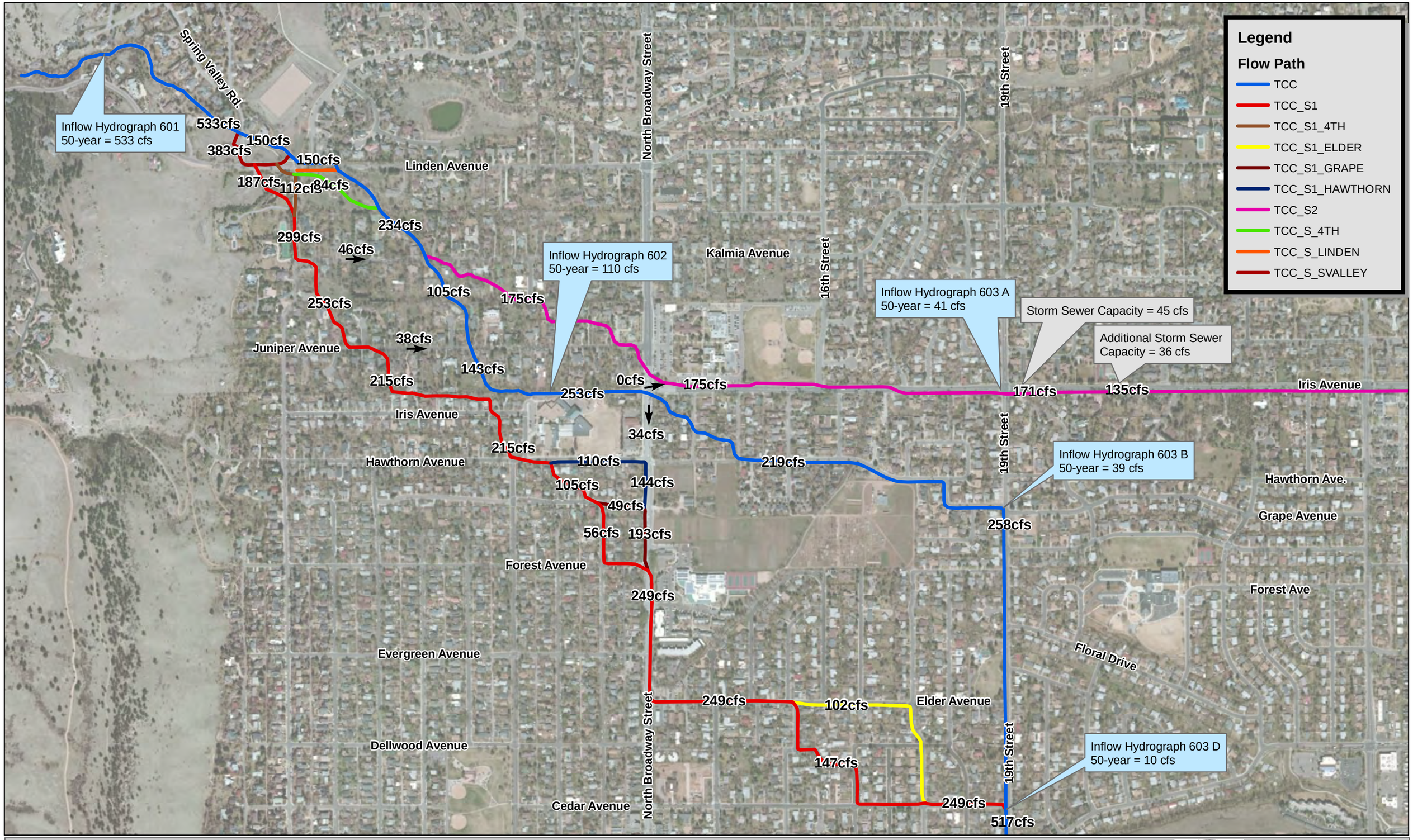


ICON ENGINEERING, INC.

Figure 4.8 - Twomile Canyon Creek 25-Year HEC-RAS Peak Discharges

N

600 Feet

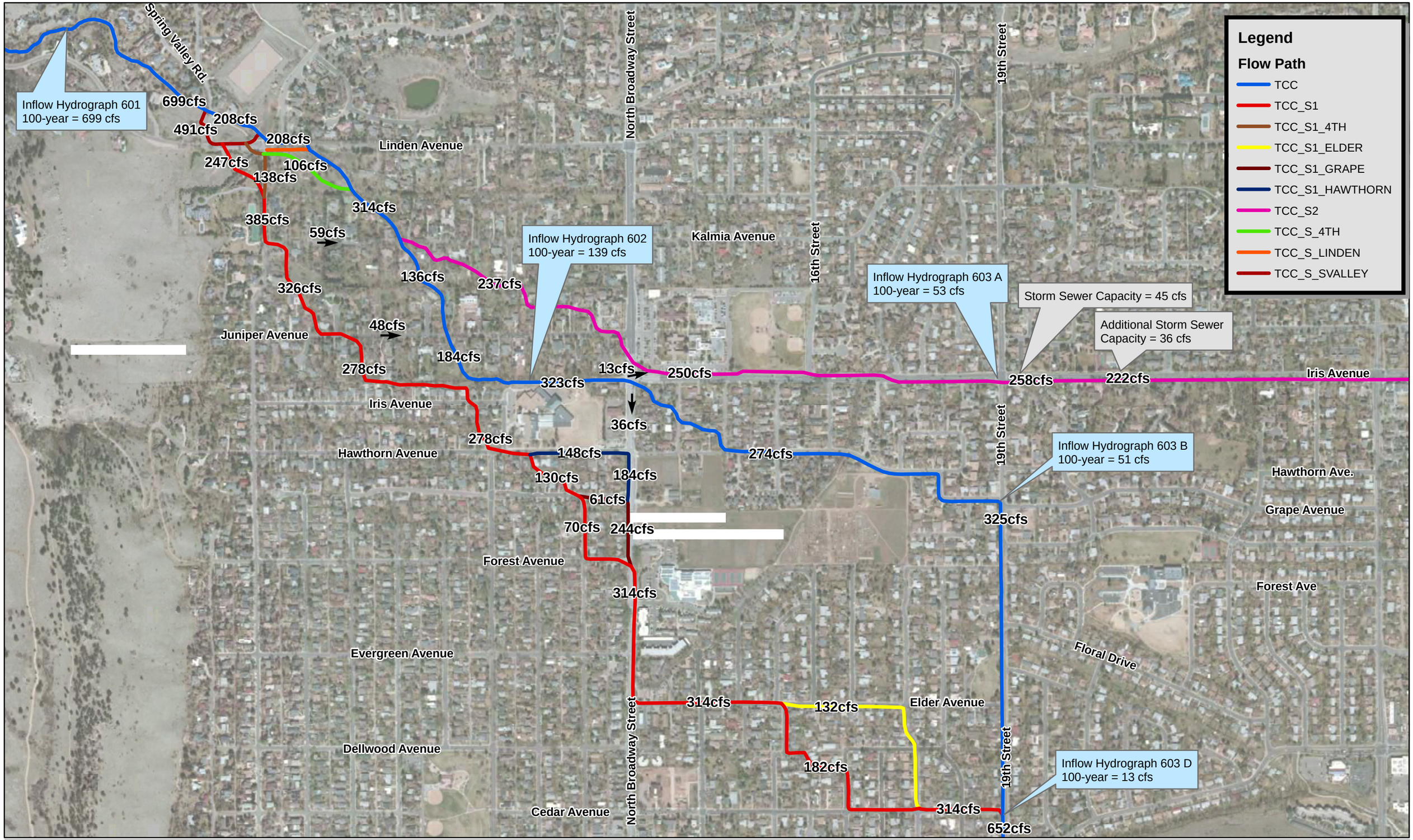


ICON ENGINEERING, INC.

Figure 4.9 - Twomile Canyon Creek 50-Year HEC-RAS Peak Discharges

N

600 Feet

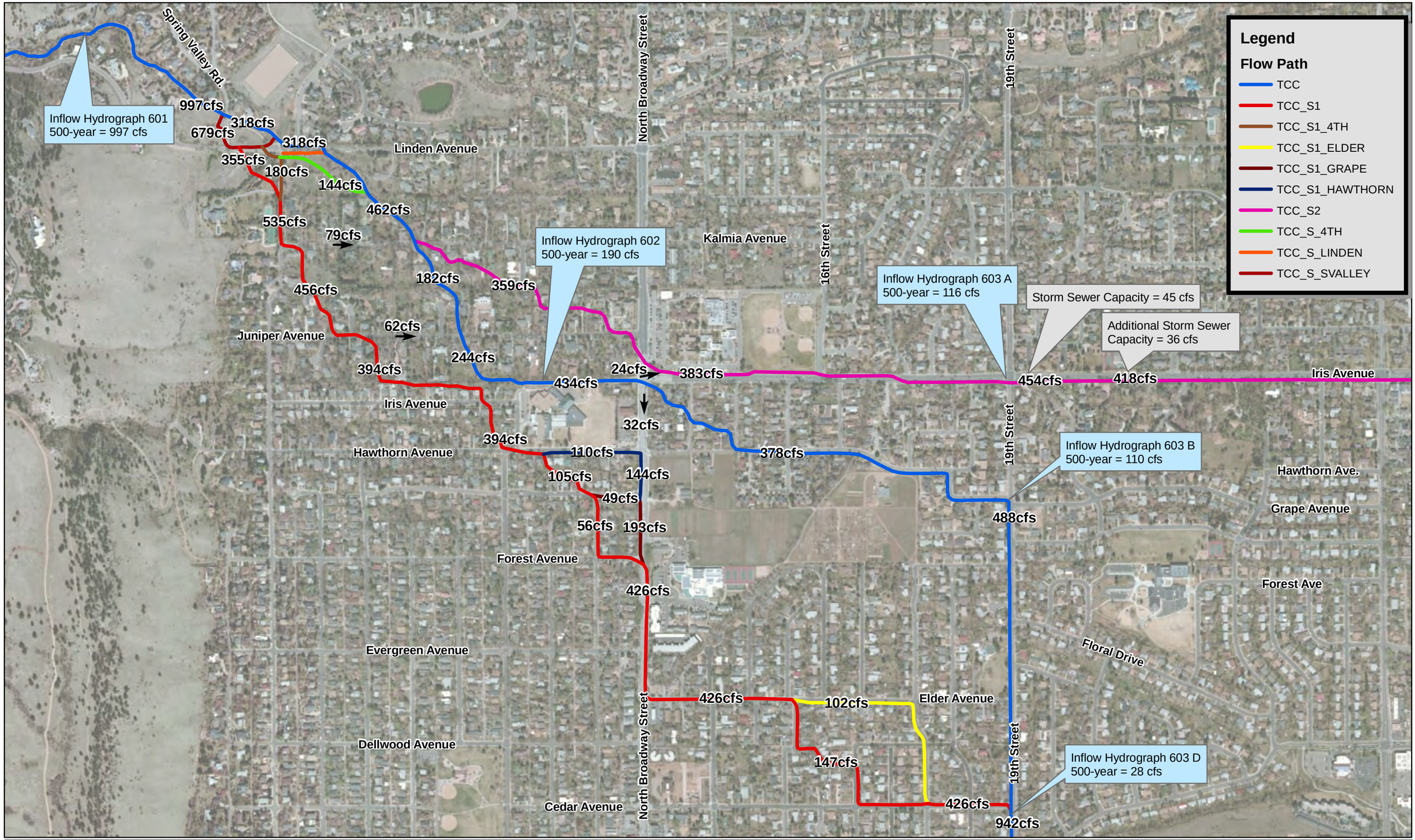


ICON ENGINEERING, INC.

Figure 4.10 - Twomile Canyon Creek 100-Year HEC-RAS Peak Discharges

N

600 Feet

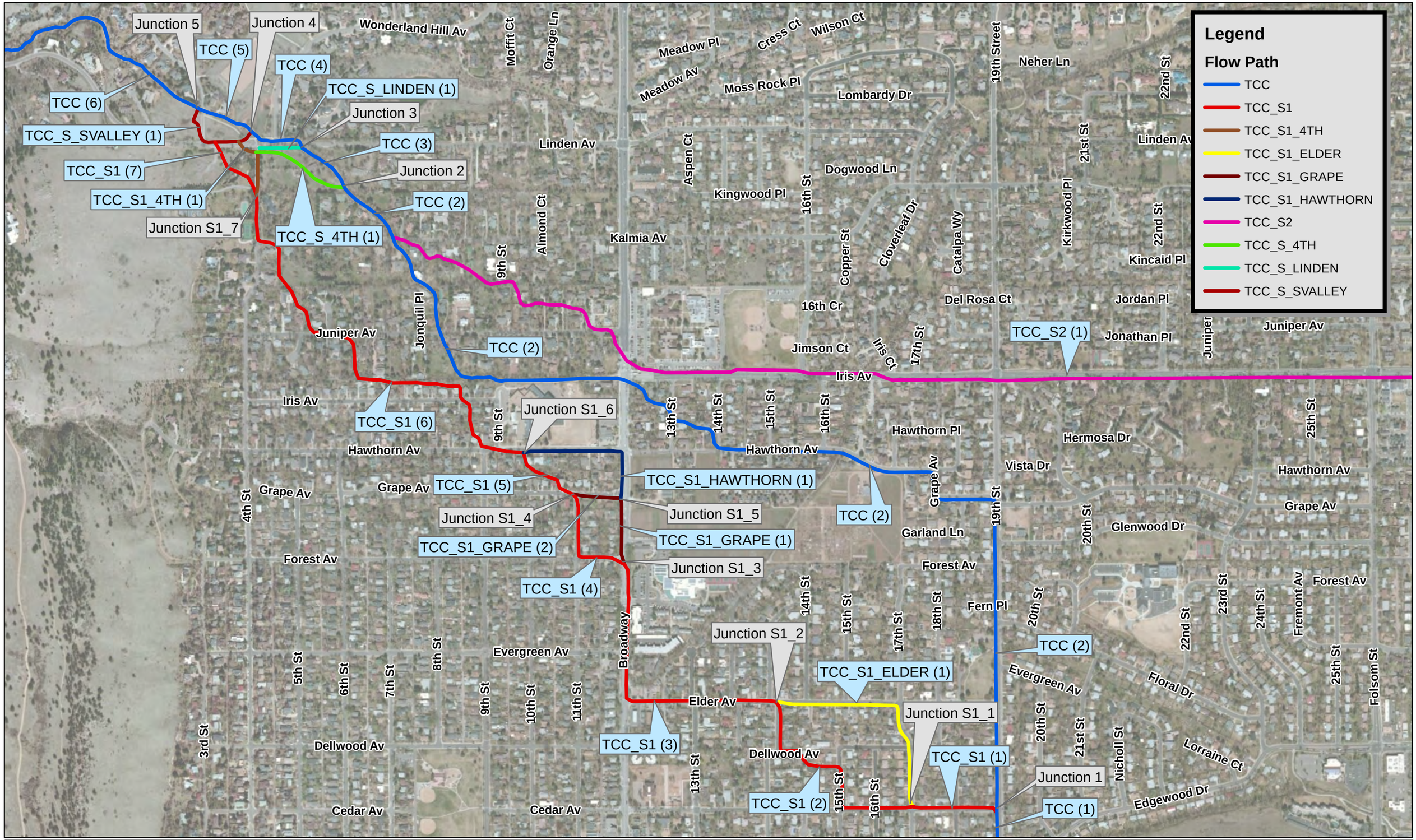


ICON ENGINEERING, INC.

Figure 4.11 - Twomile Canyon Creek 500-Year HEC-RAS Peak Discharges

N

600 Feet



ICON ENGINEERING, INC.

Figure 4.12 - Twomile Canyon Creek HEC-RAS Reach Workmap

N

600 Feet

Conveyance Zone

Conveyance zone encroachments were completed on both Upper Goose Creek and Twomile Canyon Creek based on a 0.5 foot rise criteria. Conveyance zone encroachments were completed using a combination of method 4 and method 1 encroachments in HEC-RAS. For minor split flow reaches where the full discharge could be carried within the dominant flow path and still meet the 0.5 foot rise criteria, a conveyance zone was not developed. Additional discussion on the conveyance zone is provided in Section 5.3 of this report.

4.5 Without Berm and Without Floodwall Analysis

As noted in Section 4.2 of this report, a “without berm” and “without floodwall” FLO-2D model and associated discharges were developed for Twomile Canyon Creek. These without berm/floodwall discharges were incorporated into the Twomile Canyon Creek HEC-RAS model in the same manner as the 100-year discharges discussed previously regarding split flows. The resulting without berm/floodwall discharges are illustrated on Figure 4.1.

Regardless of the discharge increase along the Split Flow 1 flow path and associated minor split flows, the resulting water surface elevations of the without wall and without berm profile show an increase in water surface elevation that is generally equal to or less than 0.37 feet higher (0.12 ft average) than the analysis that considers the berm and floodwall in place.

Based on the minor increase in water surface elevation and the desire to manage the Twomile Canyon Creek floodplain with the floodwall and berm in place, the project team elected to develop the floodplain along Split Flow 1 with discharges reflecting the floodwall and berm in place.

Table 4.2: Summary of Floodplain and Conveyance Zone Data - Upper Goose Creek (1 of 2)
Upper Goose Creek and Twomile Canyon Creek Flood Mapping Study Update
ICON Engineering, Inc.

River	Reach	Cross Section	Channel Invert (ft - NAVD 88)	Peak Discharge[1] Floodplain (cfs)	Peak Discharge[1] Conveyance Zone (cfs)	Water Surface Elevation (ft - NAVD 88)	Top Width (ft)	0.5-foot Rise Conveyance Zone Width (ft)	Area (sf)	Mean Vel. (ft/s)	Regulatory (ft - NAVD 88)	With Conveyance Zone (ft - NAVD 88)	Increase (ft)
Upper Goose Creek	1	212	5305.30	2624	2624	5312.60	77	77	270	9.7	5312.60	5312.60	0.00
	1	316	5305.70	2624	2624	5313.84	89	55	242	10.9	5313.84	5313.91	0.07
	1	426	5307.28	2624	2624	5316.03	264	104	528	5.0	5316.03	5316.44	0.41
	1	495	5308.55	2624	2624	5316.21	210	123	456	5.8	5316.21	5316.61	0.40
	1	525	5308.68	2624	2624	5316.41	214	143	547	4.8	5316.41	5316.87	0.46
	1	600	5309.04	2624	2624	5317.08	279	155	895	2.9	5317.08	5317.39	0.31
	1	757	5313.40	2624	2624	5318.89	342	284	528	5.0	5318.89	5319.01	0.12
	1	894	5317.00	2463	2463	5321.29	313	181	322	7.7	5321.29	5321.51	0.22
	1	1138	5319.70	2463	2463	5325.66	265	160	330	7.5	5325.66	5325.72	0.06
	1	1337	5320.37	2463	2463	5327.81	225	137	341	7.2	5327.81	5328.07	0.26
	1	1525	5323.79	2463	2463	5329.83	178	160	315	7.8	5329.83	5329.89	0.06
	1	1734	5327.12	2419	2419	5332.03	214	178	424	5.7	5332.03	5332.23	0.20
	1	1938	5328.02	2419	2419	5333.93	173	146	312	7.8	5333.93	5334.00	0.07
	1	2148	5333.09	2419	2419	5338.52	201	136	309	8.3	5338.52	5338.80	0.28
	1	2307	5334.79	2419	2419	5340.17	289	162	339	7.1	5340.17	5340.66	0.49
	1	2502	5336.11	2419	2419	5343.99	282	149	439	6.0	5343.99	5344.03	0.04
	1	2761	5339.00	2419	2419	5346.55	224	157	302	8.0	5346.55	5346.79	0.24
	1	2839	5340.00	2419	2419	5347.32	363	242	885	2.7	5347.32	5347.78	0.46
	1	3078	5346.30	412	412	5347.47	201	80	185	2.5	5347.47	5347.81	0.34
	1	3277	5347.00	412	412	5348.17	99	57	69	6.0	5348.17	5348.22	0.05
	1	3551	5345.80	412	412	5348.82	144	55	157	2.6	5348.82	5348.98	0.16
	1	3727	5347.00	412	412	5348.89	168	60	93	4.4	5348.89	5348.93	0.04
	1	3849	5347.35	412	412	5349.05	86	60	68	6.1	5349.05	5349.05	0.00
	2	4074	5348.00	209	209	5350.38	117	43	106	2.0	5350.38	5350.64	0.26
	2	4269	5349.00	209	209	5351.48	99	45	131	1.6	5351.48	5351.98	0.50
	2	4493	5350.00	209	209	5352.68	106	46	130	1.6	5352.68	5353.14	0.46
	2	4690	5353.00	209	209	5354.53	126	47	103	2.4	5354.53	5354.91	0.38
	2	4903	5354.56	209	209	5356.49	209	66	148	1.4	5356.49	5356.97	0.48
	2	5091	5356.04	209	209	5358.04	116	45	97	2.2	5358.04	5358.50	0.46
	2	5320	5361.60	209	209	5362.56	97	30	40	5.2	5362.56	5363.00	0.44
	3	5405	5362.90	93	209	5363.92	61	61	43	4.9	5363.92	5364.20	0.28
	3	5456	5364.10	93	209	5364.91	59	59	43	4.8	5364.91	5365.23	0.32
	4	5547	5367.28	342	458	5368.42	241	82	84	5.5	5368.42	5368.70	0.28
	4	5742	5370.50	342	458	5371.15	181	120	92	5.0	5371.15	5371.47	0.32
	4	5863	5372.30	342	458	5373.36	128	90	85	5.4	5373.36	5373.66	0.30
	5	6025	5373.30	492	492	5375.23	110	55	74	6.7	5375.23	5375.41	0.18
	5	6028	5373.40	492	492	5375.42	119	55	79	6.3	5375.42	5375.51	0.09
	6	6114	5374.50	320	492	5376.10	65	71	82	6.0	5376.10	5376.43	0.33
	6	6232	5377.30	294	466	5378.35	81	60	73	6.4	5378.35	5378.76	0.41
	6	6298	5377.90	294	466	5379.18	76	53	71	6.6	5379.18	5379.61	0.43
	6	6383	5378.60	294	466	5379.84	112	55	72	6.5	5379.84	5380.28	0.44
	7	6464	5378.75	466	466	5380.68	95	55	73	6.4	5380.68	5380.73	0.05
	7	6736	5380.70	466	466	5382.11	92	55	72	6.5	5382.11	5382.45	0.34
	7	6934	5380.67	502	502	5382.74	362	85	153	3.3	5382.74	5383.16	0.42
	7	7122	5380.14	502	502	5383.07	395	130	272	1.9	5383.07	5383.41	0.34
	7	7160	5381.00	502	502	5383.19	462	132	330	1.5	5383.19	5383.51	0.32
	7	7239	5380.64	502	502	5383.20	519	154	417	1.2	5383.20	5383.54	0.34

[1] Peak discharge for floodway may be higher than floodplain due to floodway consolidation from split flow paths

Table 4.2: Summary of Floodplain and Conveyance Zone Data - Upper Goose Creek (2 of 2)
Upper Goose Creek and Twomile Canyon Creek Flood Mapping Study Update
ICON Engineering, Inc.

River	Reach	Cross Section	Channel Invert (ft - NAVD 88)	Peak Discharge[1] Floodplain (cfs)	Peak Discharge[1] Conveyance Zone (cfs)	Water Surface Elevation (ft - NAVD 88)	Top Width (ft)	0.5-foot Rise Conveyance Zone Width (ft)	Area (sf)	Mean Vel. (ft/s)	Regulatory (ft - NAVD 88)	With Conveyance Zone (ft - NAVD 88)	Increase (ft)
Upper Goose	1	34	5374.00	173	0	5375.87	141	--	--	--	--	--	--
Creek - Hospital	1	131	5373.00	173	0	5375.91	138	--	--	--	--	--	--
Split Flow	1	226	5375.86	173	0	5377.03	73	--	--	--	--	--	--
	1	270	5378.50	173	0	5379.85	42	--	--	--	--	--	--
Upper Goose	1	235	5364.30	117	0	5365.11	74	--	--	--	--	--	--
Creek - Broadway	1	369	5366.67	117	0	5367.53	55	--	--	--	--	--	--
Split Flow	1	500	5368.28	117	0	5368.79	114	--	--	--	--	--	--
	1	619	5370.50	117	0	5370.97	181	--	--	--	--	--	--
	1	871	5371.90	117	0	5373.29	42	--	--	--	--	--	--
Upper Goose	1	223	5348.60	203	203	5349.88	65	35	36	5.7	5349.88	5349.99	0.11
Creek - Alpine	1	386	5351.18	203	203	5352.05	87	40	37	5.5	5352.05	5352.35	0.30
Split Flow	1	596	5355.09	203	203	5356.29	71	37	36	5.7	5356.29	5356.44	0.15
	1	789	5357.35	203	203	5358.60	61	35	36	5.7	5358.60	5358.89	0.29
	1	1009	5359.97	232	232	5361.18	64	40	41	5.7	5361.18	5361.43	0.25
	1	1177	5361.50	232	232	5363.06	56	40	40	5.8	5363.06	5363.08	0.02
	1	1435	5364.00	232	232	5364.84	266	50	44	5.3	5364.84	5365.13	0.29

[1] Peak discharge for floodway may be higher than floodplain due to floodway consolidation from split flow paths

Table 4.3: Summary of Floodplain and Floodway Data - Twomile Canyon Creek (1of 7)

Upper Goose Creek and Twomile Canyon Creek Flood Mapping Study Update

ICON Engineering, Inc.

River	Reach	Cross Section	Channel Invert (ft - NAVD 88)	Peak Discharge[1] Floodplain (cfs)	Peak Discharge[1] Conveyance Zone (cfs)	Water Surface Elevation (ft - NAVD 88)	Top Width (ft)	0.5-foot Rise Conveyance Zone Width (ft)	Area (sf)	Mean Vel. (ft/s)	Regulatory (ft - NAVD 88)	With Conveyance Zone (ft - NAVD 88)	Increase (ft)
Twomile Canyon Creek	1	39	5339.24	2419	2419	5347.32	384	175	659	3.7	5347.32	5347.78	0.46
	1	216	5344.13	652	652	5347.46	229	85	243	2.7	5347.46	5347.90	0.44
	1	331	5345.26	652	652	5347.15	83	50	89	7.3	5347.15	5347.54	0.39
	1	429	5346.56	652	652	5348.63	96	50	87	7.5	5348.63	5348.87	0.24
	1	499	5348.08	652	652	5350.17	100	45	84	7.8	5350.17	5350.45	0.28
	1	610	5349.89	652	652	5351.90	81	45	85	7.7	5351.90	5352.22	0.32
	2	735	5350.42	325	325	5352.81	104	40	86	3.8	5352.81	5353.14	0.33
	2	861	5351.01	325	325	5352.82	98	50	82	4.0	5352.82	5353.22	0.40
	2	1017	5353.58	325	325	5354.88	120	50	54	6.0	5354.88	5355.25	0.37
	2	1161	5360.85	325	325	5362.50	70	40	50	6.5	5362.50	5362.80	0.30
	2	1303	5365.92	325	325	5367.58	85	40	50	6.4	5367.58	5367.92	0.34
	2	1466	5366.78	325	325	5368.43	153	45	52	6.2	5368.43	5368.59	0.16
	2	1611	5367.63	325	325	5369.09	149	45	52	6.2	5369.09	5369.33	0.24
	2	1763	5368.30	325	325	5369.90	91	45	53	6.2	5369.90	5370.03	0.13
	2	1955	5369.48	325	325	5371.10	58	42	51	6.4	5371.09	5371.31	0.22
	2	2084	5370.39	325	325	5372.05	104	45	53	6.2	5372.05	5372.17	0.12
	2	2183	5371.05	325	325	5372.43	102	50	54	6.0	5372.43	5372.73	0.30
	2	2294	5371.75	325	325	5373.35	76	40	51	6.4	5373.35	5373.63	0.28
	2	2434	5373.36	325	325	5375.57	30	20	41	8.0	5375.56	5375.75	0.19
	2	2490	5373.52	325	325	5376.21	38	23	53	6.1	5376.21	5376.32	0.11
	2	2563	5374.38	325	325	5376.48	37	25	43	7.5	5376.48	5376.58	0.10
	2	2689	5375.45	325	325	5377.56	40	25	43	7.5	5377.56	5377.69	0.13
	2	2799	5376.22	325	325	5378.45	37	25	43	7.5	5378.45	5378.50	0.05
	2	2862	5376.67	325	325	5379.10	86	30	67	4.9	5379.10	5379.19	0.09
	2	2915	5377.74	274	274	5379.05	72	35	43	6.3	5379.05	5379.28	0.23
	2	3018	5379.38	274	274	5380.73	82	40	45	6.1	5380.73	5380.84	0.11
	2	3186	5381.18	274	274	5382.47	56	35	43	6.4	5382.48	5382.68	0.20
	2	3310	5382.25	274	274	5383.52	62	35	43	6.3	5383.52	5383.74	0.22
	2	3399	5383.15	274	274	5384.39	63	35	43	6.4	5384.39	5384.59	0.20
	2	3458	5384.13	274	274	5385.19	70	45	47	5.8	5385.18	5385.35	0.17
	2	3536	5385.79	274	274	5387.09	62	35	43	6.4	5387.09	5387.28	0.19
	2	3677	5388.70	274	274	5390.04	60	35	43	6.3	5390.04	5390.23	0.19
	2	3862	5393.12	274	274	5394.33	76	35	43	6.4	5394.33	5394.53	0.20
	2	3976	5395.84	274	274	5397.23	81	35	43	6.3	5397.23	5397.46	0.23
	2	4137	5403.35	274	274	5404.52	55	35	43	6.4	5404.52	5404.69	0.17
	2	4209	5403.92	274	274	5405.17	79	35	43	6.3	5405.17	5405.52	0.35
	2	4375	5405.74	274	274	5407.13	56	40	45	6.1	5407.13	5407.20	0.07
	2	4486	5407.60	274	274	5409.00	78	35	43	6.4	5409.00	5409.27	0.27
	2	4561	5409.20	274	274	5410.64	63	35	43	6.4	5410.64	5410.93	0.29
	2	4630	5410.53	274	274	5412.03	74	40	45	6.1	5412.03	5412.11	0.08
	2	4700	5412.30	274	274	5413.30	177	40	46	6.0	5413.28	5413.60	0.32
	2	4840	5414.92	274	274	5416.35	70	35	43	6.3	5416.35	5416.58	0.23
	2	4922	5417.07	274	274	5418.37	80	35	43	6.3	5418.37	5418.47	0.10
	2	4996	5418.98	274	274	5420.23	103	60	54	5.1	5420.23	5420.50	0.27
	2	5363	5428.92	274	274	5430.57	117	34	50	5.5	5430.57	5431.05	0.48
	2	5439	5430.53	274	274	5431.45	154	95	73	3.7	5431.45	5431.82	0.37
	2	5624	5435.14	274	274	5436.27	178	40	46	6.0	5436.27	5436.60	0.33
	2	5763	5439.47	274	274	5440.81	116	100	108	2.5	5440.81	5441.26	0.45

[1] Peak discharge for floodway may be higher than floodplain due to floodway consolidation from split flow paths

Table 4.3: Summary of Floodplain and Conveyance Zone Data - Twomile Canyon Creek (2 of 7)

Upper Goose Creek and Twomile Canyon Creek Flood Mapping Study Update

ICON Engineering, Inc.

River	Reach	Cross Section	Channel Invert (ft - NAVD 88)	Peak Discharge[1] Floodplain (cfs)	Peak Discharge[1] Conveyance Zone (cfs)	Water Surface Elevation (ft - NAVD 88)	Top Width (ft)	0.5-foot Rise Conveyance Zone Width (ft)	Area (sf)	Mean Vel. (ft/s)	Regulatory (ft - NAVD 88)	With Conveyance Zone (ft - NAVD 88)	Increase (ft)
Twomile Canyon Creek	2	5959	5447.93	323	323	5447.55	159	65	81	4.0	5447.55	5447.97	0.42
	2	5996	5448.93	323	323	5448.46	54	28	57	5.7	5448.46	5448.76	0.30
	2	6082	5451.30	323	323	5450.85	77	20	48	6.8	5450.85	5451.09	0.24
	2	6175	5452.82	323	323	5452.67	113	25	86	3.8	5452.67	5453.06	0.39
	2	6228	5454.11	323	323	5453.91	166	25	67	4.8	5453.91	5454.05	0.14
	2	6265	5455.17	323	323	5454.84	94	40	51	6.3	5454.84	5455.08	0.24
	2	6278	5455.45	323	323	5455.28	88	45	85	3.8	5455.28	5455.76	0.48
	2	6303	5456.20	323	323	5455.68	45	48	54	6.0	5455.68	5456.07	0.39
	2	6361	5458.98	323	323	5458.13	159	22	47	6.8	5458.13	5458.29	0.16
	2	6372	5459.75	323	323	5458.83	185	13	35	9.3	5458.83	5458.95	0.12
	2	6423	5461.22	323	323	5460.38	128	21	53	6.1	5460.37	5460.83	0.46
	2	6454	5462.03	323	323	5461.14	127	20	43	7.4	5461.14	5461.19	0.05
	2	6466	5463.11	323	323	5462.26	156	29	45	7.2	5462.25	5462.28	0.03
	2	6515	5463.85	323	323	5463.53	134	22	72	4.5	5463.53	5463.53	0.00
	2	6524	5464.65	323	323	5463.65	92	20	40	8.0	5463.65	5463.65	0.00
	2	6595	5465.77	184	184	5465.53	73	20	47	3.9	5465.53	5465.56	0.03
	2	6629	5466.55	184	184	5465.78	80	17	26	7.0	5465.79	5465.78	-0.01
	2	6637	5467.48	184	184	5466.81	94	21	28	6.5	5466.79	5466.81	0.02
	2	6731	5469.20	184	184	5469.02	145	20	55	3.3	5469.03	5469.06	0.03
	2	6760	5469.50	184	184	5469.29	148	20	50	3.7	5469.29	5469.33	0.04
	2	6777	5469.82	184	184	5469.48	16	16	40	4.6	5469.49	5469.51	0.02
	2	6880	5473.37	184	184	5472.80	85	17	30	6.1	5472.80	5472.78	-0.02
	2	7004	5476.66	184	184	5476.34	95	15	34	5.5	5476.34	5476.42	0.08
	2	7138	5480.63	184	184	5479.91	63	19	27	6.8	5479.92	5479.91	-0.01
	2	7158	5481.19	184	184	5480.45	18	18	27	7	5480	5480	0.01
	2	7173	5481.45	184	184	5480.92	17	17	31	6	5481	5481	-0.01
	2	7203	5483.00	184	184	5482.19	16	16	25	7	5482	5482	0.00
	2	7226	5483.44	184	184	5482.78	15	15	28	6	5483	5483	0.01
	2	7298	5486.48	184	184	5485.71	17	17	26	7	5486	5486	0.00
	2	7359	5488.96	184	184	5488.14	15	15	25	7	5488	5488	0.00
	2	7371	5489.85	136	136	5489.08	12	12	19	7	5489	5489	-0.02
	2	7430	5492.91	136	136	5492.78	107	40	68	2	5493	5493	0.40
	2	7504	5493.36	136	136	5493.08	29	16	37	4	5493	5493	0.26
	2	7608	5496.41	136	136	5495.70	14	14	20	7	5496	5496	0.00
	2	7681	5498.11	136	136	5497.63	12	12	24	6	5498	5498	0.01
	2	7713	5499.10	136	136	5498.19	10	10	18	8	5498	5498	0.00
	2	7726	5501.31	136	136	5501.25	102	20	68	2	5501	5502	0.34
	2	7743	5501.41	136	136	5501.23	34	30	57	2	5501	5502	0.37
	2	7750	5501.71	136	136	5501.65	70	20	72	2	5502	5502	0.31
	2	7767	5501.77	136	136	5501.65	22	20	60	2	5502	5502	0.33
	2	7822	5502.41	136	136	5501.93	17	15	30	4.5	5502.13	5502.32	0.19
	2	7844	5502.87	136	136	5502.37	14	14	26	5.2	5502.46	5502.54	0.08
	2	7857	5503.20	136	136	5502.84	15	15	29	4.7	5502.86	5502.88	0.02
	2	7898	5504.56	136	136	5503.78	12	12	19	7.0	5503.78	5503.79	0.01
	2	8004	5507.55	136	136	5506.98	12	12	22	6.1	5506.97	5506.96	-0.01
	2	8137	5513.72	136	136	5512.92	12	12	19	7.2	5512.92	5512.92	0.00
	2	8215	5519.34	314	314	5519.18	82	25	102	3.1	5519.20	5519.61	0.41
	2	8276	5519.90	314	314	5519.11	19	19	53	5.9	5519.13	5519.60	0.47

[1] Peak discharge for floodway may be higher than floodplain due to floodway consolidation from split flow paths

Table 4.3: Summary of Floodplain and Conveyance Zone Data - Twomile Canyon Creek (3 of 7)

Upper Goose Creek and Twomile Canyon Creek Flood Mapping Study Update

ICON Engineering, Inc.

River	Reach	Cross Section	Channel Invert (ft - NAVD 88)	Peak Discharge[1] Floodplain (cfs)	Peak Discharge[1] Conveyance Zone (cfs)	Water Surface Elevation (ft - NAVD 88)	Top Width (ft)	0.5-foot Rise Conveyance Zone Width (ft)	Area (sf)	Mean Vel. (ft/s)	Regulatory (ft - NAVD 88)	With Conveyance Zone (ft - NAVD 88)	Increase (ft)
Twomile Canyon Creek	2	8367	5524.32	314	314	5523.56	41	20	40	7.9	5523.56	5523.62	0.06
	2	8437	5528.56	314	314	5528.37	100	46	120	2.6	5528.37	5528.85	0.48
	2	8448	5528.62	314	314	5528.39	67	27	90	3.5	5528.39	5528.86	0.47
	2	8474	5530.14	314	314	5530.02	100	38	119	2.6	5530.02	5530.31	0.29
	2	8525	5530.51	314	314	5529.92	82	25	60	5.2	5529.92	5530.28	0.36
	2	8573	5532.60	314	314	5531.51	17	17	37	8.5	5531.51	5531.47	-0.04
	2	8675	5538.13	314	314	5537.36	29	29	45	7.0	5537.36	5537.37	0.01
	3	8792	5542.83	208	208	5541.94	16	16	27	7.6	5541.94	5541.94	0.00
	3	8912	5548.12	208	208	5547.32	18	18	29	7.2	5547.32	5547.31	-0.01
	3	9005	5553.43	208	208	5552.74	22	22	31	6.6	5552.74	5552.75	0.01
	3	9110	5559.84	208	208	5559.06	19	19	29	7.1	5559.06	5559.06	0.00
	4	9123	5560.97	142	208	5560.22	14	14	27	7.8	5560.67	5560.66	-0.01
	4	9176	5565.94	142	208	5565.92	56	57	152	1.4	5566.20	5566.20	0.00
	4	9226	5567.23	147	208	5566.71	26	29	26	8.0	5567.59	5566.74	-0.85
	4	9260	5569.64	154	208	5568.85	42	44	46	4.6	5568.56	5569.02	0.46
	4	9374	5575.00	154	208	5574.93	57	24	84	2.5	5575.16	5575.60	0.44
	4	9423	5577.68	208	208	5577.06	33	16	28	7.5	5577.05	5577.25	0.20
	4	9452	5579.17	208	208	5578.39	19	18	35	6.0	5578.39	5578.69	0.30
	4	9475	5582.29	208	208	5582.24	195	14	63	3.3	5582.24	5582.59	0.35
	4	9501	5582.36	208	208	5582.28	129	25	72	2.9	5582.28	5582.74	0.46
	5	9664	5587.08	208	208	5586.07	13	13	26	8.1	5586.07	5586.06	-0.01
	5	9755	5593.21	208	208	5592.48	21	21	30	6.9	5592.48	5592.47	-0.01
	5	9844	5599.06	208	208	5598.34	22	22	30	6.9	5598.34	5598.33	-0.01
	5	9888	5601.80	208	208	5600.94	16	16	28	7.5	5600.94	5600.94	0.00
	5	9942	5609.40	699	699	5609.30	83	35	225	3.1	5609.30	5609.36	0.06
	5	9960	5609.52	699	699	5609.14	55	37	146	4.8	5609.14	5609.27	0.13
	5	10013	5612.52	699	699	5611.07	42	25	72	9.7	5611.07	5611.08	0.01
	5	10102	5619.00	699	699	5617.69	29	29	76	9.2	5617.69	5617.70	0.01
	5	10226	5625.87	699	699	5624.92	49	49	90	7.8	5624.92	5624.93	0.01
	5	10342	5632.62	699	699	5631.84	52	52	99	7.1	5631.84	5631.84	0.00
	5	10449	5640.11	699	699	5638.98	56	25	73	9.6	5638.98	5639.07	0.09
	5	10520	5645.70	699	699	5644.96	90	45	89	7.9	5644.96	5645.16	0.20
	5	10638	5655.55	699	699	5654.73	58	35	81	8.6	5654.73	5654.82	0.09
	5	10710	5660.69	699	699	5659.52	38	25	72	9.7	5659.52	5659.56	0.04
	5	10814	5666.98	699	699	5665.98	53	53	95	7.3	5665.98	5666.00	0.02
	5	10881	5671.72	699	699	5670.82	56	32	83	8.5	5670.82	5670.96	0.14
	5	10968	5678.76	699	699	5677.69	40	25	72	9.7	5677.69	5677.74	0.05
	5	11017	5682.78	699	699	5681.78	53	25	72	9.7	5681.78	5682.03	0.25
	5	11120	5688.71	699	699	5687.55	35	35	81	8.7	5687.55	5687.55	0.00
	5	11247	5697.54	699	699	5696.30	32	31	77	9.1	5696.30	5696.27	-0.03
	5	11364	5708.86	699	699	5707.77	37	37	84	8.4	5707.77	5707.77	0.00
	5	11524	5722.85	699	699	5721.34	24	24	71	9.9	5721.34	5721.34	0.00
	5	11665	5735.88	699	699	5734.27	26	22	69	10.2	5734.27	5734.26	-0.01
	5	11801	5749.21	699	699	5747.68	23	23	70	10.0	5747.68	5747.67	-0.01
	5	11886	5754.21	699	699	5752.64	23	23	70	10.0	5752.64	5752.65	0.01

[1] Peak discharge for floodway may be higher than floodplain due to floodway consolidation from split flow paths

Table 4.3: Summary of Floodplain and Conveyance Zone Data - Twomile Canyon Creek (4 of 7)

Upper Goose Creek and Twomile Canyon Creek Flood Mapping Study Update

ICON Engineering, Inc.

River	Reach	Cross Section	Channel Invert (ft - NAVD 88)	Peak Discharge[1] Floodplain (cfs)	Peak Discharge[1] Conveyance Zone (cfs)	Water Surface Elevation (ft - NAVD 88)	Top Width (ft)	0.5-foot Rise Conveyance Zone Width (ft)	Area (sf)	Mean Vel. (ft/s)	Regulatory (ft - NAVD 88)	With Conveyance Zone (ft - NAVD 88)	Increase (ft)
Twomile Canyon	1	105	5353.39	314	314	5352.93	70	35	47	6.6	5352.93	5353.11	0.18
Creek - Split	1	175	5354.53	314	314	5354.07	63	35	48	6.6	5354.06	5354.21	0.15
Flow 1	1	252	5356.06	314	314	5355.57	59	32	46	6.8	5355.57	5355.86	0.29
	1	379	5359.39	314	314	5358.90	57	35	47	6.7	5358.90	5359.02	0.12
	1	459	5361.35	314	314	5360.95	86	40	49	6.4	5360.95	5361.18	0.23
	1	541	5363.69	314	314	5363.19	94	35	47	6.6	5363.19	5363.38	0.19
	1	603	5365.35	314	314	5364.96	117	60	56	5.7	5364.96	5365.08	0.12
	2	703	5366.41	182	182	5366.11	72	32	32	5.7	5366.11	5366.38	0.27
	2	802	5368.04	182	182	5367.68	54	32	32	5.7	5367.68	5367.88	0.20
	2	934	5370.55	182	182	5370.20	57	30	31	5.8	5370.20	5370.43	0.23
	2	1053	5372.86	182	182	5372.51	74	30	31	5.8	5372.51	5372.79	0.28
	2	1114	5373.63	182	182	5373.40	132	45	36	5.1	5373.38	5373.72	0.34
	2	1215	5374.37	182	182	5374.11	96	40	36	5.1	5374.11	5374.40	0.29
	2	1336	5375.06	182	182	5374.82	80	40	34	5.3	5374.82	5374.99	0.17
	2	1462	5376.26	182	182	5375.88	59	30	31	5.8	5375.88	5376.08	0.20
	2	1585	5377.87	182	182	5377.62	110	71	41	4.4	5377.62	5377.68	0.06
	2	1682	5382.31	182	182	5382.19	77	15	25	7.2	5382.20	5382.24	0.04
	2	1762	5382.78	182	182	5382.66	71	29	51	3.6	5382.66	5383.16	0.50
	2	1837	5383.91	182	182	5383.58	80	35	33	5.5	5383.59	5383.81	0.22
	2	1904	5385.07	182	182	5384.75	96	33	32	5.6	5384.75	5385.08	0.33
	2	1983	5386.09	182	182	5385.88	71	28	31	6.0	5385.87	5385.99	0.12
	2	2059	5386.89	182	182	5386.55	111	33	32	5.6	5386.55	5386.82	0.27
	2	2143	5388.24	182	182	5387.87	75	30	31	5.8	5387.87	5388.17	0.30
	2	2173	5388.71	182	182	5388.32	53	30	31	5.9	5388.32	5388.59	0.27
	3	2243	5390.23	314	314	5389.83	134	45	52	6.1	5389.83	5390.06	0.23
	3	2327	5391.97	314	314	5391.49	91	40	50	6.3	5391.49	5391.63	0.14
	3	2421	5393.48	314	314	5393.04	105	35	48	6.6	5393.04	5393.38	0.34
	3	2553	5395.99	314	314	5395.52	85	35	47	6.7	5395.52	5395.76	0.24
	3	2722	5399.33	314	314	5398.85	61	34	47	6.7	5398.85	5399.10	0.25
	3	2964	5402.53	314	314	5402.06	79	35	47	6.6	5402.06	5402.29	0.23
	3	3157	5403.76	314	314	5403.29	86	34	47	6.7	5403.30	5403.59	0.29
	3	3334	5408.65	314	314	5408.42	126	45	51	6.1	5408.42	5408.59	0.17
	3	3537	5412.70	314	314	5412.22	112	45	52	6.1	5412.22	5412.42	0.20
	3	3739	5415.95	314	314	5415.51	93	40	50	6.3	5415.51	5415.71	0.20
	3	3915	5418.91	314	314	5418.50	88	48	53	6.0	5418.50	5418.60	0.10
	3	4070	5421.60	314	314	5421.17	89	45	51	6.1	5421.17	5421.36	0.19
	3	4186	5423.68	314	314	5423.26	91	43	51	6.2	5423.26	5423.59	0.33
	4	4305	5425.21	70	70	5425.01	50	27	16	4.4	5425.02	5425.12	0.10
	4	4324	5425.72	70	70	5425.52	66	30	17	4.2	5425.53	5425.65	0.12
	4	4429	5427.77	70	70	5427.56	45	26	16	4.4	5427.56	5427.82	0.26
	4	4529	5430.01	70	70	5429.77	46	27	16	4.3	5429.77	5429.88	0.11
	4	4612	5432.12	70	70	5431.87	39	17	13	5.2	5431.88	5432.13	0.25
	4	4785	5435.42	70	70	5435.14	29	18	14	5.0	5435.14	5435.51	0.37
	4	4876	5437.05	70	70	5436.82	37	29	16	4.3	5436.80	5436.89	0.09
	5	5122	5443.22	130	130	5443.08	177	26	24	5.4	5443.08	5443.47	0.39
	5	5288	5447.96	130	130	5447.94	146	55	89	1.5	5447.94	5448.36	0.42
	5	5433	5452.68	130	130	5452.29	55	19	22	6.0	5452.28	5452.40	0.12

[1] Peak discharge for floodway may be higher than floodplain due to floodway consolidation from split flow paths

Table 4.3: Summary of Floodplain and Conveyance Zone Data - Twomile Canyon Creek (5 of 7)

Upper Goose Creek and Twomile Canyon Creek Flood Mapping Study Update

ICON Engineering, Inc.

River	Reach	Cross Section	Channel Invert (ft - NAVD 88)	Peak Discharge[1] Floodplain (cfs)	Peak Discharge[1] Conveyance Zone (cfs)	Water Surface Elevation (ft - NAVD 88)	Top Width (ft)	0.5-foot Rise Conveyance Zone Width (ft)	Area (sf)	Mean Vel. (ft/s)	Regulatory (ft - NAVD 88)	With Conveyance Zone (ft - NAVD 88)	Increase (ft)
Twomile Canyon	6	5944	5465.31	278	278	5465.24	205	75	71	3.9	5465.24	5465.23	-0.01
Creek - Split	6	6082	5469.54	278	278	5469.18	84	40	46	6.1	5469.18	5469.40	0.22
Flow 1	6	6177	5471.19	278	278	5470.88	99	40	46	6.1	5470.88	5471.06	0.18
	6	6244	5475.16	278	278	5474.75	87	27	16	4.3	5474.23	5474.51	0.28
	6	6392	5478.98	278	278	5478.93	66	35	58	1.4	5477.67	5478.03	0.36
	6	6468	5480.07	278	278	5479.94	45	25	39	2.4	5478.77	5479.13	0.36
	6	6559	5483.91	278	278	5483.46	39	15	32	4.3	5482.79	5483.27	0.48
	6	6680	5487.28	278	278	5487.23	126	55	93	2.2	5486.80	5487.10	0.30
	6	6770	5488.01	278	278	5487.98	134	50	139	2.0	5487.79	5488.24	0.45
	6	6977	5494.06	278	278	5493.75	104	65	54	5.1	5493.75	5493.81	0.06
	6	7148	5500.78	278	278	5500.69	189	35	101	2.8	5500.69	5501.15	0.46
	6	7247	5502.86	278	278	5502.76	140	63	191	2.5	5502.76	5503.12	0.36
	6	7408	5509.50	326	326	5509.18	117	65	61	5.4	5509.18	5509.46	0.28
	6	7550	5514.94	326	326	5514.19	76	69	67	4.9	5514.19	5514.19	0.00
	6	7712	5520.47	326	326	5520.30	99	34	85	3.9	5520.30	5520.73	0.43
	6	7933	5529.28	326	326	5529.16	250	75	109	3.0	5529.16	5529.63	0.47
	6	8109	5535.79	326	326	5535.72	190	70	116	2.8	5535.72	5535.93	0.21
	6	8352	5546.15	385	385	5545.73	273	32	53	7.3	5545.73	5545.98	0.25
	6	8447	5549.76	385	385	5549.31	283	56	63	6.1	5549.31	5549.37	0.06
	6	8612	5558.99	385	385	5558.57	133	45	59	6.5	5558.57	5558.77	0.20
	6	8699	5563.47	385	385	5562.98	74	40	57	6.8	5562.98	5563.13	0.15
	7	8826	5569.22	247	247	5568.92	108	40	42	5.8	5568.92	5569.11	0.19
	7	8909	5573.85	247	247	5573.58	161	55	47	5.3	5573.58	5573.75	0.17
	7	9043	5582.44	247	247	5582.12	92	50	66	3.8	5582.12	5582.57	0.45
	7	9130	5588.09	247	247	5587.55	47	53	46	5.3	5587.55	5587.86	0.31
Twomile Canyon	1	79	5565.08	138	138	5566.19	38	20	23	6.1	5566.19	5566.35	0.16
Creek- Split	1	190	5569.53	138	138	5570.51	43	25	25	5.6	5570.51	5570.66	0.15
Flow 1-4th	1	260	5573.23	138	138	5574.31	35	23	24	5.8	5574.31	5574.53	0.22
	1	334	5577.82	244	244	5579.23	91	37	41	6.0	5579.23	5579.35	0.12
	1	415	5582.11	244	244	5583.45	61	45	67	3.6	5583.45	5583.68	0.23
Twomile Canyon	1	91	5363.37	132	132	5365.50	97	25	48	2.8	5365.50	5365.72	0.22
Creek- Split	1	162	5363.12	132	132	5365.52	114	30	70	1.9	5365.52	5365.81	0.29
Flow 1-Elder	1	234	5363.57	132	132	5365.52	101	30	55	2.4	5365.52	5365.80	0.28
	1	320	5364.79	132	132	5365.67	70	30	25	5.3	5365.67	5365.94	0.27
	1	459	5366.70	132	132	5367.70	48	30	25	5.3	5367.69	5367.91	0.22
	1	536	5371.34	132	132	5372.29	59	30	25	5.2	5372.29	5372.46	0.17
	1	670	5374.64	132	132	5375.66	51	30	25	5.2	5375.66	5375.85	0.19
	1	772	5376.76	132	132	5377.77	45	31	26	5.2	5377.77	5377.90	0.13
	1	880	5378.17	132	132	5379.17	51	29	25	5.3	5379.18	5379.36	0.18
	1	1028	5379.97	132	132	5381.03	40	28	25	5.4	5381.03	5381.21	0.18
	1	1436	5385.59	132	132	5386.85	60	29	25	5.3	5386.85	5387.04	0.19
	1	1548	5387.18	132	132	5388.38	49	29	24	5.4	5388.37	5388.57	0.20

[1] Peak discharge for floodway may be higher than floodplain due to floodway consolidation from split flow paths

Table 4.3: Summary of Floodplain and Conveyance Zone Data - Twomile Canyon Creek (6 of 7)

Upper Goose Creek and Twomile Canyon Creek Flood Mapping Study Update

ICON Engineering, Inc.

River	Reach	Cross Section	Channel Invert (ft - NAVD 88)	Peak Discharge[1] Floodplain (cfs)	Peak Discharge[1] Conveyance Zone (cfs)	Water Surface Elevation (ft - NAVD 88)	Top Width (ft)	0.5-foot Rise Conveyance Zone Width (ft)	Area (sf)	Mean Vel. (ft/s)	Regulatory (ft - NAVD 88)	With Conveyance Zone (ft - NAVD 88)	Increase (ft)
Twomile Canyon	1	75	5423.64	244	244	5424.82	112	42	42	5.8	5424.83	5425.07	0.24
Creek - Split	1	127	5424.28	244	244	5425.63	97	38	41	6.0	5425.63	5425.82	0.19
Flow 1-Grape	1	226	5425.78	244	244	5427.21	57	39	41	5.9	5427.21	5427.35	0.14
	1	345	5428.12	244	244	5429.50	69	39	41	5.9	5429.50	5429.70	0.20
	1	441	5430.20	244	244	5431.56	74	39	41	5.9	5431.56	5431.76	0.20
	2	533	5433.30	61	61	5434.01	76	20	13	4.6	5434.01	5434.27	0.26
	2	623	5434.70	61	61	5435.82	46	15	12	5.1	5435.82	5436.08	0.26
	2	665	5435.40	61	61	5436.51	45	16	12	4.9	5436.53	5436.81	0.28
	2	751	5437.05	61	61	5438.11	48	15	12	5.0	5438.11	5438.33	0.22
	2	766	5437.12	61	61	5438.31	33	11	11	5.6	5438.32	5438.49	0.17
Twomile Canyon	1	46	5431.81	184	184	5432.95	75	44	36	5.1	5432.95	5433.12	0.17
Creek - Split	1	157	5434.42	184	184	5435.55	65	41	35	5.3	5435.55	5435.70	0.15
Flow 1-Hawthorn	1	257	5436.64	184	184	5437.75	66	41	35	5.3	5437.75	5437.90	0.15
	1	366	5439.01	148	148	5440.14	47	28	27	5.6	5440.15	5440.31	0.16
	1	539	5442.72	148	148	5443.72	90	30	27	5.5	5443.73	5444.01	0.28
	1	763	5447.42	148	148	5448.52	61	32	28	5.3	5448.52	5448.69	0.17
	1	984	5451.58	148	148	5452.36	78	44	32	4.6	5452.36	5452.80	0.44
Twomile Canyon	1	78	5328.08	222	222	5329.25	111	65	46	4.8	5329.25	5329.29	0.04
Creek - Split	1	366	5330.18	222	222	5331.30	124	74	48	4.7	5331.30	5331.30	0.00
Flow 2	1	563	5333.25	222	222	5334.13	207	85	50	4.5	5334.13	5334.45	0.32
	1	802	5335.85	222	222	5337.12	105	72	47	4.7	5337.12	5337.16	0.04
	1	975	5338.20	222	222	5339.27	128	67	47	4.8	5339.27	5339.64	0.37
	1	1300	5343.41	222	222	5344.61	82	55	43	5.1	5344.61	5344.68	0.07
	1	1628	5348.78	222	222	5349.90	81	56	44	5.1	5349.90	5350.02	0.12
	1	1935	5354.49	222	222	5355.86	83	51	42	5.2	5355.86	5356.13	0.27
	1	2208	5359.91	222	222	5361.41	63	59	44	5.0	5361.41	5361.40	-0.01
	1	2406	5363.55	222	222	5365.06	76	55	43	5.2	5365.06	5365.14	0.08
	1	2561	5366.36	222	222	5367.89	63	55	43	5.1	5367.89	5367.91	0.02
	1	2727	5369.40	258	258	5370.75	115	55	48	5.4	5370.75	5370.78	0.03
	1	2915	5373.63	258	258	5375.01	73	65	52	5.0	5375.01	5375.01	0.00
	1	3071	5377.68	258	258	5378.92	85	71	52	4.9	5378.92	5378.95	0.03
	1	3117	5378.79	258	258	5379.97	88	68	52	5.0	5379.97	5380.01	0.04
	1	3270	5381.14	250	250	5382.23	88	67	50	5.0	5382.23	5382.31	0.08
	1	3402	5382.45	250	250	5384.19	226	44	44	5.7	5384.19	5384.21	0.02
	1	3484	5383.52	250	250	5384.94	202	50	46	5.5	5384.94	5385.29	0.35
	1	3568	5385.56	250	250	5386.75	66	48	46	5.5	5386.75	5386.97	0.22
	1	3679	5387.86	250	250	5389.03	78	45	44	5.7	5389.03	5389.33	0.30
	1	3841	5391.15	250	250	5392.49	123	49	45	5.5	5392.49	5392.70	0.21
	1	4041	5399.65	250	250	5400.65	108	72	55	4.6	5400.65	5401.11	0.46
	1	4216	5403.52	250	250	5404.85	196	53	46	5.4	5404.85	5405.06	0.21
	1	4543	5409.55	250	250	5410.57	130	60	48	5.2	5410.57	5410.85	0.28
	1	4591	5409.84	250	250	5411.85	128	58	48	5.2	5411.85	5412.17	0.32
	1	4927	5417.50	250	250	5420.34	90	70	51	4.9	5420.34	5420.69	0.35

[1] Peak discharge for floodway may be higher than floodplain due to floodway consolidation from split flow paths

Table 4.3: Summary of Floodplain and Conveyance Zone Data - Twomile Canyon Creek (7 of 7)
Upper Goose Creek and Twomile Canyon Creek Flood Mapping Study Update
ICON Engineering, Inc.

River	Reach	Cross Section	Channel Invert (ft - NAVD 88)	Peak Discharge[1] Floodplain (cfs)	Peak Discharge[1] Conveyance Zone (cfs)	Water Surface Elevation (ft - NAVD 88)	Top Width (ft)	0.5-foot Rise Conveyance Zone Width (ft)	Area (sf)	Mean Vel. (ft/s)	Regulatory (ft - NAVD 88)	With Conveyance Zone (ft - NAVD 88)	Increase (ft)
Twomile Canyon	1	5571	5437.53	250	250	5438.89	155	88	65	3.9	5438.89	5439.24	0.35
Creek - Split	1	5725	5440.15	237	237	5441.65	45	25	35	6.8	5441.65	5441.67	0.02
Flow 2	1	5962	5447.85	237	237	5449.42	83	55	75	3.2	5449.42	5449.90	0.48
	1	6087	5452.38	237	237	5453.89	156	57	48	4.9	5453.89	5453.88	-0.01
	1	6165	5454.79	237	237	5455.84	141	50	48	4.9	5455.84	5456.05	0.21
	1	6313	5459.29	237	237	5460.54	111	56	54	4.4	5460.54	5460.70	0.16
	1	6385	5461.17	237	237	5462.78	299	110	151	1.6	5462.78	5463.27	0.49
	1	6524	5465.10	237	237	5466.93	149	60	55	4.3	5466.93	5467.17	0.24
	1	6656	5471.04	237	237	5472.33	258	70	114	2.1	5472.33	5472.81	0.48
	1	6743	5473.60	237	237	5475.45	112	27	49	4.8	5475.45	5475.65	0.20
	1	6941	5479.61	237	237	5480.72	75	50	47	5.0	5480.72	5480.78	0.06
	1	7123	5484.35	237	237	5486.42	61	32	40	6.0	5486.42	5486.49	0.07
	1	7287	5491.38	237	237	5492.99	245	60	112	2.1	5492.99	5493.47	0.48
	1	7371	5494.84	237	237	5496.06	110	70	69	3.4	5496.06	5496.06	0.00
	1	7510	5500.31	237	237	5503.20	174	66	93	2.6	5503.20	5503.30	0.10
	1	7625	5504.68	237	237	5507.03	137	31	54	4.4	5507.03	5507.48	0.45
	1	7708	5508.06	237	237	5509.75	75	64	98	2.4	5509.75	5510.18	0.43
	1	7766	5509.68	237	237	5511.99	104	22	43	5.5	5511.99	5511.99	0.00
	1	7815	5513.06	237	237	5514.40	78	30	37	6.4	5514.40	5514.61	0.21
Twomile Canyon	1	102	5542.70	106	106	5543.59	62	22	20	5.4	5543.59	5543.72	0.13
Creek - Split	1	264	5551.87	106	106	5553.34	60	30	47	2.3	5553.34	5553.73	0.39
Flow-4th	1	407	5560.44	106	106	5561.31	82	25	23	4.7	5561.31	5561.47	0.16
	1	510	5566.38	106	106	5567.54	91	40	50	2.1	5567.53	5567.94	0.41
	1	645	5572.58	106	106	5573.81	52	26	30	3.6	5573.81	5574.14	0.33
Twomile Canyon	1	53	5562.02	66	0	5563.59	12	--	--	--	--	--	--
Creek - Split	1	79	5563.89	61	0	5565.44	14	--	--	--	--	--	--
Flow-Linden	1	113	5565.73	54	0	5567.23	17	--	--	--	--	--	--
	1	169	5568.08	54	0	5569.45	14	--	--	--	--	--	--
	1	228	5570.31	0	0	5571.17	8	--	--	--	--	--	--
								--	--	--	--	--	--
Twomile Canyon	1	186	5586.67	244	244	5588.41	97	40	44	5.6	5588.41	5588.47	0.06
Creek - Split	1	298	5591.90	491	491	5594.14	82	40	66	7.4	5594.14	5594.24	0.10
Flow-Valley	1	447	5599.03	491	491	5600.30	117	60	76	6.5	5600.30	5600.48	0.18
	1	495	5600.90	491	491	5602.44	97	45	69	7.1	5602.44	5602.63	0.19
	1	536	5603.18	491	491	5605.27	97	40	67	7.4	5605.27	5605.32	0.05

[1] Peak discharge for floodway may be higher than floodplain due to floodway consolidation from split flow paths

SECTION 5.0: DETERMINATION OF FLOODPLAIN BOUNDARIES

Floodplain workmaps have been prepared for Upper Goose Creek and Twomile Canyon Creek. Figure 5.1 illustrates the floodplain workmap index, and Figures 5.2 through 5.9 are detailed floodplain workmaps for the 100- and 500-year events. Figure 5.11 illustrates the High Hazard area and Figures 5.12 through 5.14 depict the 10-, 25-, and 50-year floodplains. Floodplain elements shown on the workmaps and their general development are discussed below.

5.1 Zone AE with BFEs and Zone X (100-year)

The HEC-RAS model results were delineated in GIS to develop the 100-year (Zone AE) floodplain and associated Base Flood Elevations (BFEs). Floodplain delineation and BFE placements were based on 1-foot topographical mapping developed from the LiDAR data provided by the City of Boulder. As previously noted, there are extensive reaches of HEC-RAS modeling that result in vertically extended cross sections. For areas of vertically extended cross sections that averaged spill depths less than 0.5 feet, no shallow flooding zone was shown and the 100-year floodplain delineation was limited to the outer limits of the HEC-RAS cross sections. As a consequence the 100-year floodplain delineation and BFE placement do not correlate exactly with the ground surface in these areas.

For vertically extended cross section reaches that averaged spill depths greater than 0.5 feet but less than 1.0 feet, Zone X (100-year) shallow flooding zones were developed based on anticipated shallow flooding. For these areas the 100-year floodplain is also drawn to the outer limits of the HEC-RAS cross sections which then abuts the Zone X (100-year) boundary. The BFEs adjacent to these areas are shown to extend to the limits of the Zone AE boundary.

There are several locations where an upstream cross section indicates a wide floodplain top width but the next downstream cross section indicates that the floodplain is contained in the channel or low area with a much smaller top width. Typically these areas were addressed by using a Zone X (100-year) designation, but in minor cases the 100-year floodplain was just shown to spill through the next downstream cross section resulting in a larger top width at the downstream cross section than the model indicates.

Every whole foot BFE is included on the floodplain workmaps for Upper Goose Creek. For clarity, only the 5-foot interval BFEs are included for Twomile Canyon Creek. Additional BFEs for Twomile Canyon Creek may be shown on the LOMR submittal workmaps as necessary to meet FEMA criteria.

5.2 Zone AO

Areas with HEC-RAS cross sections that are vertically extended along the main flow path are indicative of locations where flow will diverge and continue overland along a different path. This flow is generally shallow and spread out by nature, typical of a FEMA Zone AO shallow flooding designation. For areas with cross

section extensions greater than 0.5 feet in depth, shallow flooding zones were added to the flood map. Zone AO areas were generally delineated based on topographic boundaries leaving and re-entering the main flow paths. For areas with an average overland flow depth between 1.0 feet and 1.5 feet, a Zone AO (1 foot) designation was used. For areas with an average overland flow depth between 1.5 feet and 2.5 feet, a Zone AO (2 foot) designation was used. In most cases average flow depths were estimated using supplemental hydraulic calculations along the more dominant route for the overland flow. A workmap showing these locations and corresponding depth calculations are included in Appendix D. At other locations more detailed estimates were made using lateral routines in HEC-RAS. This was completed along Split Flow 1 between stations 62+00 and 70+00. A supplemental map displaying these calculations is also provided in Appendix D.

5.3 Conveyance Zone

Conveyance zones throughout the major flow paths were developed based on a 0.5 foot rise criteria. For flow paths along City of Boulder streets, the conveyance zone encroachment was generally limited to the right-of-way on each side of the roadway. No additional optimization of the conveyance zone was completed provided the encroachment limited the conveyance zone to within the City of Boulder right-of-way. For conveyance zones within channels or other low-lying areas, the conveyance zone was optimized in greater detail in order to maximize the 0.5 foot rise criteria. For minor split flow reaches where the full discharge could be carried within the dominant flow path and still meet the 0.5 foot rise criteria, a conveyance zone was not developed.

Conveyance zone topwidths are based on the HEC-RAS output at each cross section. Between cross sections the conveyance zone has been estimated based on the channel or low lying area shape and conveyance zone topwidths at adjacent cross sections. Significant reaches of conveyance zone occur where the 100-year floodplain and conveyance zone are coincident.

5.4 Zone X (500-year)

The Zone X (500-year) floodplain for Upper Goose Creek is based on the HEC-RAS cross sections and corresponding water surface elevations. Areas where the 500-year floodplain is significantly different from the 100-year floodplain have been delineated as Zone X (500-year) and are shown on the floodplain workmaps.

The Zone X (500-year) floodplain for Twomile Canyon Creek is based on the FLO-2D model results for the 500-year event. As discussed with the project team and FEMA representatives, the 500-year floodplain extents from the FLO-2D model were limited to areas of 0.25 feet of depth or greater. The Zone X (500-year) floodplain was then delineated according to the FLO-2D limits and is shown on the floodplain workmaps.

5.5 Comparison to the Effective Floodplain

A comparison of the proposed and effective floodplains is presented in Figure 5.10. The general alignment of the proposed Twomile Creek floodplain is similar to that of the effective floodplain with notable differences including the two split flow reaches, particularly Split Flow 1 to the south of the main channel. The proposed floodplain is generally narrower in width east of Broadway compared to the effective floodplain. This is likely due to discharges being allocated to both split flows and no longer conveyed by the primary flow path alignment.

The proposed Goose Creek floodplain is similar to the effective floodplain with some areas of floodplain and conveyance zone width reduction.

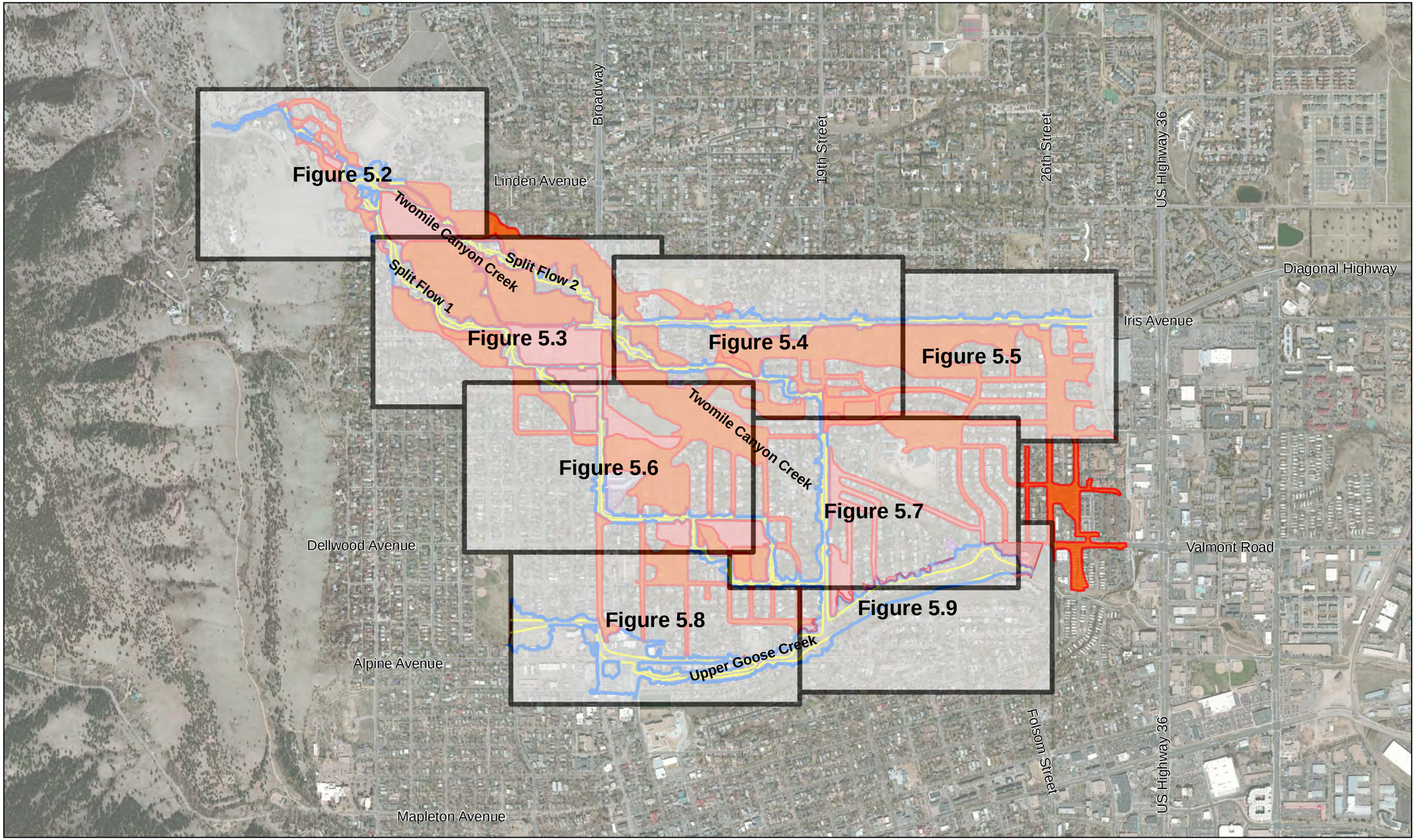
The effective 100-year floodplain impacted approximately 406 structures, while the proposed 100-year floodplain impacts approximately 309 structures within the project reach.

5.6 High Hazard Area

The high hazard areas were delineated based on depth and product of depth and velocity values per the City of Boulder Criteria. Areas of 100-year floodplain depth equal to or greater than 4.0 feet, and/or areas where the depth multiplied by the velocity is equal or greater than 4.0 feet^2 per second were shown as High Hazard. All depth and velocity values were taken from the HEC-RAS model and interpolated using the Post-RAS GIS software. The resulting depth and velocity rasters were then used to determine areas that satisfy the High Hazard criteria. The High Hazard areas are illustrated in Figure 5.11.

5.7 10-, 25-, and 50-year Floodplains

Floodplains for the 10-, 25-, and 50-year events were delineated based on HEC-RAS model results. Shallow flooding areas were delineated in areas of vertically extended cross sections in similar fashion as the 100-year event. However, distinctions between Zone AO and Zone X were not made. Average shallow flooding depths are included in the GIS data for reference. The 10-, 25-, and 50-year floodplains are illustrated in Figures 5.12, 5.13, and 5.14 respectively.

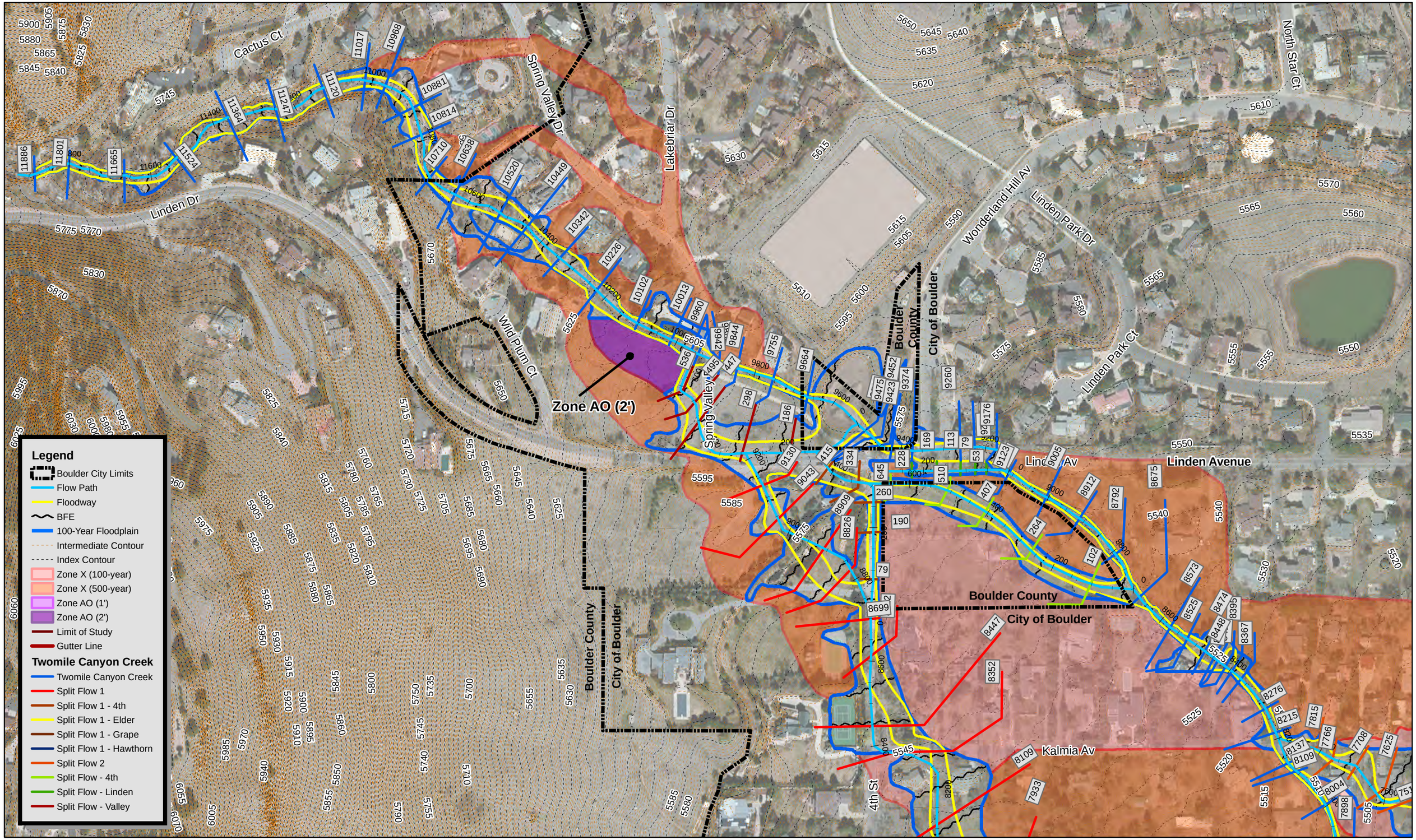


ICON ENGINEERING, INC.

Figure 5.1 - Upper Goose Creek and Twomile Canyon Creek Floodplain Workmap Index Sheet

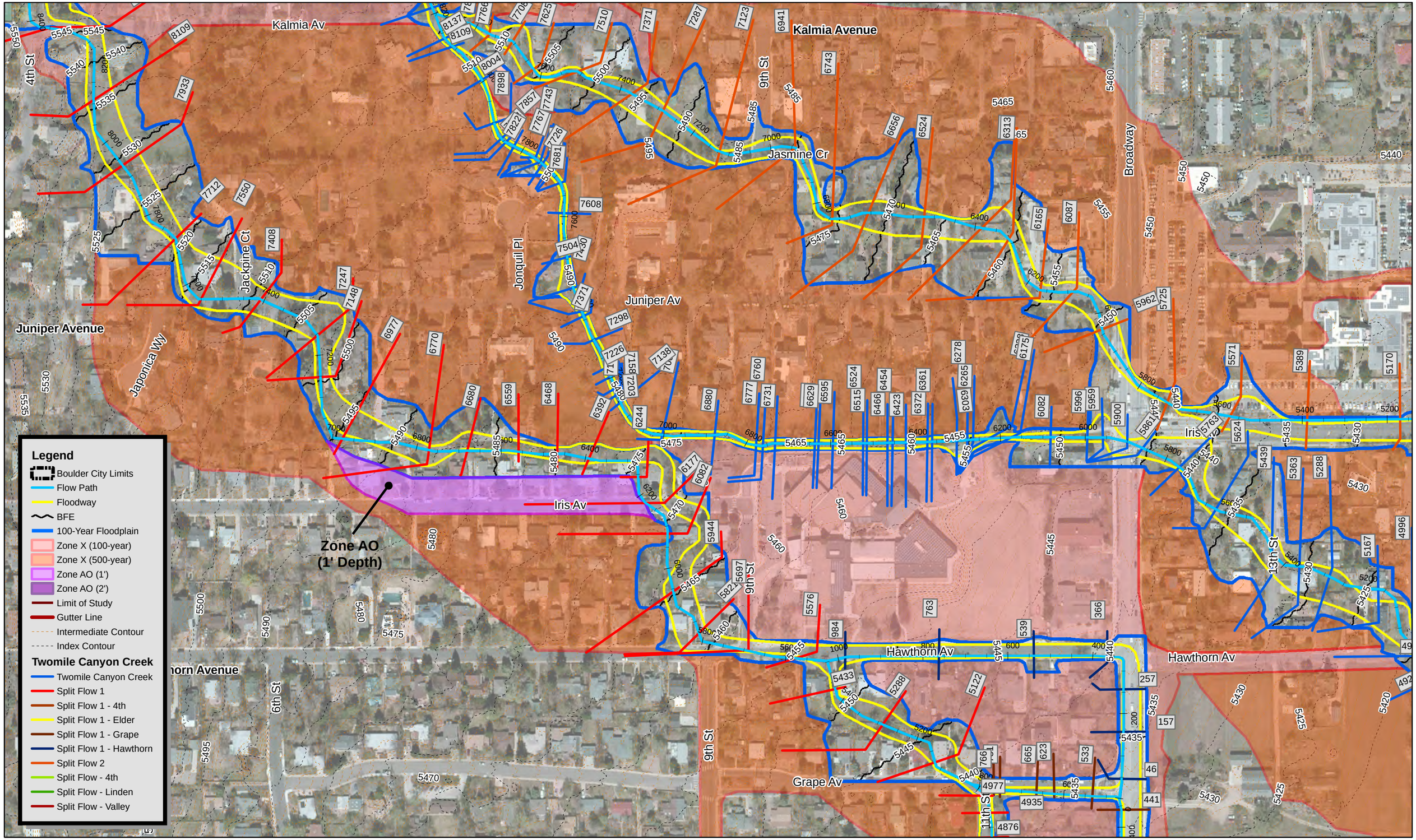
N

1,000 Feet



ICON ENGINEERING, INC.

Figure 5.2 - Upper Goose Creek and Twomile Canyon Creek Floodplain Workmap

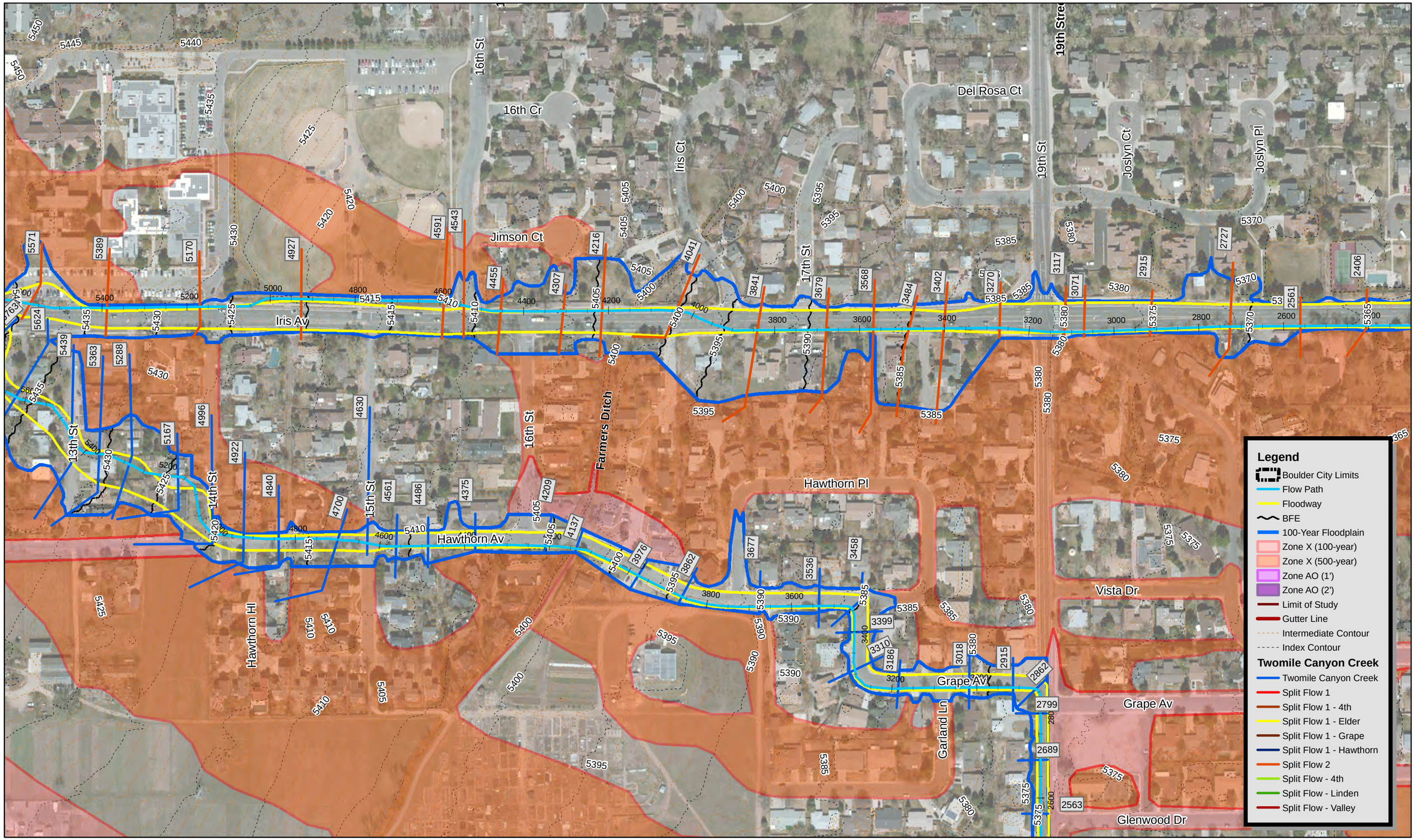


ICON ENGINEERING, INC.

Figure 5.3 - Upper Goose Creek and Twomile Canyon Creek Floodplain Workmap

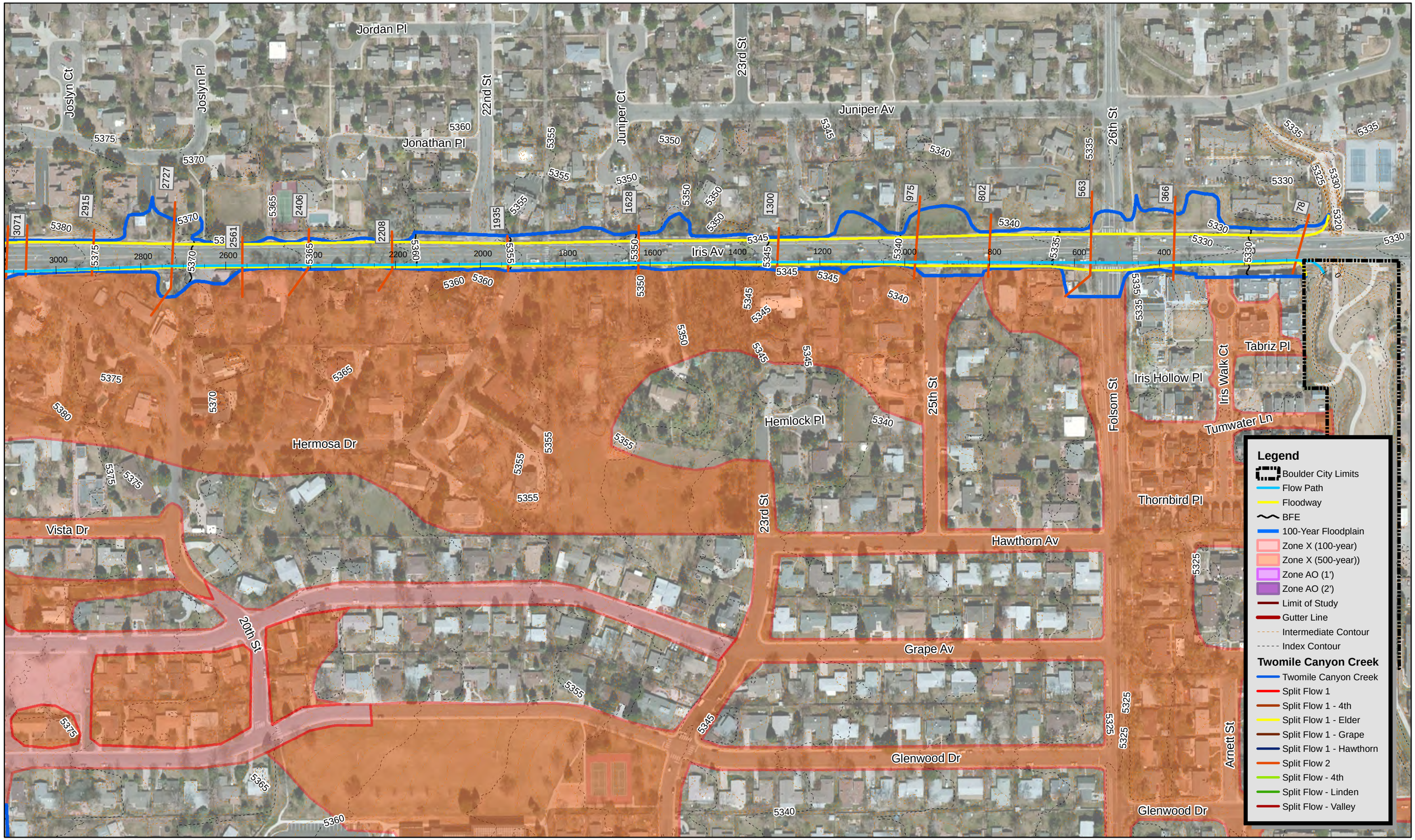
N

200 Feet



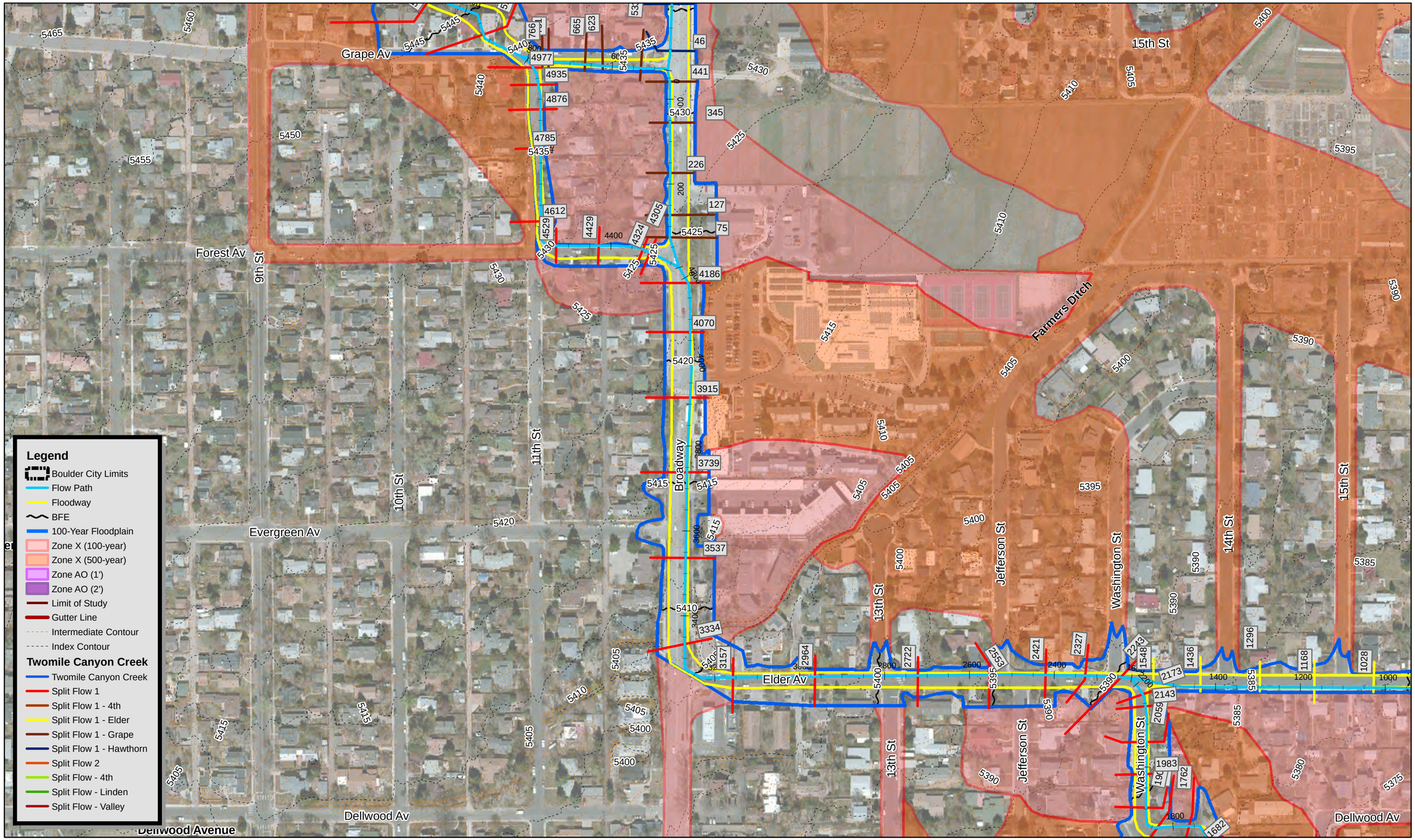
ICON ENGINEERING, INC.

Figure 5.4 - Upper Goose Creek and Twomile Canyon Creek Floodplain Workmap



ICON ENGINEERING, INC.

Figure 5.5 - Upper Goose Creek and Twomile Canyon Creek Floodplain Workmap

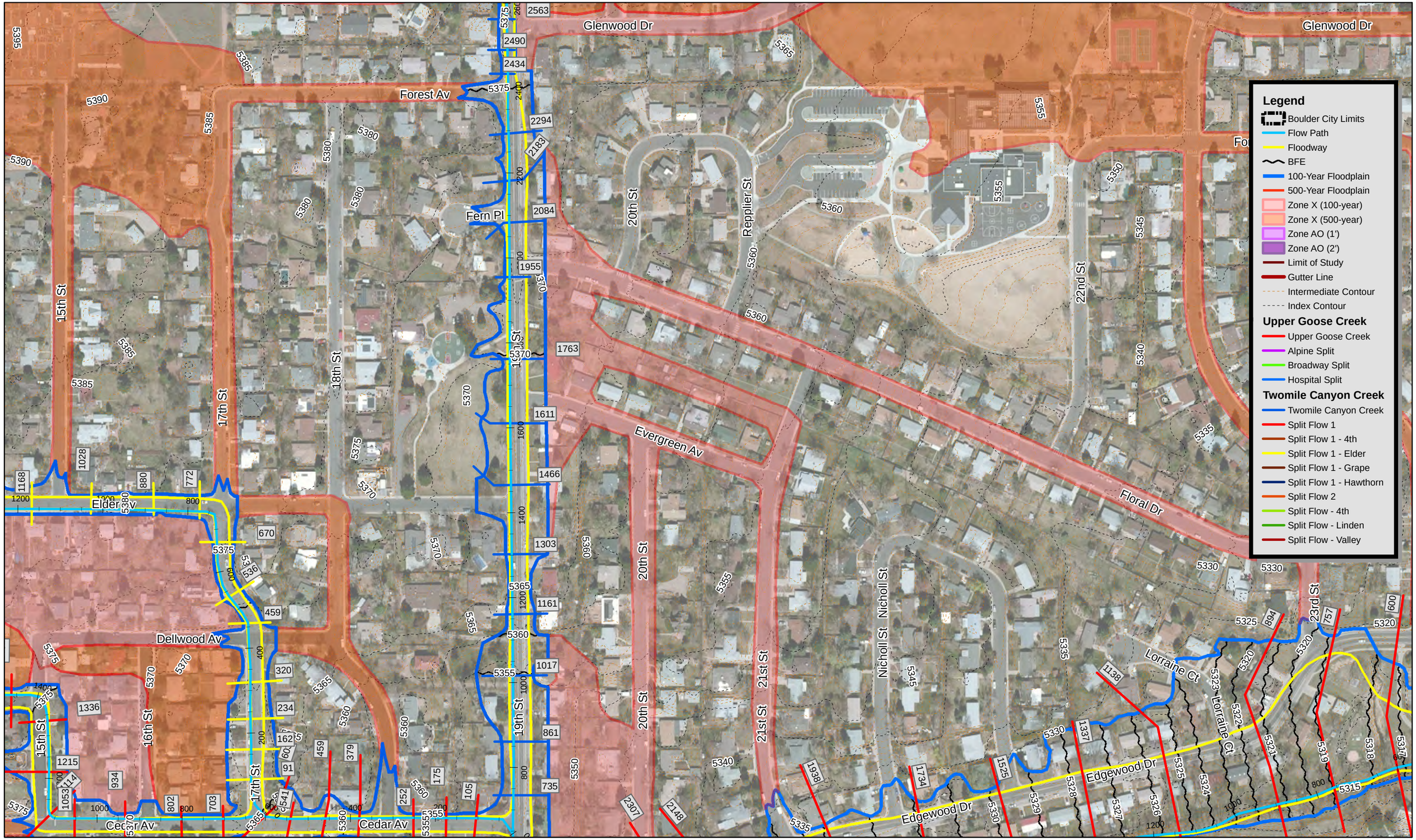


ICON ENGINEERING, INC.

Figure 5.6 - Upper Goose Creek and Twomile Canyon Creek Floodplain Workmap

N

200 Feet

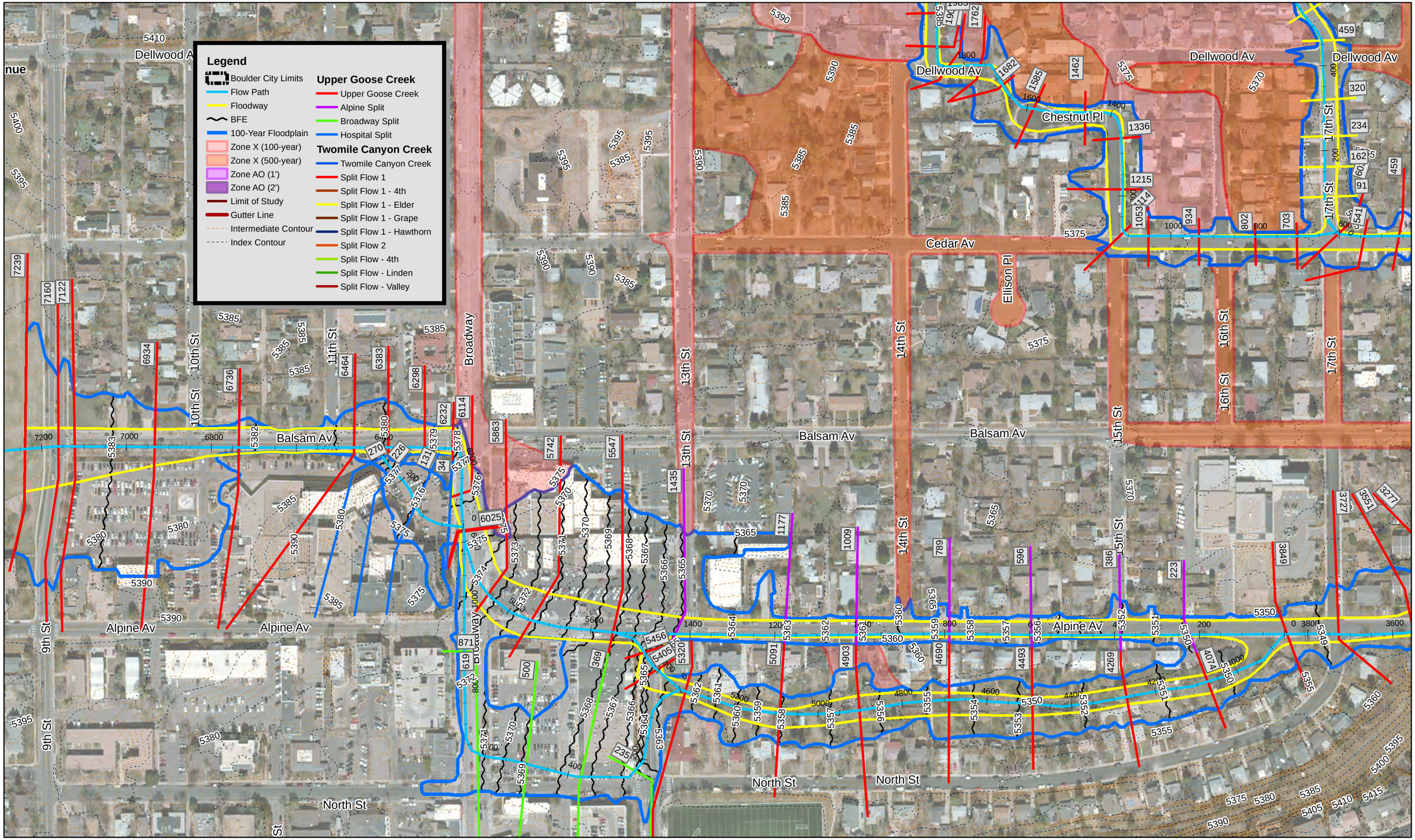


ICON ENGINEERING, INC.

Figure 5.7 - Upper Goose Creek and Twomile Canyon Creek Floodplain Workmap

N

200 Feet

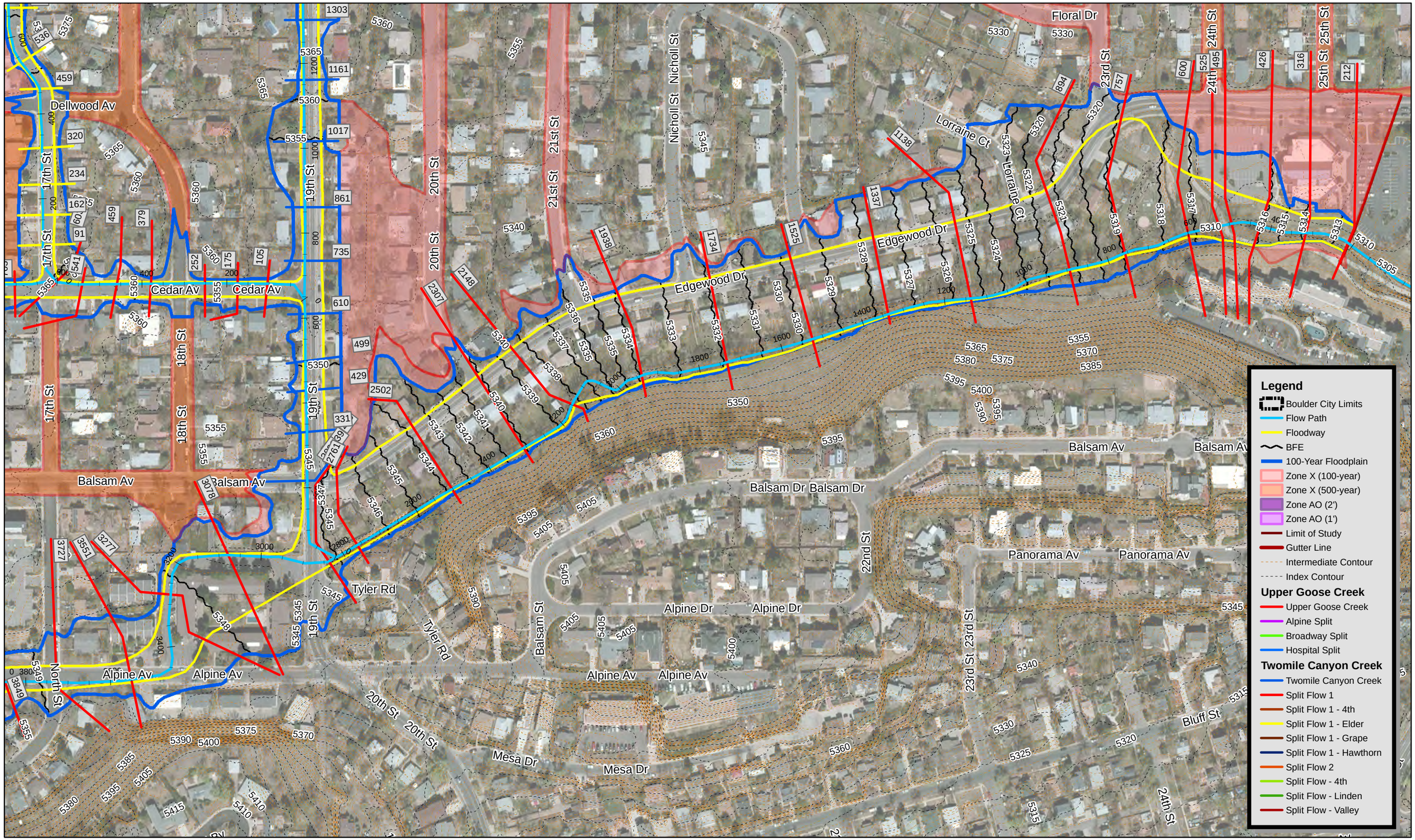


ICON ENGINEERING, INC.

Figure 5.8 - Upper Goose Creek and Twomile Canyon Creek Floodplain Workmap

N

200 Feet

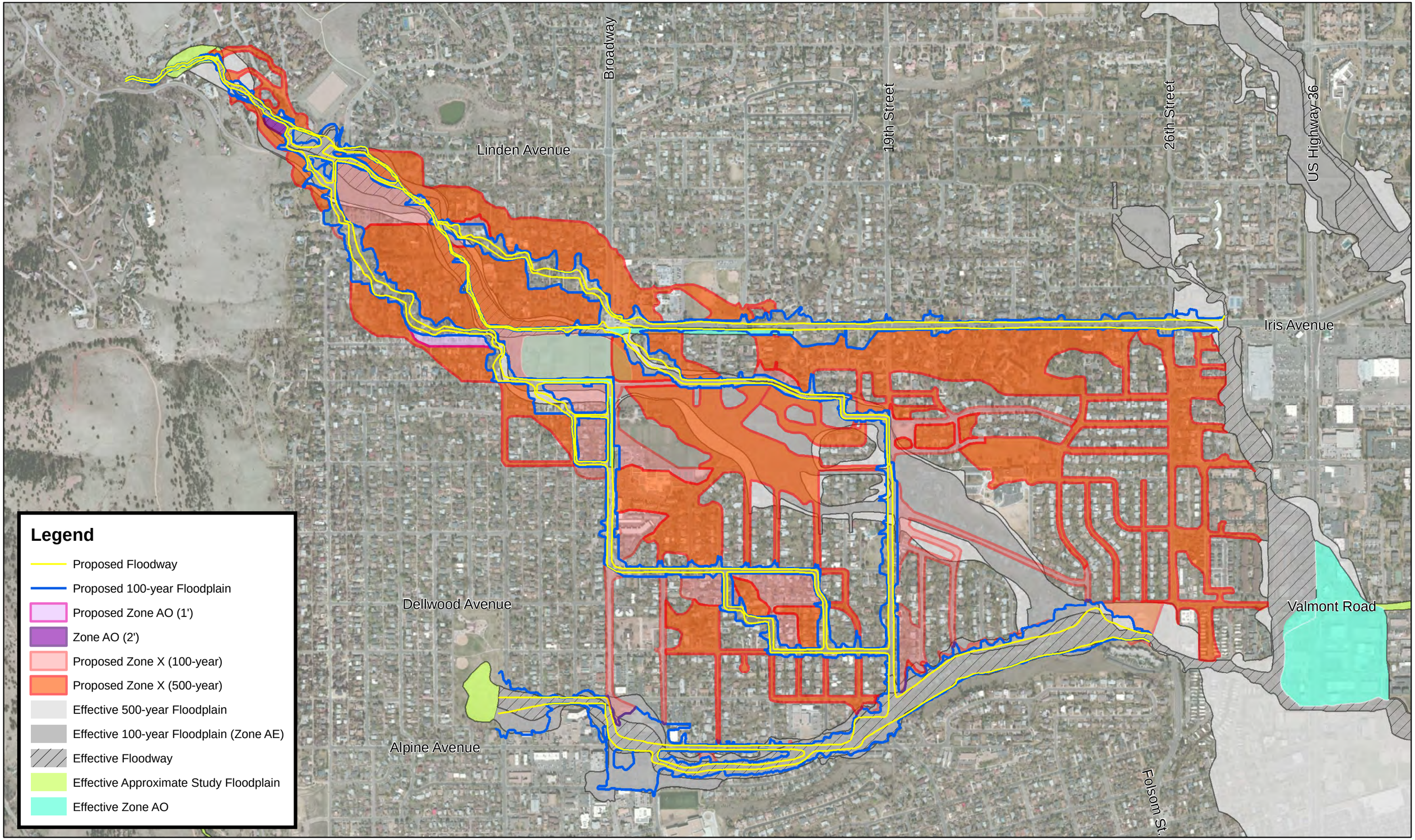


ICON ENGINEERING, INC.

Figure 5.9 - Upper Goose Creek and Twomile Canyon Creek Floodplain Workmap

N

200 Feet

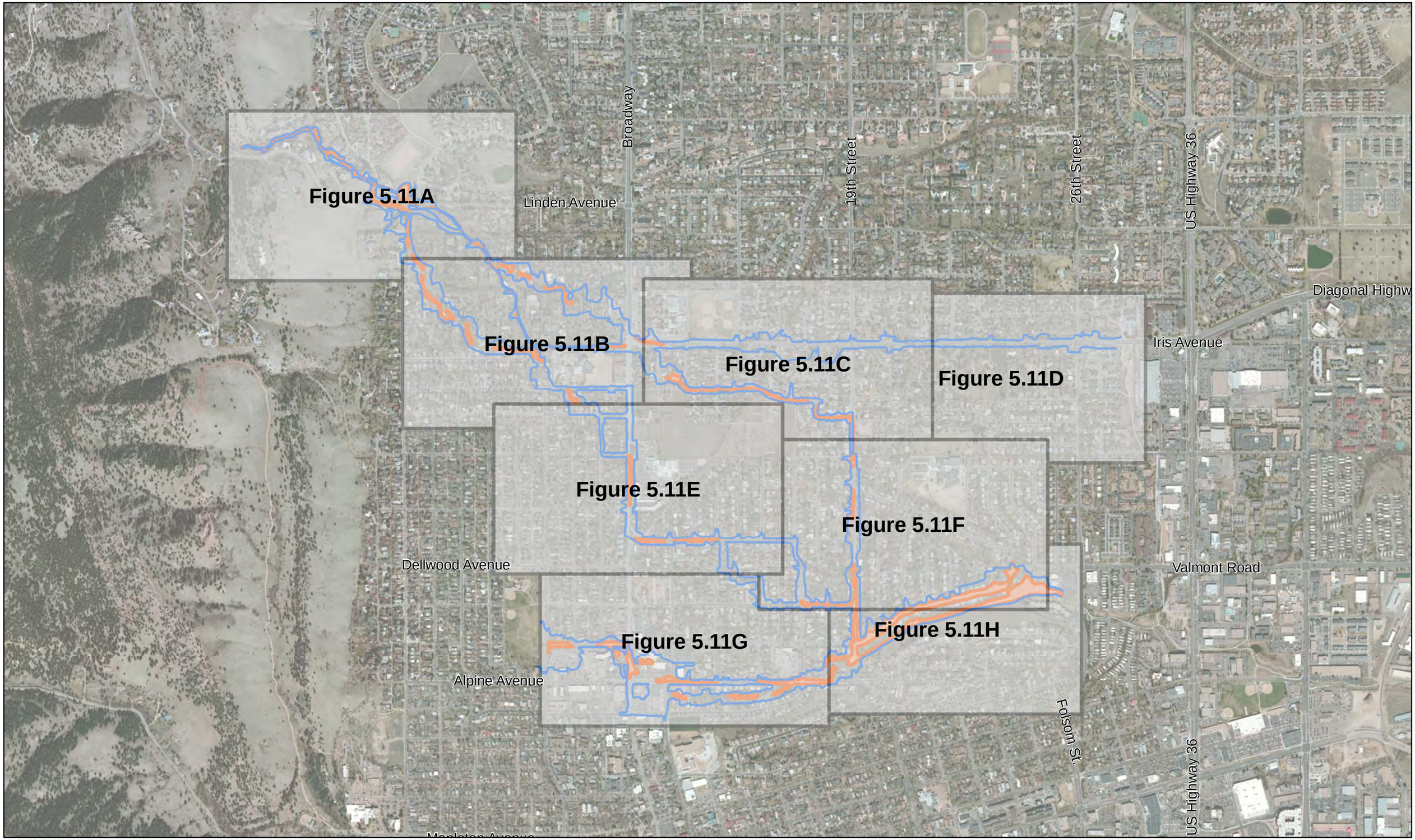


ICON ENGINEERING, INC.

Figure 5.10 - Upper Goose Creek and Twomile Canyon Creek Floodplain Workmap Proposed vs. Effective

N

800 Feet

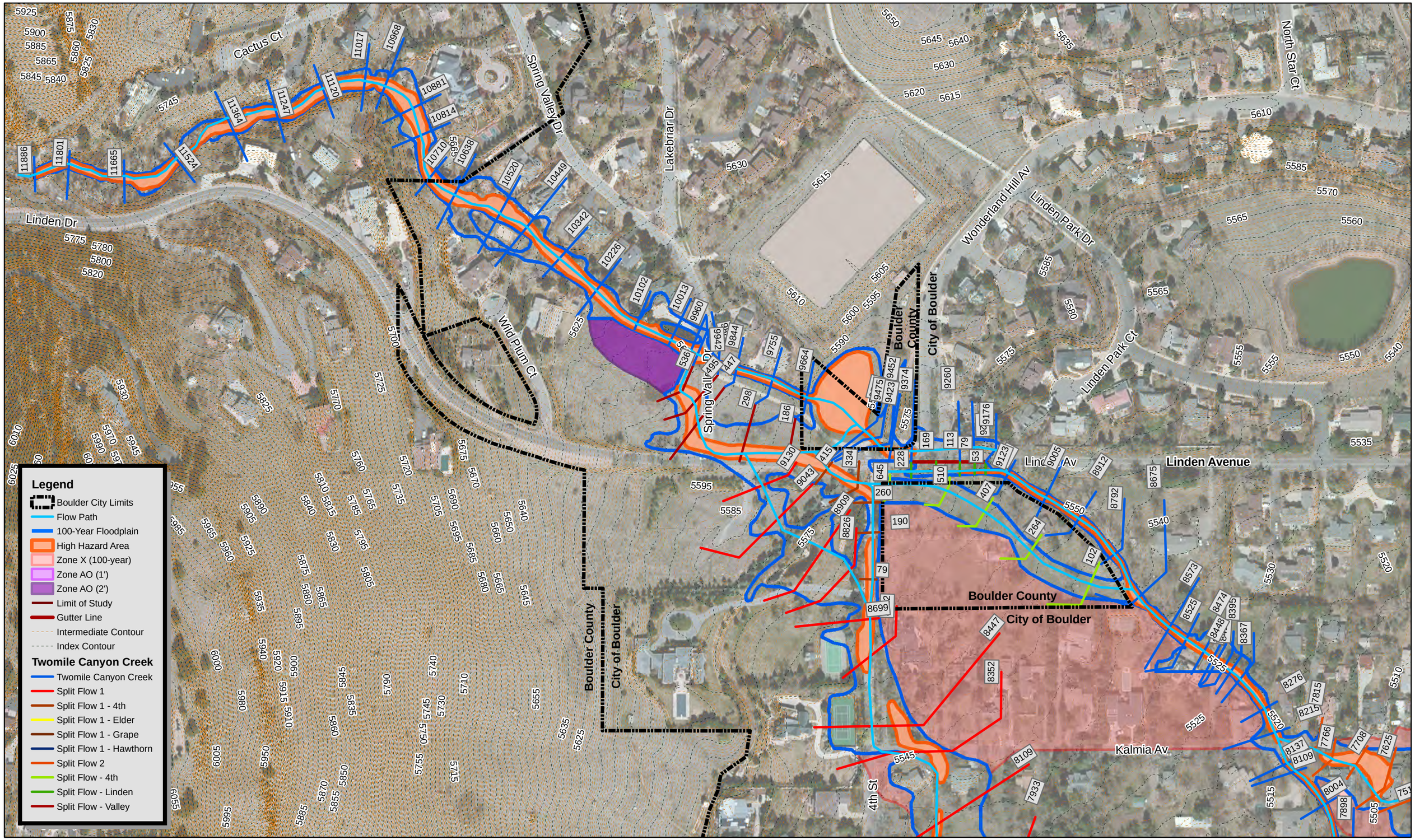


ICON ENGINEERING, INC.

Figure 5.11 - Upper Goose Creek and Twomile Canyon Creek Floodplain Workmap - High Hazard Area

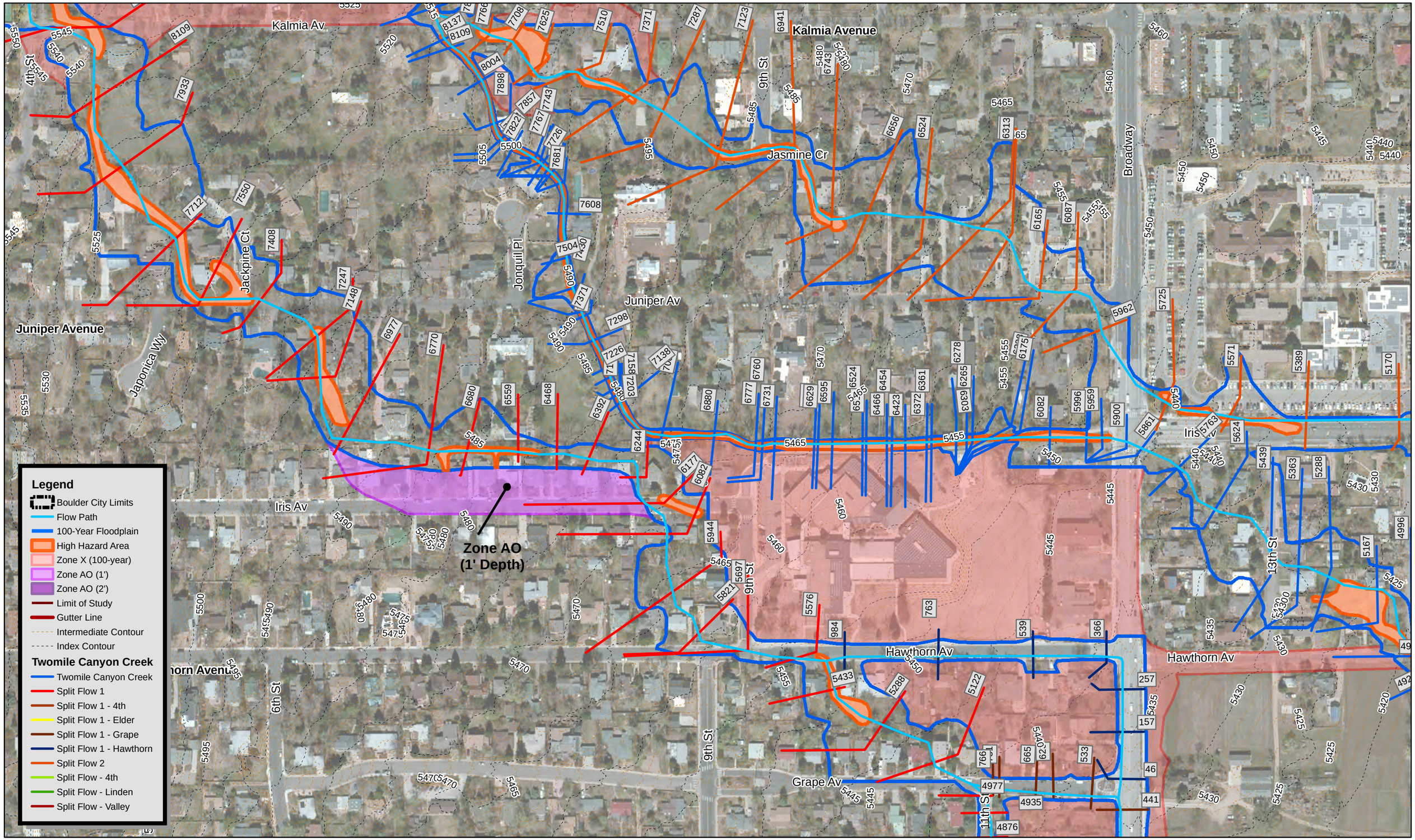
N

1,000 Feet



ICON ENGINEERING, INC.

Figure 5.11A - Upper Goose Creek and Twomile Canyon Creek Floodplain Workmap - High Hazard Area

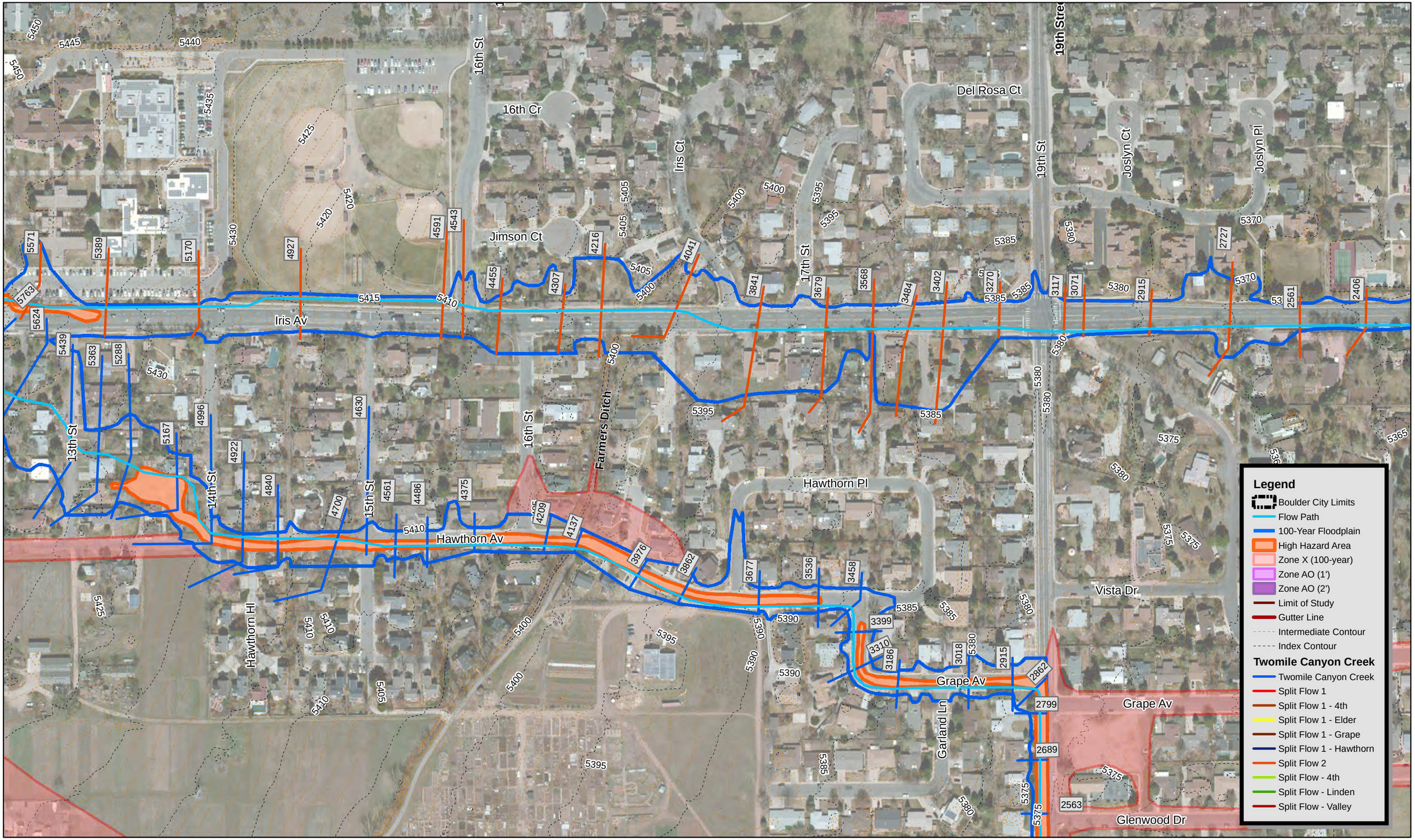


ICON ENGINEERING, INC.

Figure 5.11B - Upper Goose Creek and Twomile Canyon Creek Floodplain Workmap - High Hazard Area

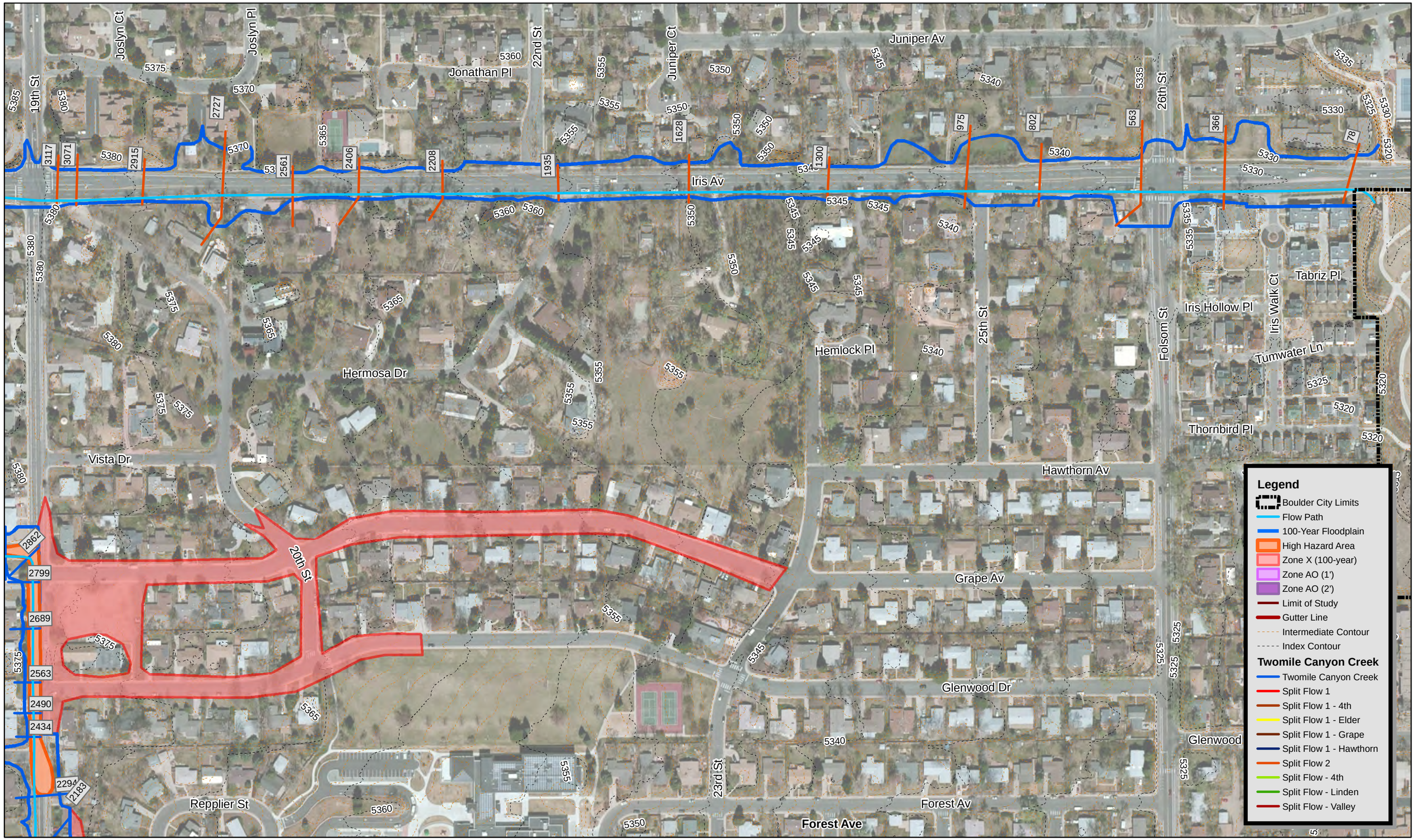
N

200 Feet



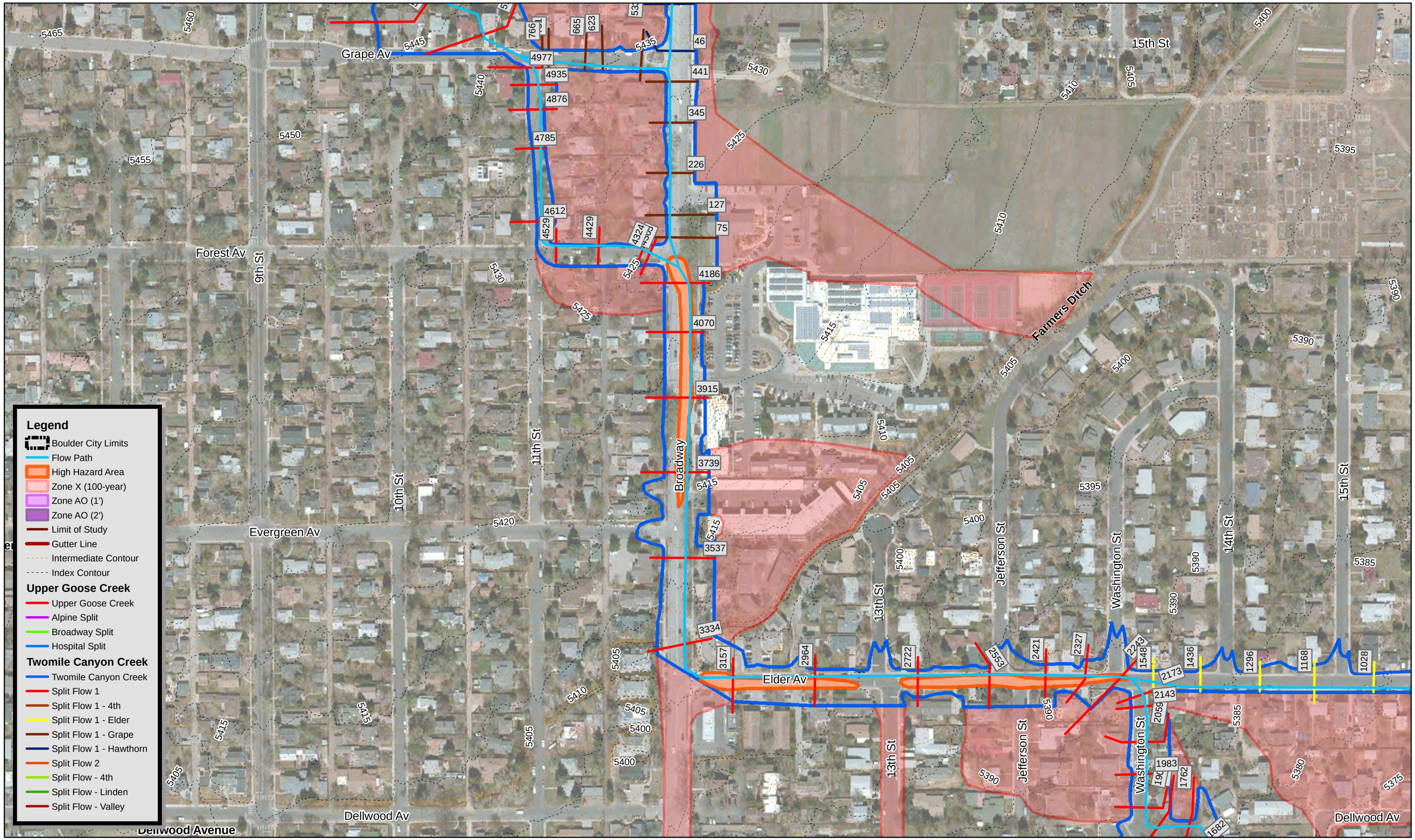
ICON ENGINEERING, INC.

Figure 5.11C - Upper Goose Creek and Twomile Canyon Creek Floodplain Workmap - High Hazard Area



ICON ENGINEERING, INC.

Figure 5.11D - Upper Goose Creek and Twomile Canyon Creek Floodplain Workmap - High Hazard Area

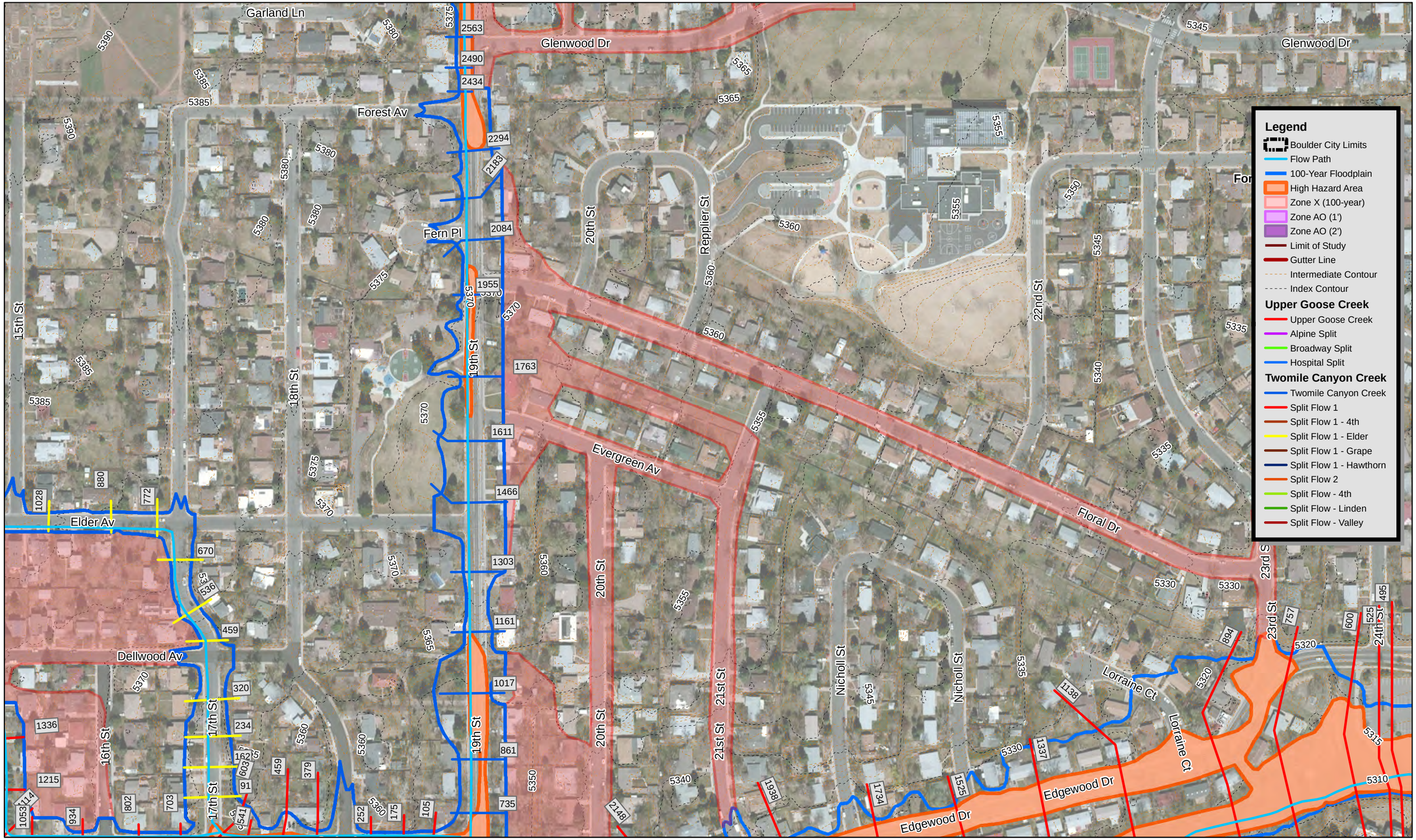


ICON ENGINEERING, INC.

Figure 5.11E - Upper Goose Creek and Twomile Canyon Creek Floodplain Workmap - High Hazard Area

N

200 Feet

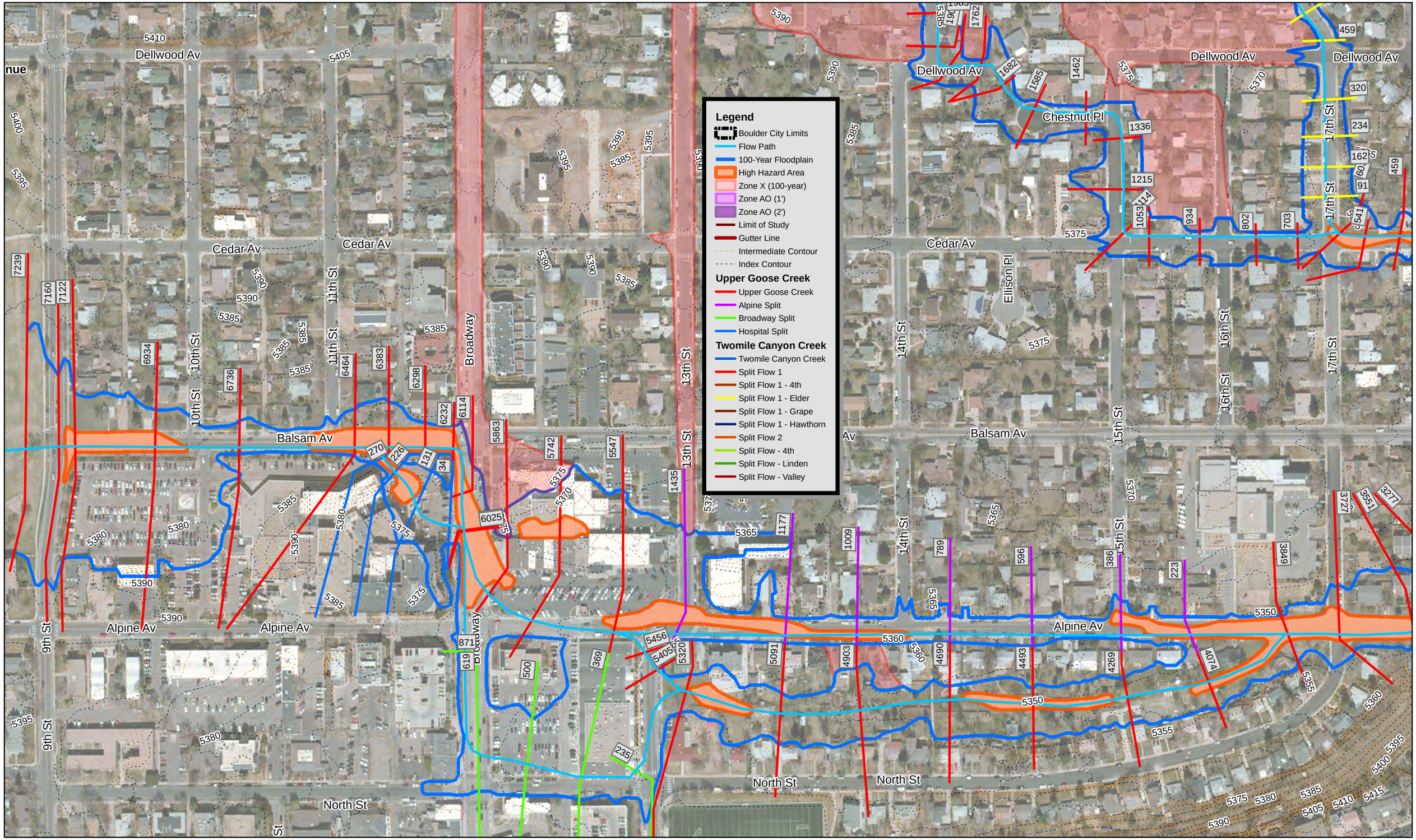


ICON ENGINEERING, INC.

Figure 5.11F - Upper Goose Creek and Twomile Canyon Creek Floodplain Workmap - High Hazard Area

N

200 Feet

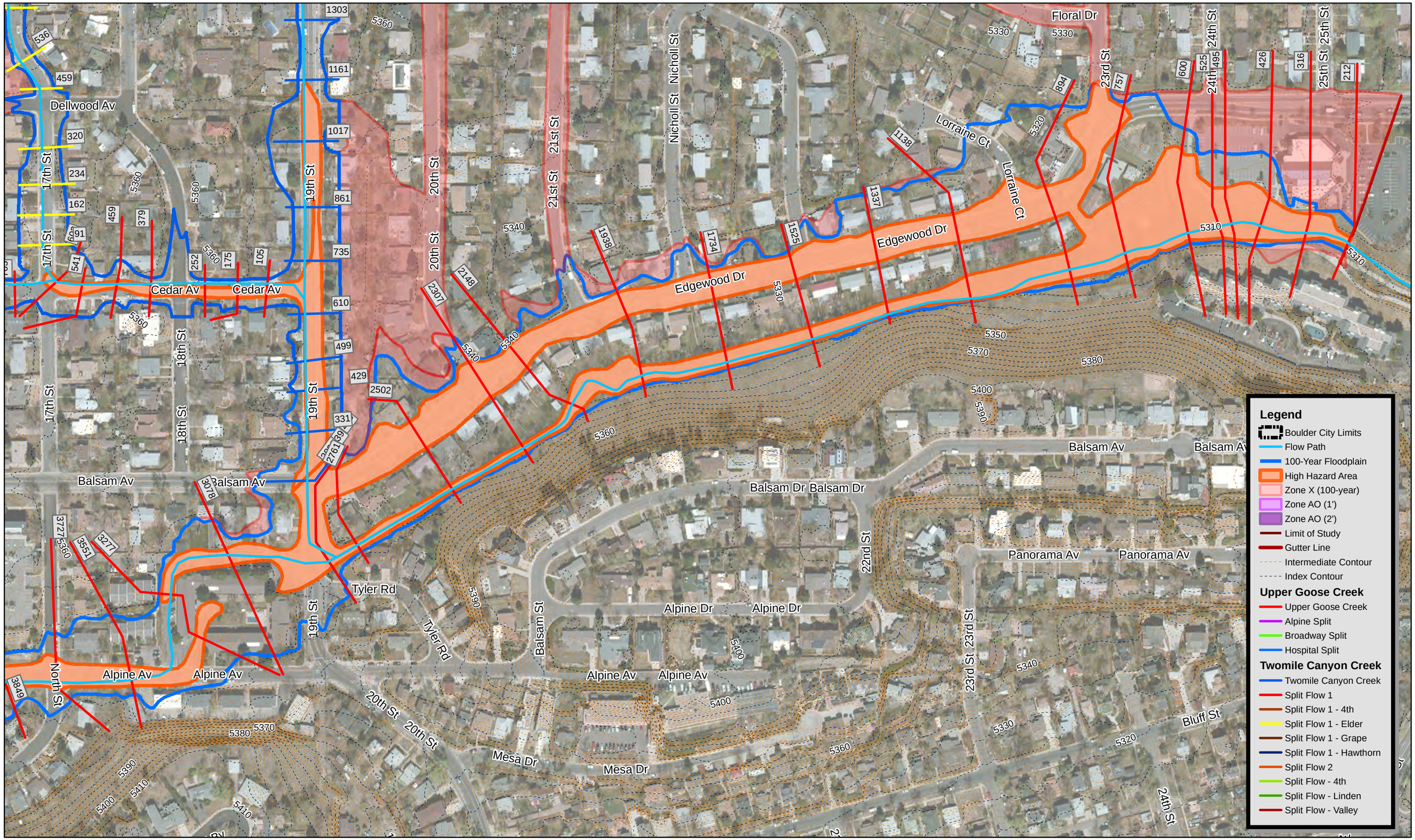


ICON ENGINEERING, INC.

Figure 5.11G - Upper Goose Creek and Twomile Canyon Creek Floodplain Workmap - High Hazard Area

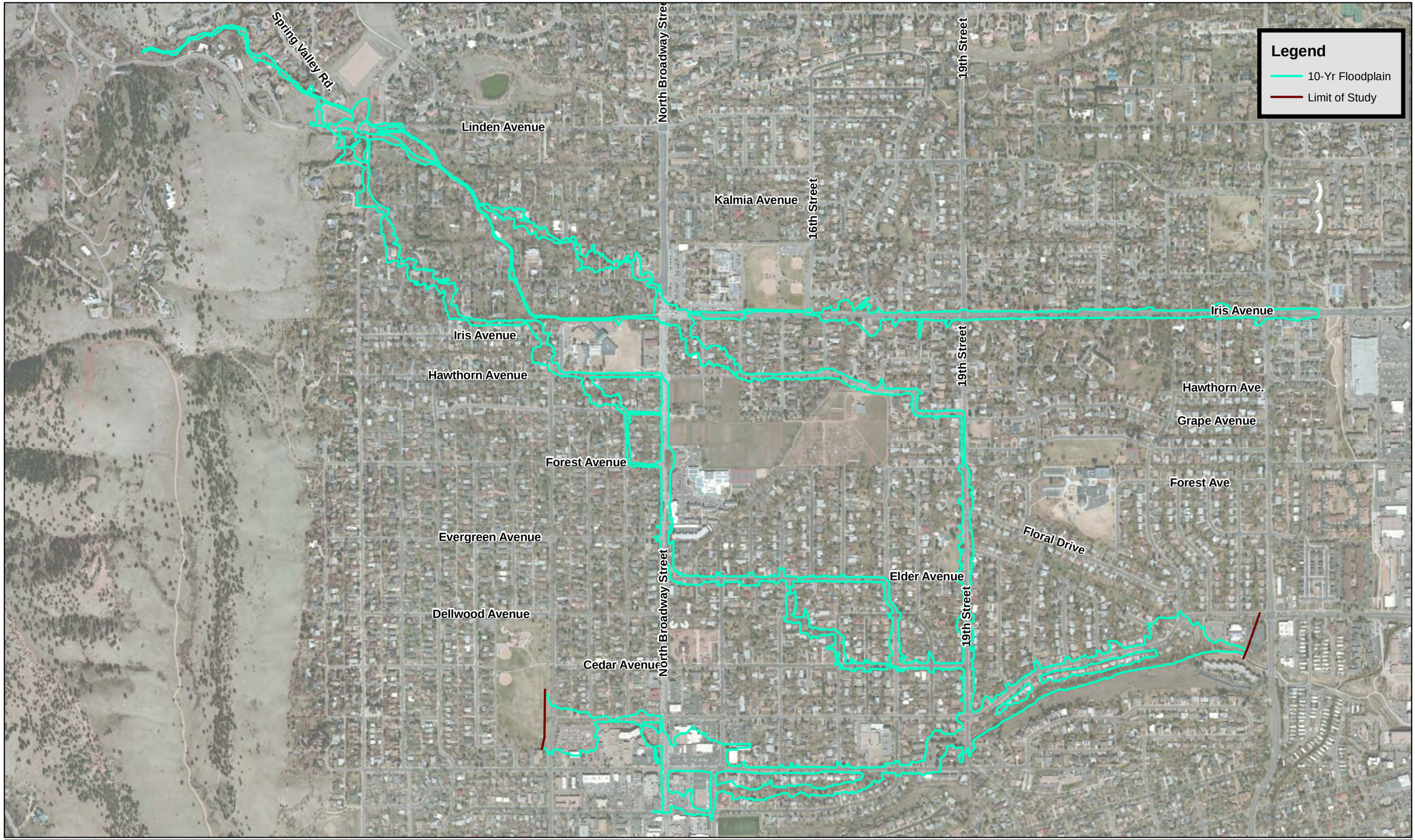
N

200 Feet



ICON ENGINEERING, INC.

Figure 5.11H - Upper Goose Creek and Twomile Canyon Creek Floodplain Workmap - High Hazard Area

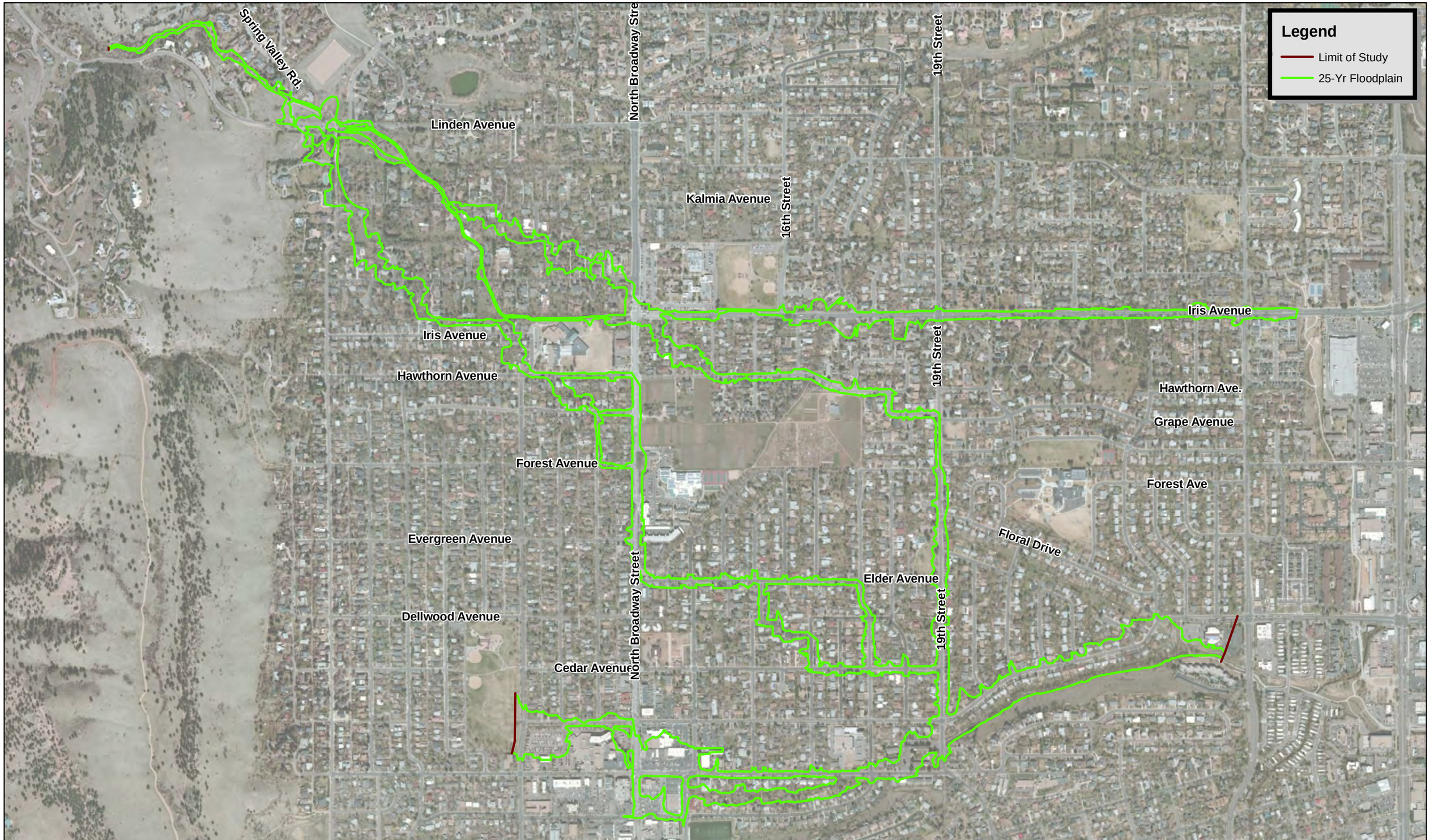


ICON ENGINEERING, INC.

Figure 5.12 - Twomile Canyon Creek
Floodplain Workmap - 10-Year Floodplain

N

800 Feet

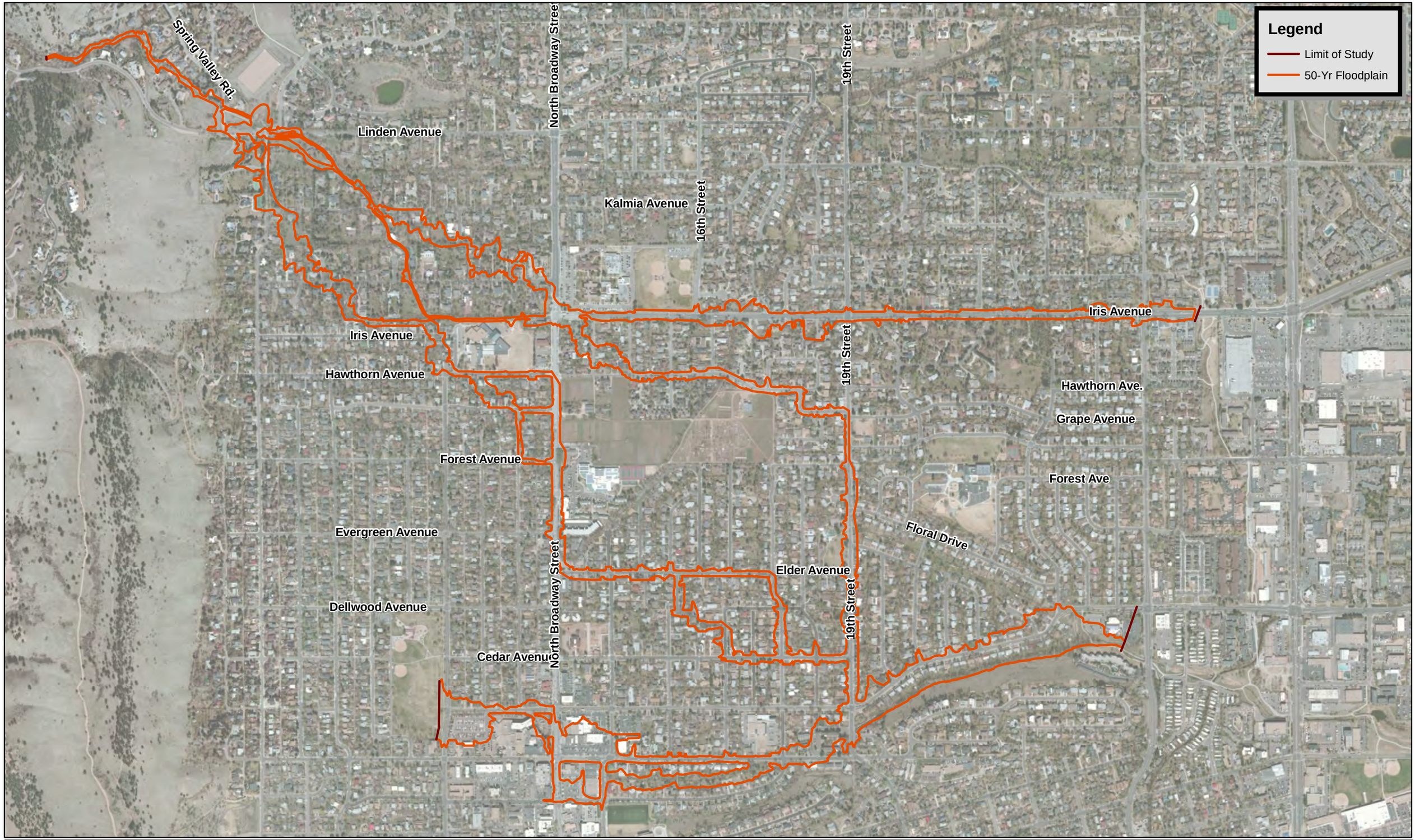


ICON ENGINEERING, INC.

Figure 5.13 - Twomile Canyon Creek
Floodplain Workmap - 25-Year Floodplain

N

800 Feet



ICON ENGINEERING, INC.

Figure 5.14 - Twomile Canyon Creek
Floodplain Workmap - 50-Year Floodplain

N

800 Feet

SECTION 6.0: REFERENCES

1. Greenhorne & O'mara Inc., Flood Hazard Area Delineation – Boulder and Adjacent County Drainageways, May 1987.

2. City of Boulder LiDAR, spring 2013

3. City of Boulder September 2013 Flooding Extents Data, April 2014.

4. Federal Emergency Management Agency, Flood Insurance Study – Boulder County, Colorado and Incorporated Areas, October 4, 2002.

5. Federal Emergency Management Agency, Flood Insurance Study – Boulder County, Colorado and Incorporated Areas, December 18, 2012.

6. United States Army Corps of Engineers, HEC-RAS (v. 4.1.0), January 2010.

7. FLO-2D Software Inc., FLO-2D PRO Flood Routing Model (build no. 14.03.07).

8. United States Army Corps of Engineers, HEC-GeoRAS (v. 4.3.93), February 2011.

9. ESRI, ArcMAP (v. 9.3).

10. ESRI Resource Center, http://www.arcgis.com (aerial imaging), accessed starting October 2011.

11. Wright Water Engineers Inc., Preliminary Goose and Twomile Canyon Watershed Analysis, September 3, 2014.

Appendix A –
Effective Hydraulic Information

FLOOD HAZARD AREA DELINEATION

CITY
OF
BOULDER

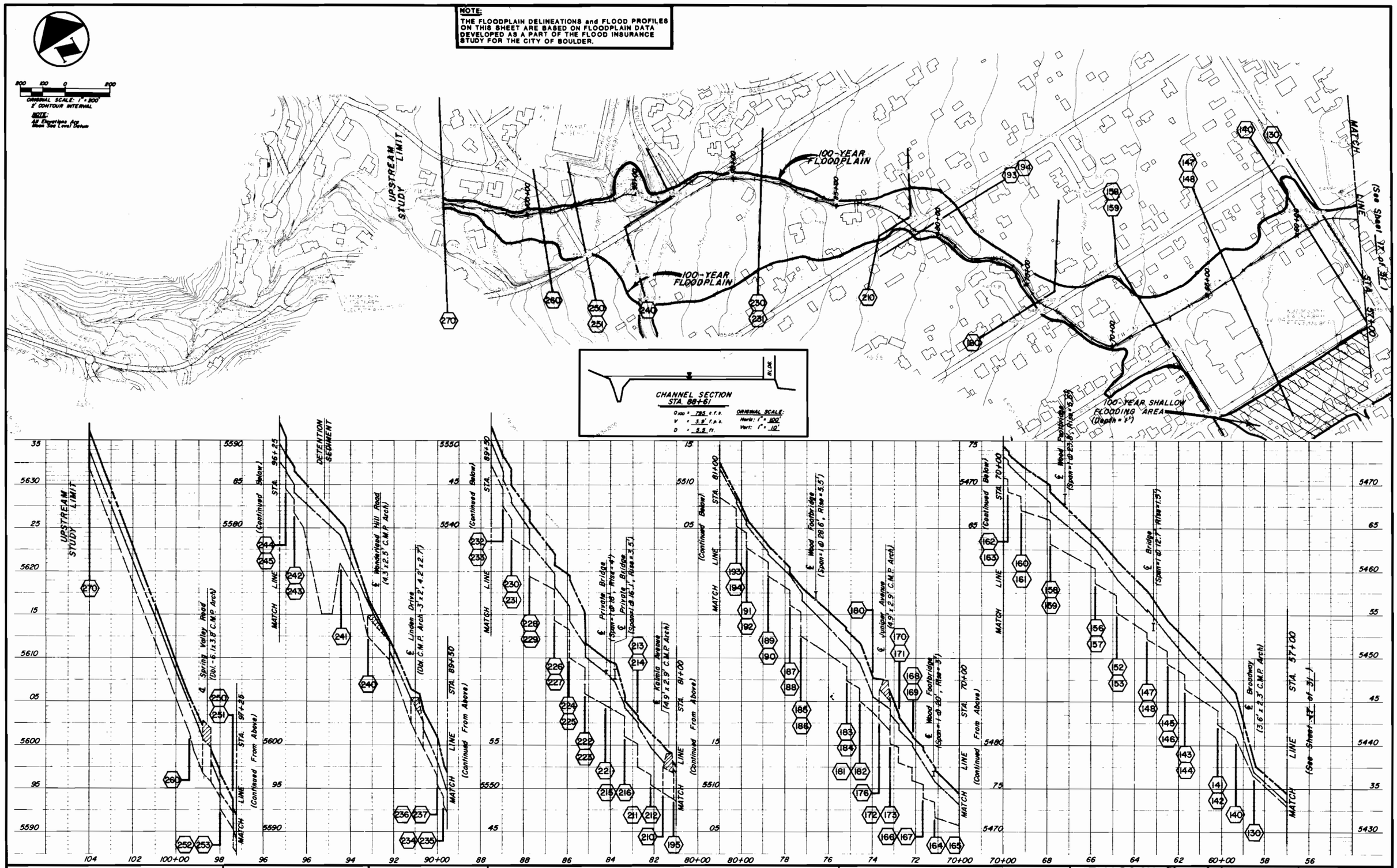
BOULDER AND ADJACENT COUNTY DRAINAGEWAYS

MAY 1987

Prepared For:
URBAN DRAINAGE and FLOOD CONTROL DISTRICT
The CITY OF BOULDER
BOULDER COUNTY, COLORADO

Prepared By:
GREENHORNE & O'MARA, INC.
Consulting Engineers
Denver, Colorado

NOTE:
THE FLOODPLAIN DELINEATIONS and FLOOD PROFILES ON THIS SHEET ARE BASED ON FLOODPLAIN DATA DEVELOPED AS A PART OF THE FLOOD INSURANCE STUDY FOR THE CITY OF BOULDER.



GREENHORNE and O'MARA, INC.
Engineers · Architects · Planners · Surveyors · Photogrammetrists
1325 South Colorado Boulevard · Suite 405 · Denver, Colorado 80222 · (303) 758-5250

Ground Control Survey By: MSM CONSULTANTS, INC.	Designed By:	Date:	
Aerial Photography By: GENGE AERIAL SURVEYS	Drawn By: GPS	Date: 9/84	
Topographic Mapping By: GENGE AERIAL SURVEYS	Checked By: FFM RLL	Date: 9/84 9/86 9/86	
Contour Interval: 2' Date Flown: OCTOBER 10, 1981	Revised By:	Date:	

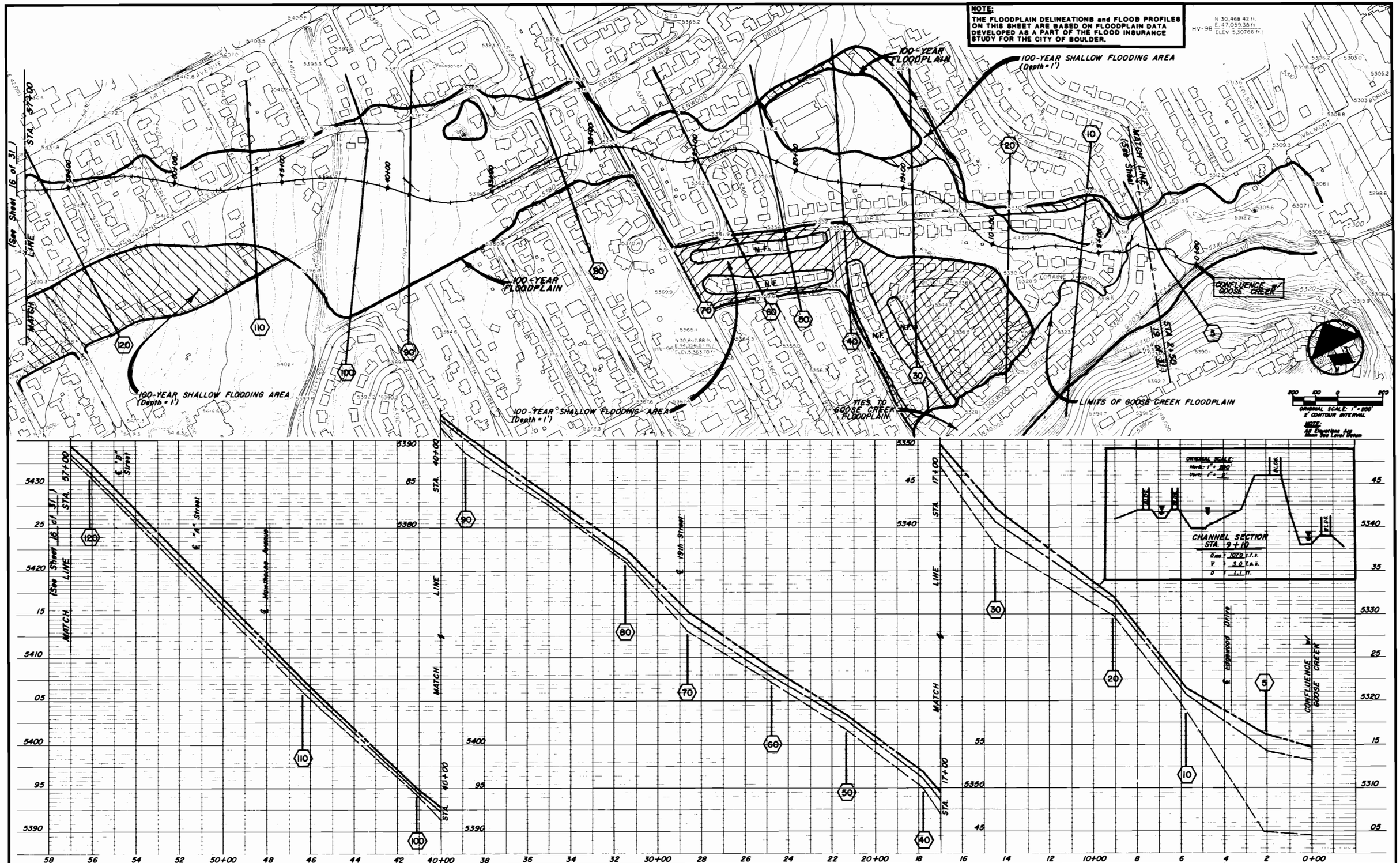
URBAN DRAINAGE AND FLOOD CONTROL DISTRICT
CITY OF BOULDER – BOULDER COUNTY

FLOOD HAZARD AREA DELINEATION
CITY OF BOULDER
and
ADJACENT COUNTY DRAINAGEWAYS

TWOMILE CANYON CREEK
(STA. 57+00 TO STA. 104+00)

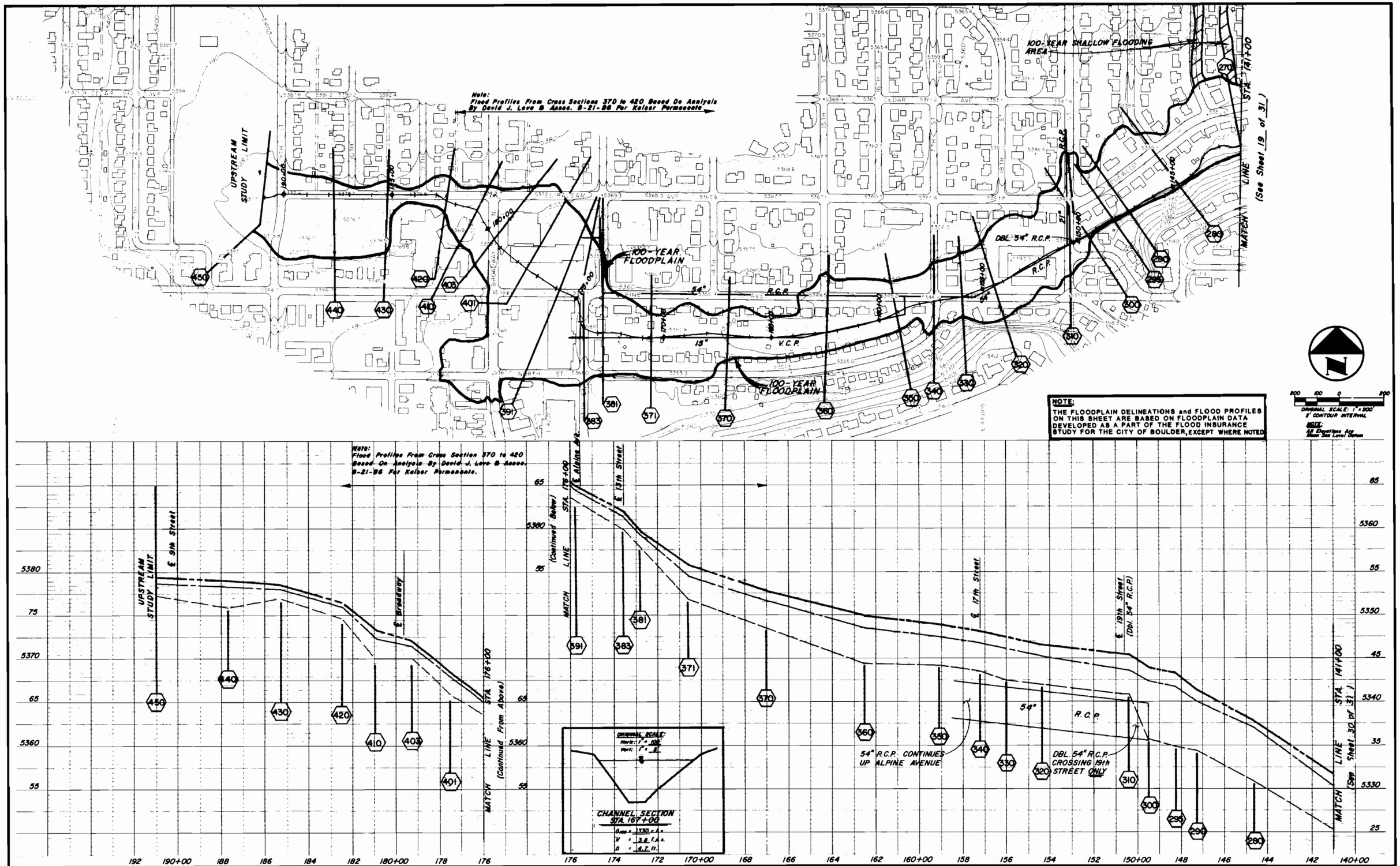
JOB NO. 0680-FHD-415
SHEET 16
OF 31

NOTE:
THE FLOODPLAIN DELINEATIONS and FLOOD PROFILES ON THIS SHEET ARE BASED ON FLOODPLAIN DATA DEVELOPED AS A PART OF THE FLOOD INSURANCE STUDY FOR THE CITY OF BOULDER.



GREENHORNE and O'MARA, INC. Engineers · Architects · Planners · Surveyors · Photogrammetrists 5325 South Colorado Boulevard · Suite 405 · Denver, Colorado 80222 · (303) 758-5250	Ground Control Survey By: MSM CONSULTANTS, INC. Aerial Photography By: GENGE AERIAL SURVEYS Topographic Mapping By: GENGE AERIAL SURVEYS Contour Interval: 2' Date Flown: OCTOBER 10, 1981	Designed By: ____ Date: ____ Drawn By: LDS Date: 9/84 Checked By: RPM RLL Date: 9/84 9/85 9/86 Revised By: ____ Date: ____	URBAN DRAINAGE AND FLOOD CONTROL DISTRICT CITY OF BOULDER - BOULDER COUNTY	**FLOOD HAZARD AREA DELINEATION** CITY of BOULDER and ADJACENT COUNTY DRAINAGEWAYS	**TWOMILE CANYON CREEK** (STA. 0+00 TO STA. 57+00)

JOB NO. 0680-FHD-415
SHEET 17
OF 31



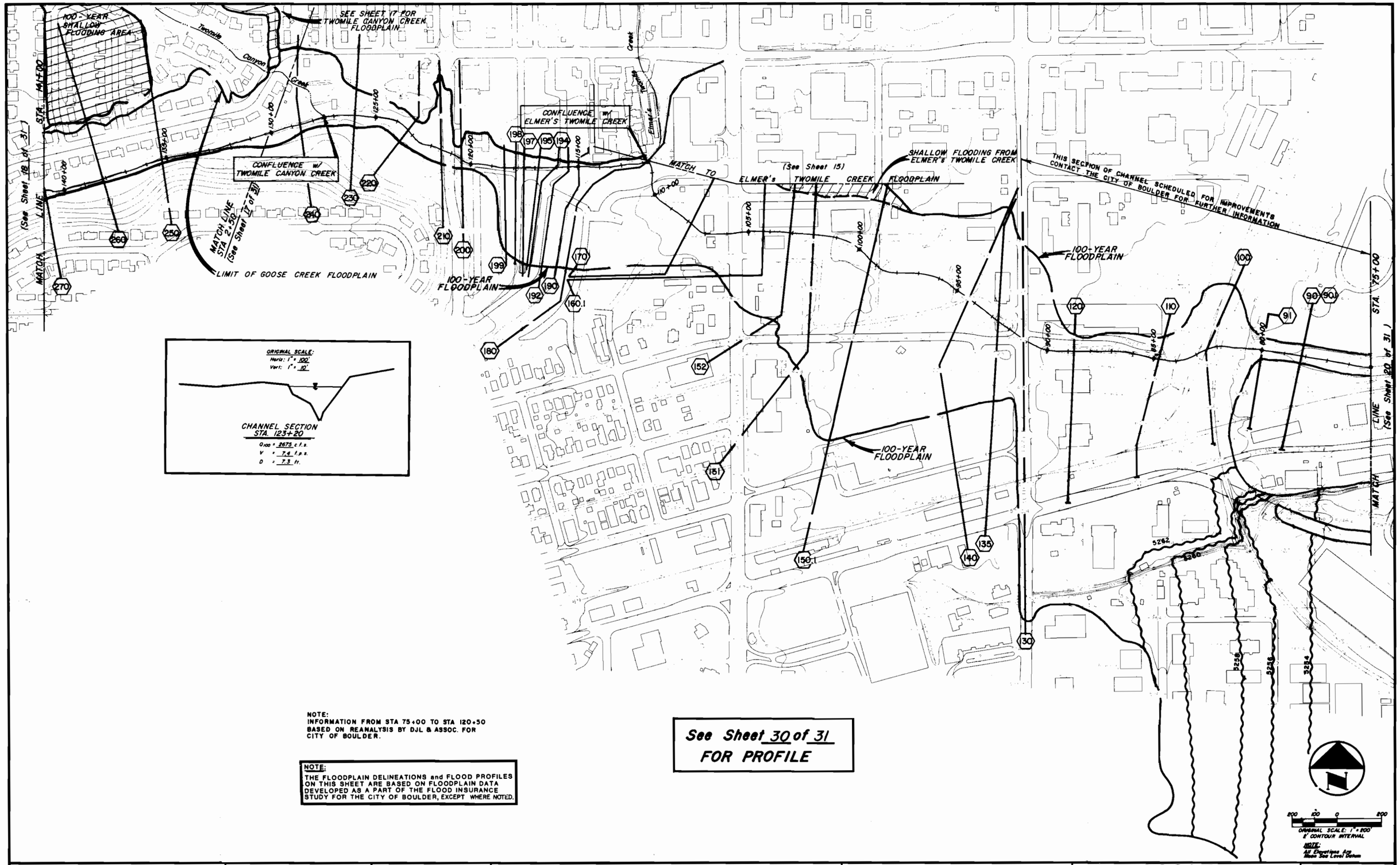
GREENHORNE and O'MARA, INC. Engineers · Architects · Planners · Surveyors · Photogrammetrists 1325 South Colorado Boulevard · Suite 405 · Denver, Colorado 80222 · (303) 758-5250	Ground Control Survey By: MSM CONSULTANTS, INC. Aerial Photography By: GENGE AERIAL SURVEYS Topographic Mapping By: GENGE AERIAL SURVEYS Contour Interval: 2' Date Flown: OCTOBER 10, 1981	Designed By: ____ Date: ____ Drawn By: CDS Date: 9/84 Checked By: MPM, RLL Date: 9/86, 10/86, 2/94 Revised By: RLL Date: 12/86	URBAN DRAINAGE AND FLOOD CONTROL DISTRICT CITY OF BOULDER – BOULDER COUNTY	**FLOOD HAZARD AREA DELINEATION** CITY of BOULDER and ADJACENT COUNTY DRAINAGEWAYS

GOOSE CREEK

(STA. 141+00 TO STA. 194+00)

JOB NO. 0680-FHD-415

SHEET 18 OF 31



NOTE:
INFORMATION FROM STA 75+00 TO STA 120+50 BASED ON REANALYSIS BY DJL & ASSOC. FOR CITY OF BOULDER.

NOTE:
THE FLOODPLAIN DELINEATIONS and FLOOD PROFILES ON THIS SHEET ARE BASED ON FLOODPLAIN DATA DEVELOPED AS A PART OF THE FLOOD INSURANCE STUDY FOR THE CITY OF BOULDER, EXCEPT WHERE NOTED.

See Sheet 30 of 31 FOR PROFILE

GREENHORNE and O'MARA, INC.
Engineers · Architects · Planners · Surveyors · Photogrammetrists
1325 South Colorado Boulevard · Suite 405 · Denver, Colorado 80222 · (303) 758-5250

Ground Control Survey By: MSM CONSULTANTS, INC.
Aerial Photography By: GENGE AERIAL SURVEYS
Topographic Mapping By: GENGE AERIAL SURVEYS
Contour Interval: 2' Date Flown: OCTOBER 10, 1981

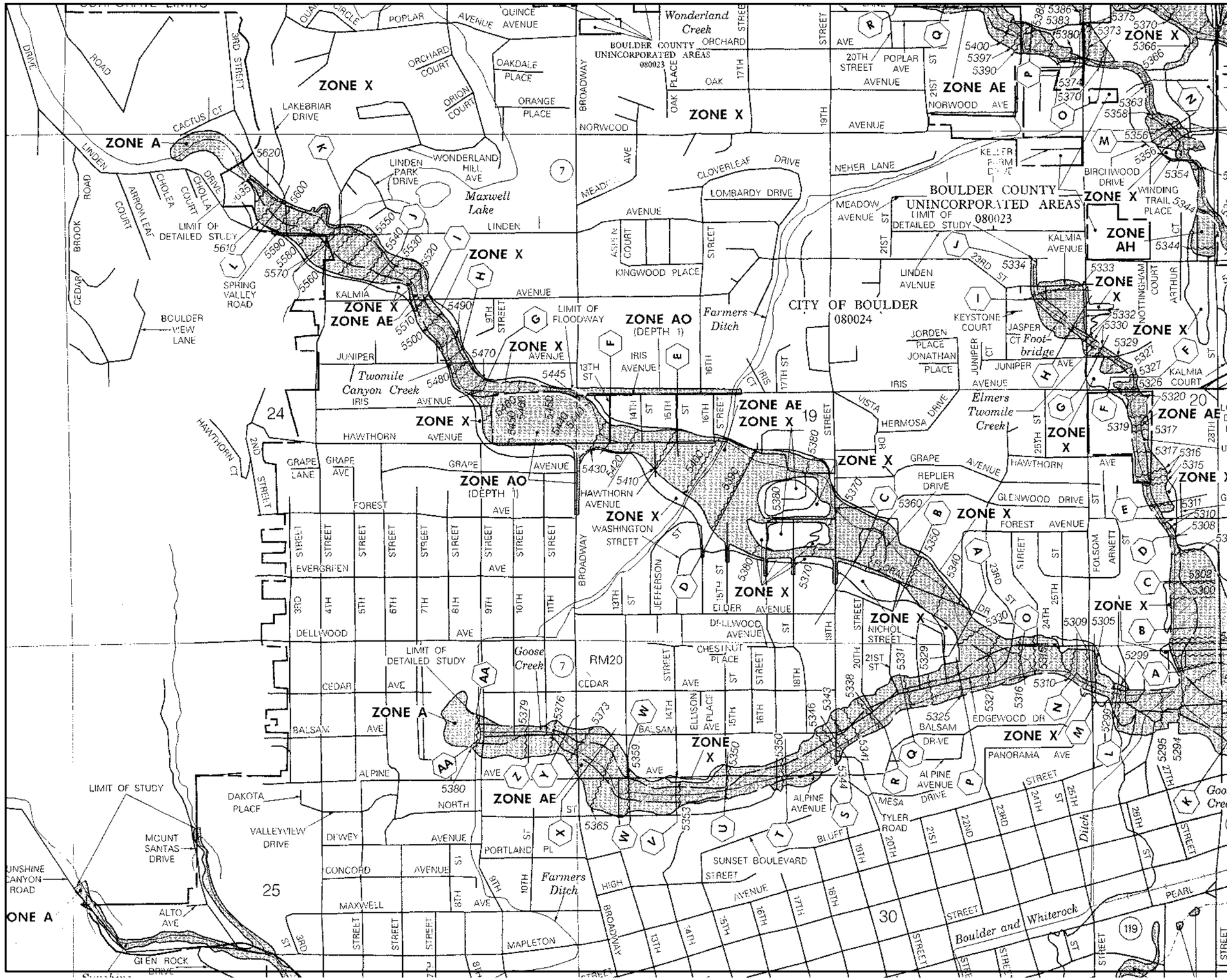
Designed By: ____ Date: ____
Drawn By: CDS Date: 12/86
Checked By: PEN RLL Date: 2/24 2/25 2/26
Revised By: RLL Date: 4/87

URBAN DRAINAGE AND FLOOD CONTROL DISTRICT
CITY OF BOULDER – BOULDER COUNTY

FLOOD HAZARD AREA DELINEATION
CITY of BOULDER and ADJACENT COUNTY DRAINAGEWAYS

GOOSE CREEK
(STA. 75+00 TO STA. 141+00)

JOB NO. 0680-FHD-415
SHEET 19 OF 31



APPROXIMATE SCALE IN FEET

1000 0 1000

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

BOULDER COUNTY, COLORADO AND INCORPORATED AREAS

PANEL 395 OF 595

(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY	NUMBER	PANEL	SUFFIX
BOULDER COUNTY UNINCORPORATED AREAS	080023	0395	F
BOULDER, CITY OF	080024	0395	F

MAP NUMBER 08013C0395 F

EFFECTIVE DATE: JUNE 2, 1995

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

FLOOD INSURANCE STUDY

BOULDER COUNTY, COLORADO
AND INCORPORATED AREAS
VOLUME 1 OF 5

08013CV001

COMMUNITY NAME	COMMUNITY NUMBER
BOULDER,CITY OF	080024
BOULDER COUNTY,CO UNINCORPORATED AREAS	080023
JAMESTOWN,TOWN OF	080216
LAFAYETTE,CITY OF	080026
LONGMONT,CITY OF	080027
LOUISVILLE,CITY OF	085076
LYONS,TOWN OF	080029
NEDERLAND,TOWN OF	080255
SUPERIOR,TOWN OF	080203
WARD, TOWN OF	080292*

* NON-FLOOD PRONE COMMUNITIES

REVISED: OCTOBER 4, 2002

Federal Emergency Management Agency

Table 4. Summary of Discharges

Flooding Source and Location	Drainage Area (Square Miles)	Peak Discharges (Cubic Feet per Second) 10-Year	50-Year	100-Year	500-Year
Elmers Twomile Creek					
At Confluence With Goose Creek	0.52	280	630	790	1,450
At Iris Avenue	0.31	270	510	610	990
At Upstream Limit of Detailed Study	0.12	110	210	250	400
Fourmile Creek					
At Mouth	25.0	1,420	4,440	6,230	11,640
Fourmile Canyon Creek					
At Confluence With Boulder Creek	10.03	920	2,890	3,960	8,900
At Longmont Diagonal	9.09	1,050	2,805	3,930	7,600
At 28th Street	8.60	1,000	2,850	3,920	8,200
At Broadway	7.92	830	2,530	3,520	7,600
At Upstream Limit of Detailed Study	3.93	350	1,170	1,750	4,000
Gay Reservoir Channel					
At Confluence With Big Dry Creek	2.60	915	1,525	1,820	2,650
Gay Reservoir Channel North Tributary					
Above Confluence With City Park Channel	--[1]	225	370	440	640
Goose Creek					
At Confluence With Boulder Creek	5.46	2,865	5,065	6,315	9,325
At Confluence With Elmers Twomile Creek	3.63	1,050	2,100	2,680	4,300
At Confluence With Twomile Canyon Creek	1.32	670	1,270	1,590	2,400
At 19th Street	1.28	700	1,320	1,600	2,450
At Upstream Limit of Detailed Study	0.48	260	520	620	1,000
Indian Peaks					
Upstream Bullhead Confluence	0.49	--[1]	--[1]	447	--[1]
At 95th Culvert	0.43	--[1]	--[1]	419	--[1]
At Upstream Limit of Detailed Study	0.18	--[1]	--[1]	163	--[1]
North Goose Creek					
At Confluence With Goose Creek	--[1]	3,865	3,865	3,865	6,075

--[1]Data Not Available
--[2]Split Flow From Goose Creek

Table 4. Summary of Discharges

Flooding Source and Location	Drainage Area (Square Miles)	Peak Discharges (Cubic Feet per Second) 10-Year	50-Year	100-Year	500-Year
North Beaver Creek					
At Cross Section A	5.3	74	117	135	185
At Cross Section T	5.0	70	112	129	178
Prince Tributary					
Below Bullhead Confluence	8.16	--[1]	--[1]	4,772	--[1]
Above Bullhead Confluence	2.55	--[1]	--[1]	2,130	--[1]
At Upstream Limit of Detailed Study	0.58	--[1]	--[1]	423	--[1]
Rock Creek					
At Confluence With Coal Creek	21.6	2,870	5,350	6,690	10,240
At Downstream Corporate Limits	21.5	2,900	5,400	6,710	10,270
At South 120th Street	21.3	2,910	5,410	6,740	10,310
At Upstream Corporate Limits	18.7	2,900	5,360	6,640	10,050
At Denver-Boulder Turnpike	9.3	1,256	3,229	4,520	9,176
At McCaslin Boulevard	4.9	594	1,800	2,717	7,000
At Upstream Limit of Detailed Study	4.1	504	1,587	2,396	6,182
Skunk Creek					
At Confluence With Bear Canyon Creek	2.83	980	1,830	2,230	3,500
At Madison Avenue	2.43	920	1,580	1,870	2,650
At U.S. Highway 36	2.08	650	1,130	1,350	1,900
At Broadway	1.36	210	520	710	1,320
At Upstream Limit of Detailed Study	1.20	180	460	640	1,200
St. Vrain Creek (Vicinity of Longmont)					
At Mouth	924.0	5,350	12,120	16,520	40,080
St. Vrain Creek (Vicinity of Lyons)					
At Second Avenue	219.0	2,070	6,000	10,200	36,000
Twomile Creek					
At Confluence With Goose Creek	2.9	360	840	1,120	2,000
At Broadway	1.68	210	675	890	1,800
At Upstream Limit of Detailed Study	1.40	210	540	710	1,430

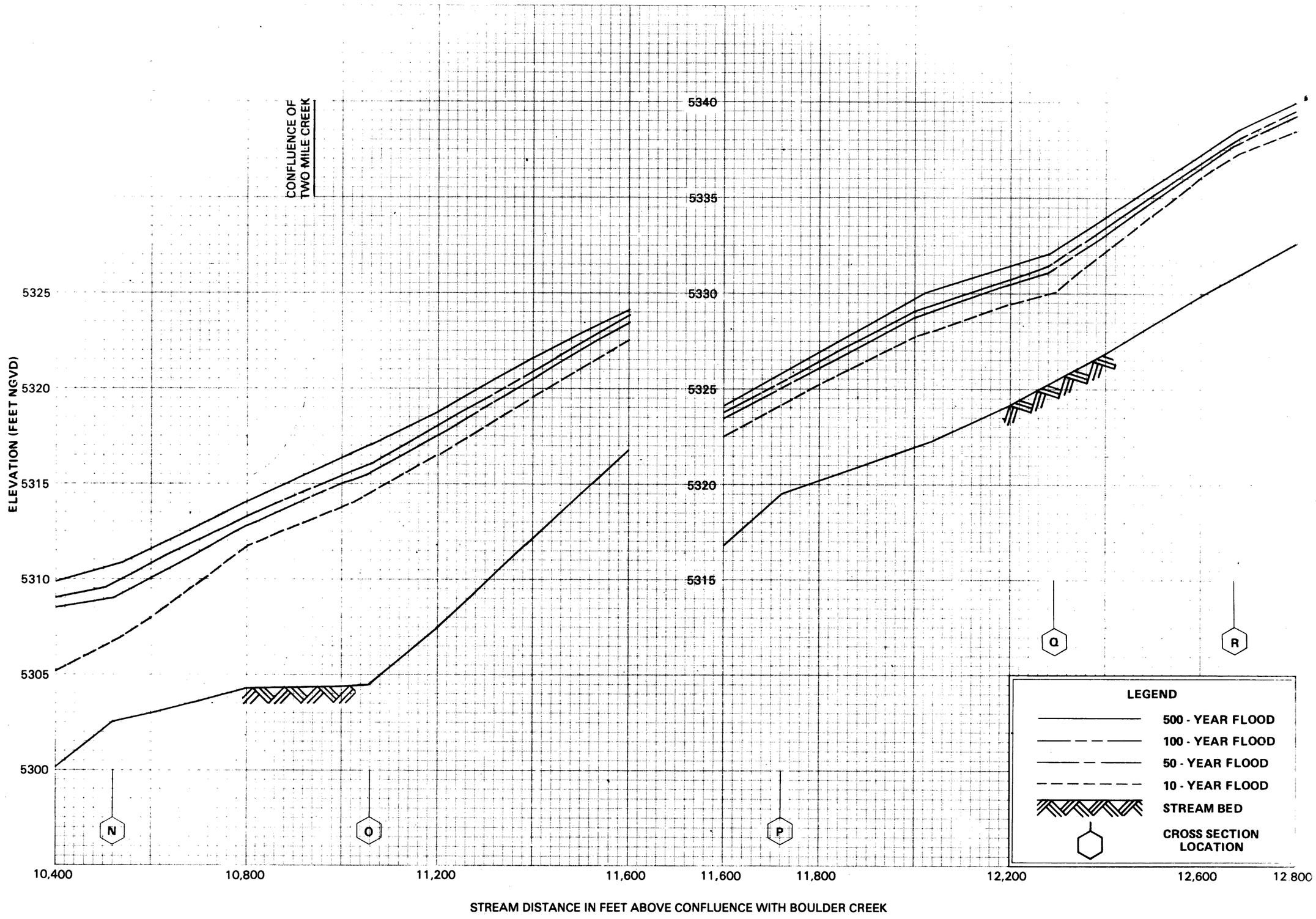
FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
					(FEET NGVD)			
Goose Creek								
A	1,000	212	640	9.9	5,211.0	5,204.3[2]	5,204.3[2]	0.0
B	2,075	81	245	10.0	5,218.3	5,217.5[2]	5,217.5[2]	0.0
C	3,330	80	235	9.8	5,227.4	5,227.4	5,227.4	0.0
D	4,160	88	242	9.5	5,234.0	5,234.0	5,234.0	0.0
E	4,900	71	270	5.9	5,242.7	5,242.7	5,242.7	0.0
F	5,630	120	479	1.2	5,250.7	5,250.7	5,251.1	0.4
G	6,300	53	81	6.9	5,251.4	5,251.4	5,251.4	0.0
H	6,720	270	138	4.1	5,263.4	5,263.4	5,263.6	0.2
I	7,380	360	453	2.9	5,268.4	5,268.4	5,268.8	0.4
J	7,620	663	705	5.1	5,275.0	5,275.0	5,275.2	0.2
K	8,810	390	742	4.7	5,287.4	5,287.4	5,287.6	0.2
L	10,030	333	927	2.9	5,299.0	5,299.0	5,299.4	0.4
M	10,240	92	290	9.2	5,305.1	5,305.1	5,305.1	0.0
N	10,520	77	323	8.3	5,309.7	5,309.7	5,309.7	0.0
O	11,060	328	886	3.0	5,315.8	5,315.8	5,315.9	0.1
P	11,720	167	321	5.0	5,325.1	5,325.1	5,325.3	0.2
Q	12,290	200	512	3.1	5,331.4	5,331.4	5,331.7	0.3
R	12,670	230	435	3.7	5,337.9	5,337.9	5,338.1	0.2
S	13,150	150	395	4.1	5,343.9	5,343.9	5,344.2	0.3
T	13,800	170	1,066	1.5	5,349.2	5,349.2	5,350.2	1.0
U	14,420	132	656	2.0	5,350.2	5,350.2	5,351.1	0.9
V	14,900	163	352	3.8	5,352.7	5,352.7	5,352.7	0.0
W	15,450	195	190	5.5	5,359.7	5,359.7	5,360.1	0.4
X	15,940	282	486	2.2	5,364.9	5,364.9	5,365.4	0.5
Y	16,280	178	428	2.2	5,373.2	5,373.2	5,373.8	0.6
Z	16,700	100	134	6.0	5,378.6	5,378.6	5,378.7	0.1
AA	17,280	200	523	1.2	5,379.6	5,379.6	5,380.4	0.8

[1]Feet Above Confluence With Boulder Creek

[2]Elevations Computed Without Consideration of Backwater Effects From Boulder Creek

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[2]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
					(FEET NGVD)			
Twomile Canyon Creek								
A-F[1]								
G	7,115	266	212	3.5	5,468.5	5,468.5	5,468.5	0.0
H	7,615	177	239	3.5	5,485.5	5,485.5	5,485.5	0.0
I	8,325	120	171	5.0	5,510.2	5,510.2	5,510.3	0.1
J	8,865	206	184	4.3	5,534.7	5,534.7	5,534.8	0.1
K	9,540	244	169	4.7	5,569.2	5,569.2	5,569.3	0.1
L	10,215	155	135	5.5	5,606.8	5,606.8	5,606.9	0.1

[1]Floodway Removed by LOMR Dated April 5, 1994 [2]Miles Above Mouth

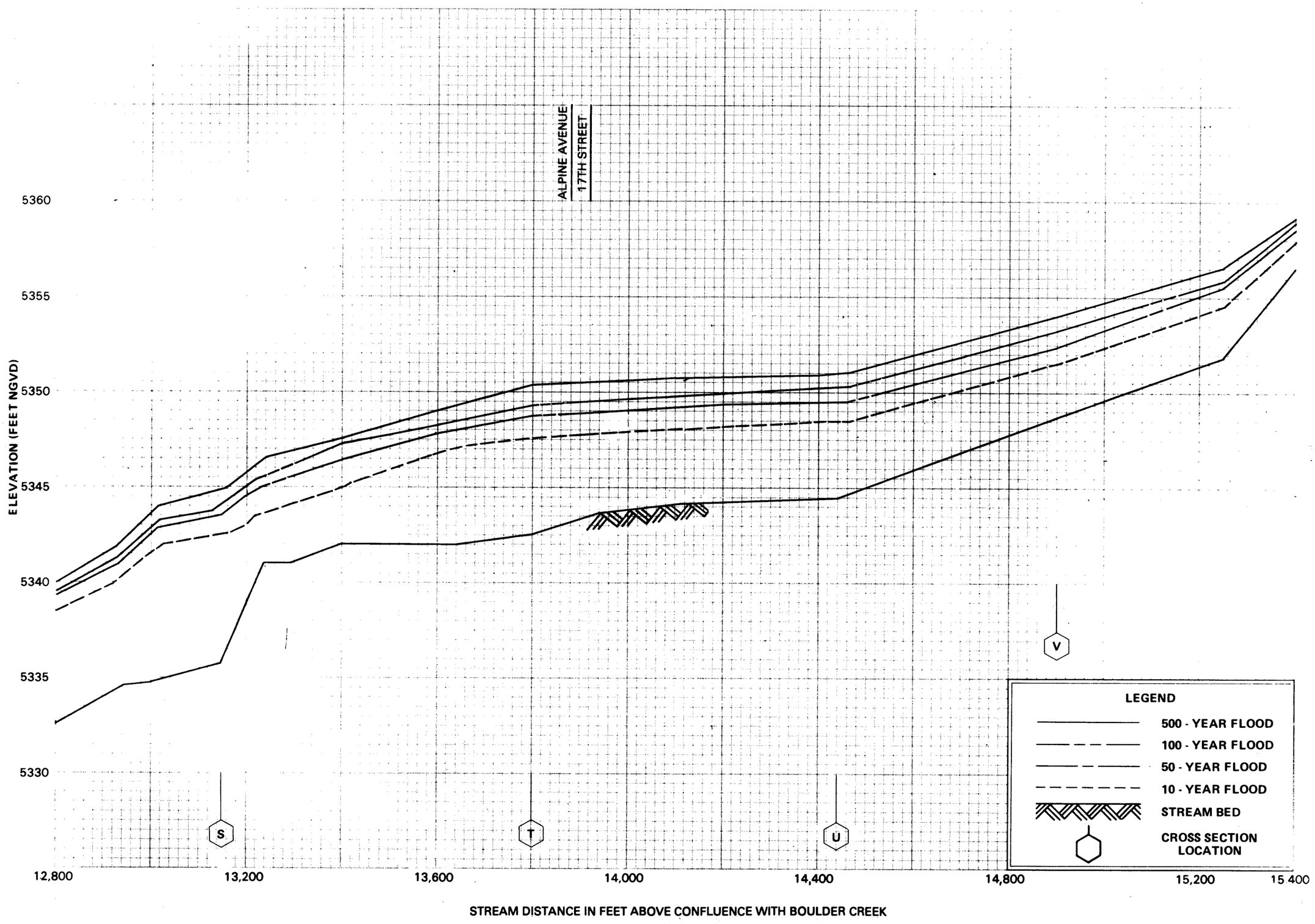


FLOOD PROFILES

GOOSE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

BOULDER COUNTY, CO
AND INCORPORATED AREAS



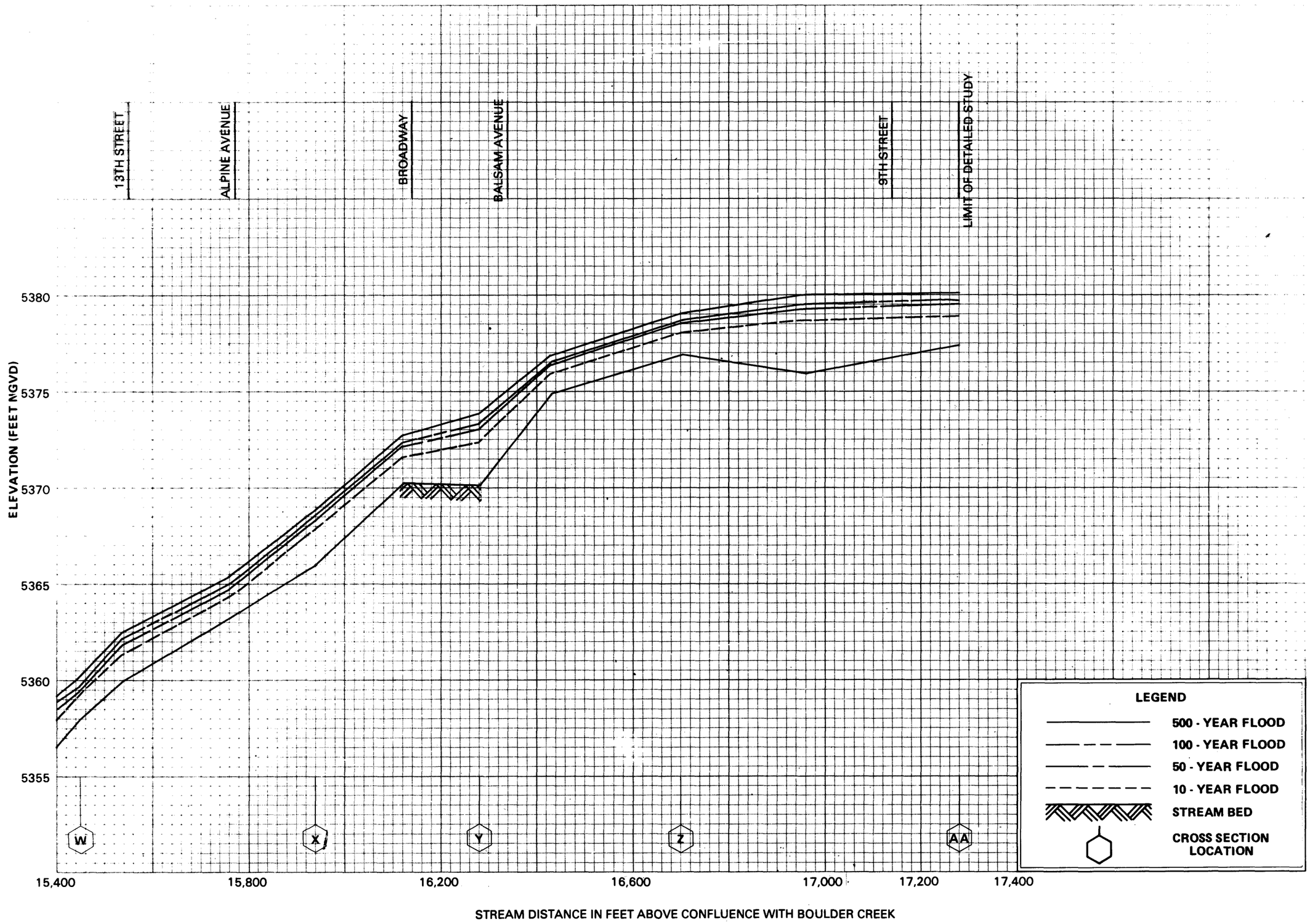
FLOOD PROFILES

GOOSE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

BOULDER COUNTY, CO
AND INCORPORATED AREAS

198P

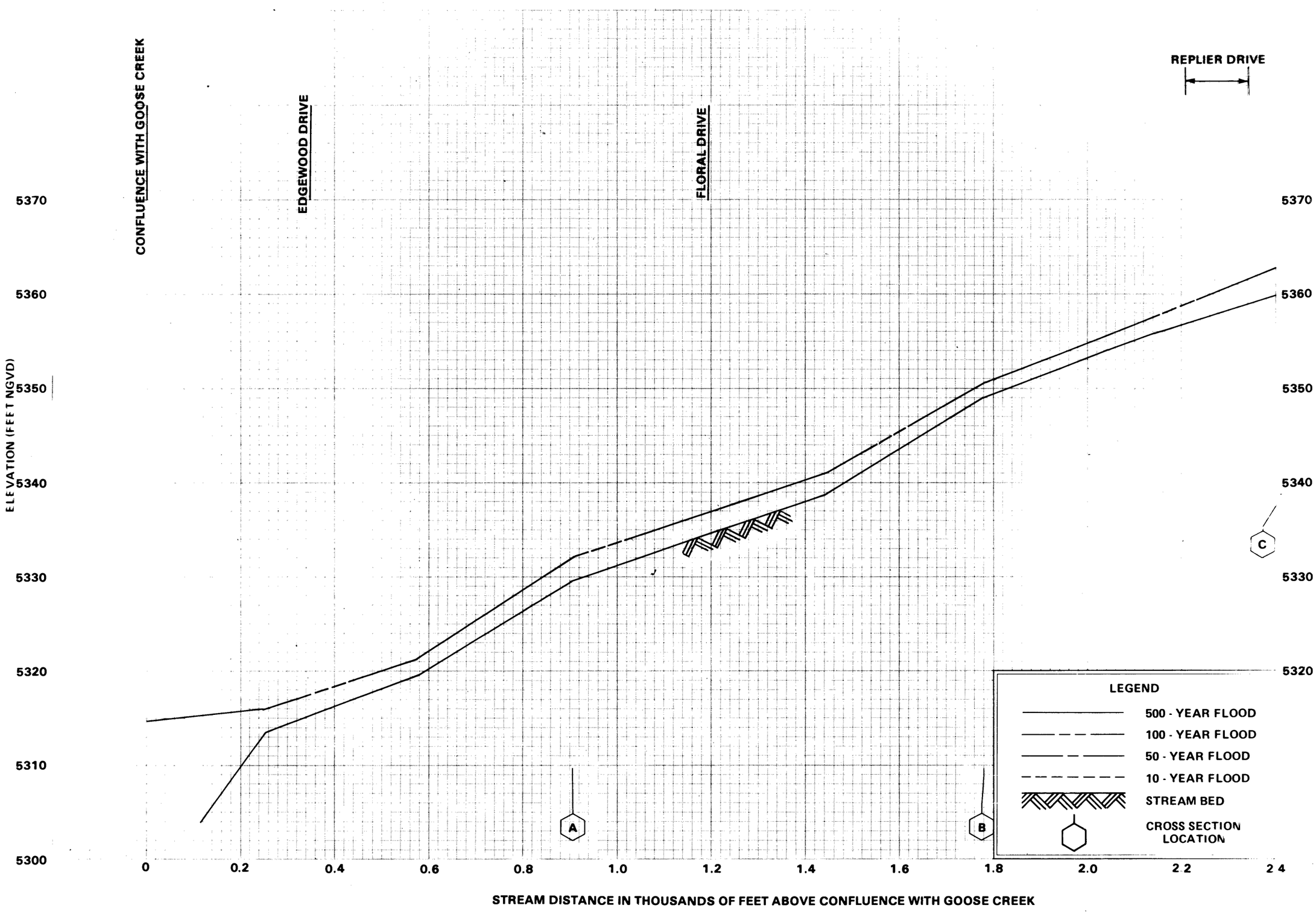


FLOOD PROFILES

GOOSE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

BOULDER COUNTY, CO
AND INCORPORATED AREAS



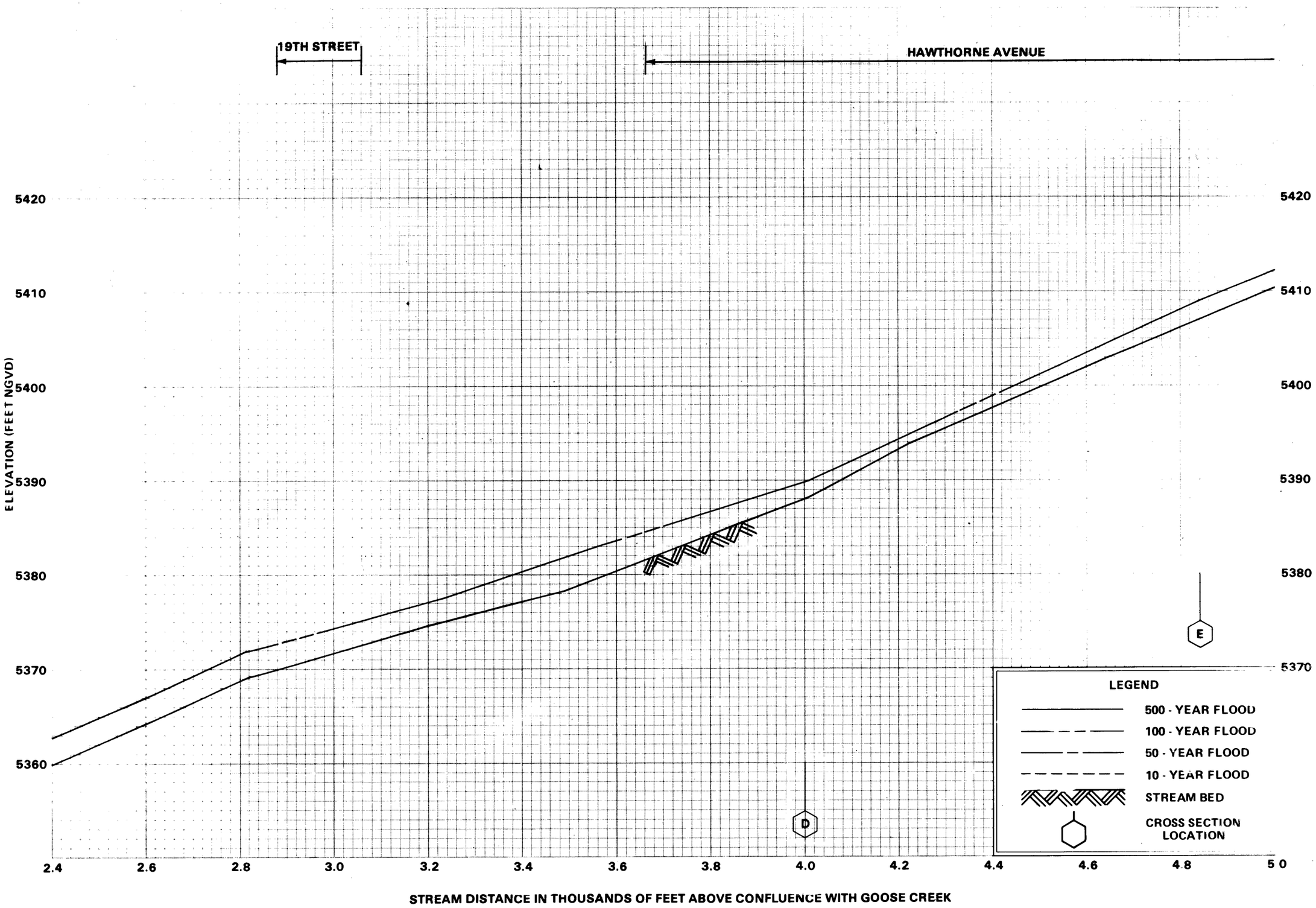
FLOOD PROFILES

TWO-MILE CANYON CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

BOULDER COUNTY, CO
AND INCORPORATED AREAS

359P



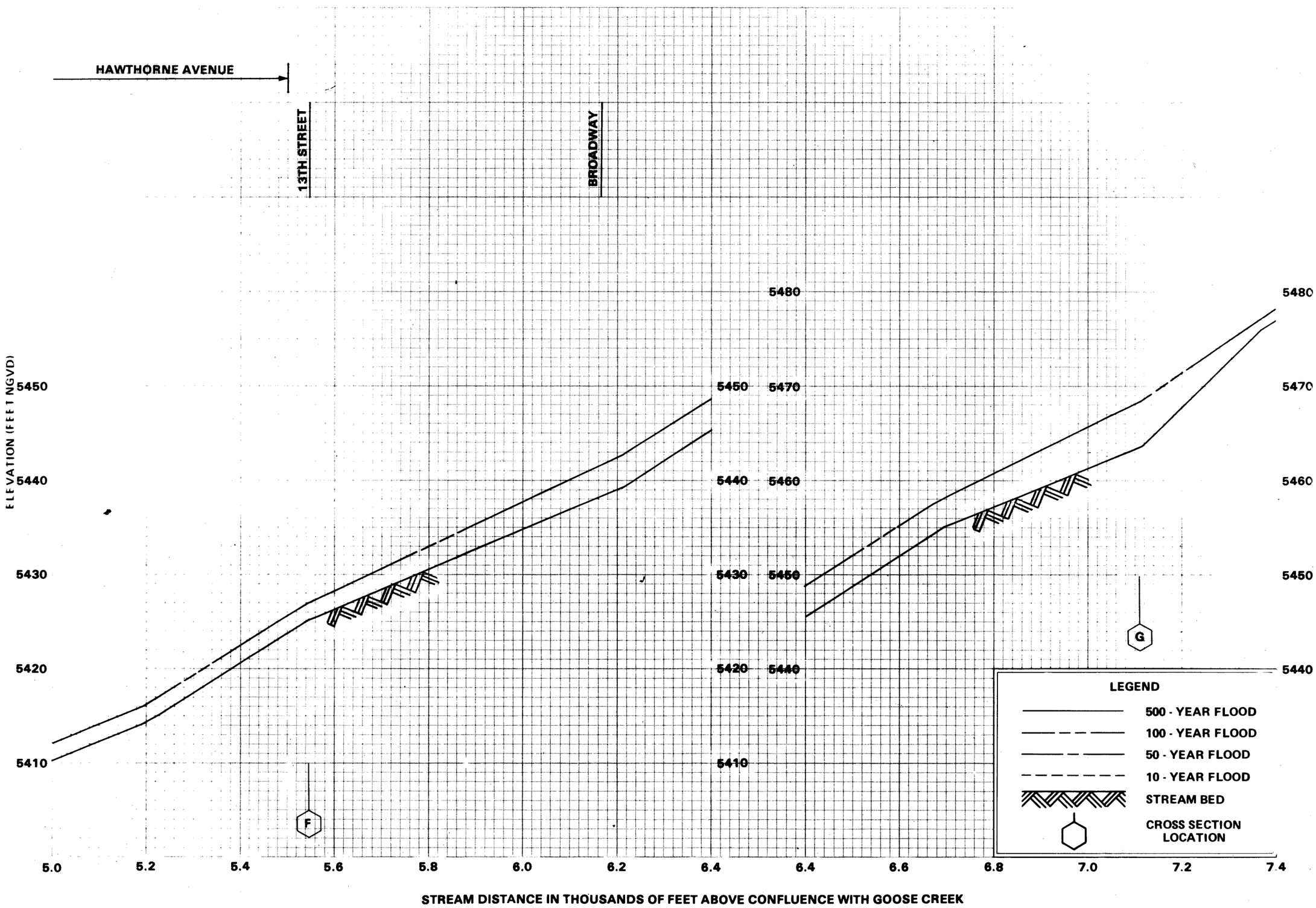
FLOOD PROFILES

TWO-MILE CANYON CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

BOULDER COUNTY, CO
AND INCORPORATED AREAS

360P

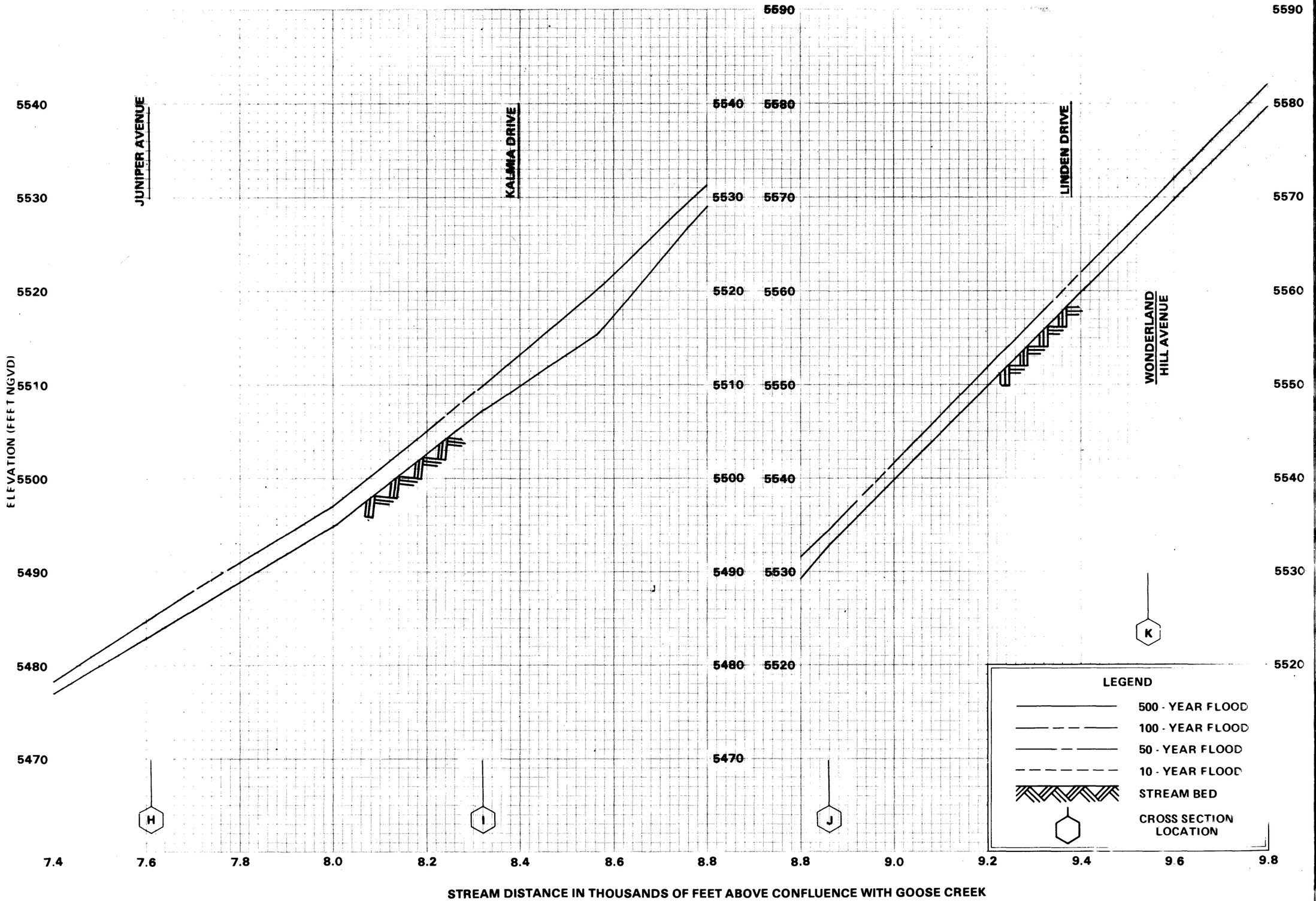


FLOOD PROFILES

TWO-MILE CANYON CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

BOULDER COUNTY, CO
AND INCORPORATED AREAS



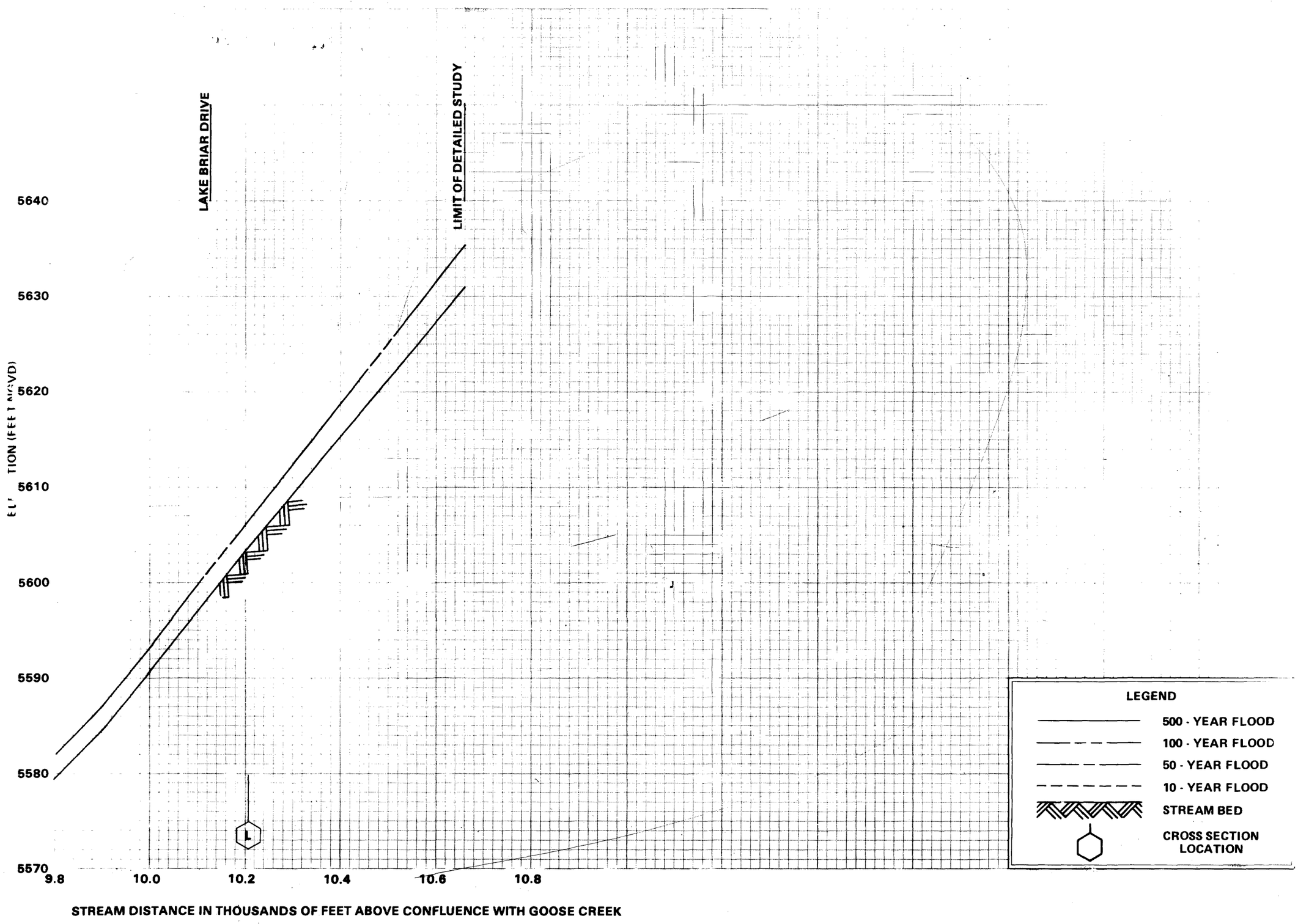
FLOOD PROFILES

TWO-MILE CANYON CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

BOULDER COUNTY, CO
AND INCORPORATED AREAS

362P



FLOOD PROFILES

TWO-MILE CANYON CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

BOULDER COUNTY, CO
AND INCORPORATED AREAS

363P

Federal Emergency Management Agency

Washington, D.C. 20472

MAY 13 2004

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

The Honorable William R. Toor
Mayor, City of Boulder
P.O. Box 791
Boulder, CO 80306

IN REPLY REFER TO:
Case No.: 04-08-0098P
Community Name: City of Boulder, CO
Community No.: 080024
Effective Date of This Revision: SEP 16 2004

Dear Mayor Toor:

The Flood Insurance Study report and Flood Insurance Rate Map for your community have been revised by this Letter of Map Revision (LOMR). Please use the enclosed annotated map panel(s) revised by this LOMR for floodplain management purposes and for all flood insurance policies and renewals issued in your community.

Additional documents are enclosed which provide information regarding this LOMR. Please see the List of Enclosures below to determine which documents are included. Other attachments specific to this request may be included as referenced in the Determination Document. If you have any questions regarding floodplain management regulations for your community or the National Flood Insurance Program (NFIP) in general, please contact the Consultation Coordination Officer for your community. If you have any technical questions regarding this LOMR, please contact the Director, Federal Insurance and Mitigation Division of the Department of Homeland Security's Federal Emergency Management Agency (FEMA) in Denver, Colorado, at (303) 235-4830, or the FEMA Map Assistance Center toll free at 1-877-336-2627 (1-877-FEMA MAP). Additional information about the NFIP is available on our website at http://www.fema.gov/nfip.

Sincerely,

Kevin C. Long

Kevin C. Long, CFM, Project Engineer
Hazard Identification Section
Mitigation Division
Emergency Preparedness
and Response Directorate

For: Doug Bellomo, P.E., CFM, Acting Chief
Hazard Identification Section
Mitigation Division
Emergency Preparedness
and Response Directorate

List of Enclosures:
- Letter of Map Revision Determination Document
- Annotated Flood Insurance Rate Map
- Annotated Flood Insurance Study Report

cc: Mr. Douglas Sullivan, P.E.
Engineering Project Manager
City of Boulder

Mr. Bill DeGroot, P.E.
Chief, Floodplain Management Program
Urban Drainage and Flood Control District

[redacted] P.E., CFM
Project Manager
McLaughlin Water Engineers, Ltd.

 | Issue Date: MAY 13 2004 | Effective Date: SEP 16 2004 | Case No.: 04-08-0098P | LOMR-APP

Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP REVISION DETERMINATION DOCUMENT

COMMUNITY AND REVISION INFORMATION		PROJECT DESCRIPTION	BASIS OF REQUEST
COMMUNITY	City of Boulder Boulder County Colorado	BRIDGE CHANNELIZATION CULVERT EXCAVATION FILL	HYDRAULIC ANALYSIS NEW TOPOGRAPHIC DATA
	COMMUNITY NO.: 080024		
IDENTIFIER	Goose Creek	APPROXIMATE LATITUDE & LONGITUDE: 40°01.740'N, 105°15.494'W SOURCE: USGS QUADRANGLE DATUM: NGVD 29	

FLOODING SOURCE(S) & REVISED REACH(ES)	Goose Creek – from 30th Street to approximately 1,900 feet upstream of Folsom Street Elmers Twomile Creek – from the confluence with Goose Creek to approximately 260 feet downstream of Valmont Drive Shallow flooding area adjacent to Elmers Twomile Creek

SUMMARY OF REVISIONS

	Goose Creek					Elmers Twomile Creek		Shallow Flooding Area	
Effective Flooding:	Zone AE	Floodway	BFEs*	X (shaded)	X (unshaded)	Zone AE	BFEs*	Zone AO	BFEs*
Revised Flooding:	Zone AE	Floodway	BFEs	X (shaded)	X (unshaded)	Zone AE	BFEs	Zone AO	Depths
Increases:	NONE	YES	NONE	YES	YES	NONE	NONE	YES	NONE
Decreases:	YES	YES	YES	YES	NONE	YES	YES	NONE	YES

* BFEs – Base Flood Elevations

ANNOTATED MAPPING ENCLOSURES	ANNOTATED STUDY ENCLOSURES
TYPE: FIRM* NO.: 08013C0395 F Date: June 2, 1995	DATE OF EFFECTIVE FLOOD INSURANCE STUDY REPORT: May 6, 1996 FLOODWAY DATA TABLE PROFILE: 156P PROFILES: 157P and 157P(a) PROFILE: 195P PROFILE: 196P PROFILE: 197P

* FIRM – Flood Insurance Rate Map; ** FBFM – Flood Boundary and Floodway Map; *** FHBM – Flood Hazard Boundary Map

DETERMINATION

This document provides the determination from the Department of Homeland Security's Federal Emergency Management Agency (FEMA) regarding a request for a Letter of Map Revision (LOMR) for the area described above. Using the information submitted, we have determined that a revision to the flood hazards depicted in the Flood Insurance Study (FIS) report and/or National Flood Insurance Program (NFIP) map is warranted. This document revises the effective NFIP map, as indicated in the attached documentation. Please use the enclosed annotated map panels revised by this LOMR for floodplain management purposes and for all flood insurance policies and renewals in your community.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Assistance Center toll free at 1-877-336-2677 (1-877-FEMA MAP) or by letter addressed to the LOMR Depot, 3601 Eisenhower Avenue, Alexandria, VA 22304. Additional information about the NFIP is available on our website at http://www.fema.gov/nfip.

Kevin C. Long

Kevin C. Long, CFM, Project Engineer
Hazard Identification Section
Mitigation Division
Emergency Preparedness and Response Directorate

102426D.AU4080098 102IAC

Federal Emergency Management Agency
Washington, D.C. 20472

LETTER OF MAP REVISION DETERMINATION DOCUMENT (CONTINUED)

COMMUNITY INFORMATION

APPLICABLE NFIP REGULATIONS/COMMUNITY OBLIGATION

We have made this determination pursuant to Section 206 of the Flood Disaster Protection Act of 1973 (P.L. 93-234) and in accordance with the National Flood Insurance Act of 1968, as amended (Title XIII of the Housing and Urban Development Act of 1968, P.L. 90-448), 42 U.S.C. 4001-4128, and 44 CFR Part 65. Pursuant to Section 1361 of the National Flood Insurance Act of 1968, as amended, communities participating in the NFIP are required to adopt and enforce floodplain management regulations that meet or exceed NFIP criteria. These criteria, including adoption of the FIS report and FIRM, and the modifications made by this LOMR, are the minimum requirements for continued NFIP participation and do not supersede more stringent State/Commonwealth or local requirements to which the regulations apply.

We provide the floodway designation to your community as a tool to regulate floodplain development. Therefore, the floodway revision we have described in this letter, while acceptable to us, must also be acceptable to your community and adopted by appropriate community action, as specified in Paragraph 60.3(d) of the NFIP regulations.

NFIP regulations Subparagraph 60.3(b)(7) requires communities to ensure that the flood-carrying capacity within the altered or relocated portion of any watercourse is maintained. This provision is incorporated into your community's existing floodplain management ordinances; therefore, responsibility for maintenance of the modified channel and culvert rests with your community. We may request that your community submit a description and schedule of channel and culvert activities.

COMMUNITY REMINDERS

We based this determination on the 1-percent-annual-chance discharges computed in the submitted hydrologic model. Future development of projects upstream could cause increased discharges, which could cause increased flood hazards. A comprehensive restudy of your community's flood hazards would consider the cumulative effects of development on discharges and could, therefore, indicate that greater flood hazards exist in this area.

Your community must regulate all proposed floodplain development and ensure that permits required by Federal and/or State/Commonwealth law have been obtained. State/Commonwealth or community officials, based on knowledge of local conditions and in the interest of safety, may set higher standards for construction or may limit development in floodplain areas. If your State/Commonwealth or community has adopted more restrictive or comprehensive floodplain management criteria, those criteria take precedence over the minimum NFIP requirements.

We will not print and distribute this LOMR to primary users, such as local insurance agents or mortgage lenders; instead, the community will serve as a repository for the new data. We encourage you to disseminate the information in this LOMR by preparing a news release for publication in your community's newspaper that describes the revision and explains how your community will provide the data and help interpret the NFIP maps. In that way, interested persons, such as property owners, insurance agents, and mortgage lenders, can benefit from the information.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Assistance Center toll free at 1-877-336-2677 (1-877-FEMA MAP) or by letter addressed to the LOMR Depot, 3601 Eisenhower Avenue, Alexandria, VA 22304. Additional information about the NFIP is available on our website at http://www.fema.gov/nfip.

Kevin C Long

Kevin C. Long, CFM, Project Engineer
Hazard Identification Section
Mitigation Division
Emergency Preparedness and Response Directorate

Federal Emergency Management Agency
Washington, D.C. 20472

LETTER OF MAP REVISION DETERMINATION DOCUMENT (CONTINUED)

COMMUNITY INFORMATION (CONTINUED)

This revision has met our criteria for removing an area from the 1-percent-annual-chance floodplain to reflect the placement of fill. However, we encourage you to require that the lowest adjacent grade and lowest floor (including basement) of any structure placed within the subject area be elevated to or above the Base (1-percent-annual-chance) Flood Elevation.

We have designated a Consultation Coordination Officer (CCO) to assist your community. The CCO will be the primary liaison between your community and FEMA. For information regarding your CCO, please contact:

Mr. Steve L. Olsen
Director, Federal Insurance and Mitigation Division
Federal Emergency Management Agency, Region VIII
Denver Federal Center, Building 710
P.O. Box 25267
Denver, CO 80225-0267
(303) 235-4830

STATUS OF THE COMMUNITY NFIP MAPS

We will not physically revise and republish the FIRM and FIS report for your community to reflect the modifications made by this LOMR at this time. When changes to the previously cited FIRM panel and FIS report warrant physical revision and republication in the future, we will incorporate the modifications made by this LOMR at that time.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Assistance Center toll free at 1-877-336-2677 (1-877-FEMA MAP) or by letter addressed to the LOMR Depot, 3601 Eisenhower Avenue, Alexandria, VA 22304. Additional information about the NFIP is available on our website at http://www.fema.gov/nfip.

Kevin C. Long

Kevin C. Long, CFM, Project Engineer
Hazard Identification Section
Mitigation Division
Emergency Preparedness and Response Directorate

Federal Emergency Management Agency
Washington, D.C. 20472

LETTER OF MAP REVISION DETERMINATION DOCUMENT (CONTINUED)

PUBLIC NOTIFICATION OF REVISION

Within 90 days of the second publication in the local newspaper, a citizen may request that we reconsider this determination. Any request for reconsideration must be based on scientific or technical data. Therefore, this letter will be effective only after the 90-day appeal period has elapsed and we have resolved any appeals that we receive during this appeal period. Until this LOMR is effective, the revised BFEs presented in this LOMR may be changed.

This information will be published in the *Federal Register* and your local newspaper as detailed below.

LOCAL NEWSPAPER Name: *Boulder Daily Camera*
Dates: 06/10/2004 06/17/2004

PUBLIC NOTIFICATION

FLOODING SOURCE	LOCATION OF REFERENCED ELEVATION	BFE (FEET NGVD)		MAP PANEL NUMBER(S)
		EFFECTIVE	REVISED	
Goose Creek	Approximately 380 feet upstream of 30th Street	5,276	5,273	08013C0395 F
	Approximately 150 feet upstream of the confluence with Elmers Twomile Creek	5,316	5,315	08013C0395 F
Elmers Twomile Creek	Approximately 650 feet downstream of Valmont Drive	5,294	5,288	08013C0395 F
	Approximately 370 feet downstream of Valmont Drive	5,295	5,294	08013C0395 F
Shallow Flooding Area	Approximately 650 feet downstream of Valmont Drive	5,294	1#	08013C0395 F
	Approximately 370 feet downstream of Valmont Drive	5,295	1#	08013C0395 F

#Depth above ground, rounded to the nearest whole foot

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Assistance Center toll free at 1-877-336-2677 (1-877-FEMA MAP) or by letter addressed to the LOMR Depot, 3601 Eisenhower Avenue, Alexandria, VA 22304. Additional information about the NFIP is available on our website at http://www.fema.gov/nfip.

Kevin C. Long

Kevin C. Long, CFM, Project Engineer
Hazard Identification Section
Mitigation Division
Emergency Preparedness and Response Directorate

CHANGES ARE MADE IN DETERMINATIONS OF BASE FLOOD ELEVATIONS FOR THE CITY OF BOULDER, BOULDER COUNTY, COLORADO, UNDER THE NATIONAL FLOOD INSURANCE PROGRAM

On June 2, 1995, the Department of Homeland Security's Federal Emergency Management Agency identified Special Flood Hazard Areas (SFHAs) in the City of Boulder, Boulder County, Colorado, through issuance of a Flood Insurance Rate Map (FIRM). The Mitigation Division has determined that modification of the elevations of the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood) for certain locations in this community is appropriate. The modified Base Flood Elevations (BFEs) revise the FIRM for the community.

The changes are being made pursuant to Section 206 of the Flood Disaster Protection Act of 1973 (Public Law 93-234) and are in accordance with the National Flood Insurance Act of 1968, as amended (Title XIII of the Housing and Urban Development Act of 1968, Public Law 90-448), 42 U.S.C. 4001-4128, and 44 CFR Part 65.

A revised hydraulic analysis was performed to incorporate channel improvements along Goose Creek from 30th Street to approximately 1,900 feet upstream of Folsom Street. These channel improvements also affected Elmers Twomile Creek from the confluence with Goose Creek to approximately 260 feet downstream of Valmont Drive. This has resulted in a revised delineation of the regulatory floodway for Goose Creek; a decrease in SFHA width and decreased BFEs for both Goose Creek and Elmers Twomile Creek; and an increase in SFHA width for a shallow flooding area adjacent to Elmers Twomile Creek from approximately 330 feet downstream of Valmont Drive to the Goose Creek floodplain boundary. The aforementioned channelized portion of Goose Creek contains the base flood. The table below indicates existing and modified BFEs for selected locations along the affected lengths of the flooding source(s) cited above.

Location	Existing BFE (feet)	Modified BFE (feet)
Goose Creek:		
Approximately 380 feet upstream of 30th Street	5,276*	5,273*
Approximately 150 feet upstream of confluence with Elmers Twomile Creek	5,316*	5,315*
Elmers Twomile Creek:		
Approximately 650 feet downstream of Valmont Drive	5,294*	5,288*
Approximately 330 feet downstream of Valmont Drive	5,295*	5,294*
Shallow Flooding Area:		
Approximately 650 feet downstream of Valmont Drive	5,294*	1#
Approximately 330 feet downstream of Valmont Drive	5,295*	1#

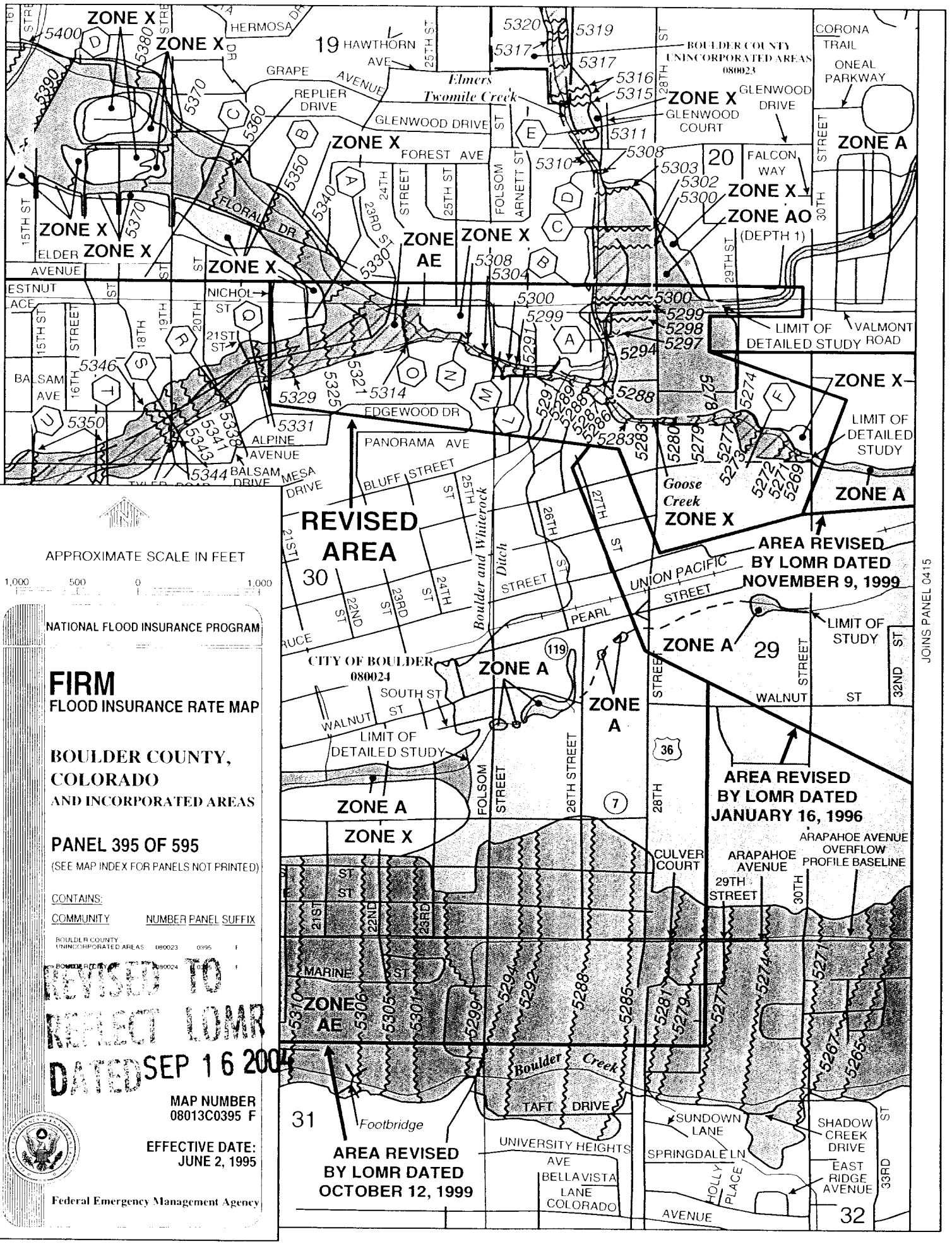
*National Geodetic Vertical Datum, rounded to nearest whole foot
#Depth above ground, rounded to nearest whole foot

Under the above-mentioned Acts of 1968 and 1973, the Mitigation Division must develop criteria for floodplain management. To participate in the National Flood Insurance Program (NFIP), the community must use the modified BFEs to administer the floodplain management measures of the NFIP. These modified BFEs will also be used to calculate the appropriate flood insurance premium rates for new buildings and their contents and for the second layer of insurance on existing buildings and contents.

Upon the second publication of notice of these changes in this newspaper, any person has 90 days in which he or she can request, through the Chief Executive Officer of the community, that the Mitigation Division reconsider the determination. Any request for reconsideration must be based on knowledge of changed conditions or new scientific or technical data. All interested parties are on notice that until the 90-day period elapses, the Mitigation Division's determination to modify the BFEs may itself be changed.

Any person having knowledge or wishing to comment on these changes should immediately notify:

The Honorable William R. Toor
Mayor, City of Boulder
P.O. Box 791
Boulder, CO 80306


ZONE X
ZONE A
ZONE AE
ZONE AO
(DEPTH 1)
REVISED AREA
AREA REVISED BY LOMR DATED NOVEMBER 9, 1999
AREA REVISED BY LOMR DATED JANUARY 16, 1996
AREA REVISED BY LOMR DATED OCTOBER 12, 1999
BOULDER COUNTY UNINCORPORATED AREAS 080023
CITY OF BOULDER 080024
Elmers Twomile Creek
Goose Creek
Boulder Creek
Boulder and Whiterock Ditch
HAWTHORN AVE
GRAPE AVENUE
REPLIER DRIVE
GLENWOOD DRIVE
GLENWOOD COURT
FOREST AVE
FLORAL DR.
ELDER AVENUE
NICHOL ST
EDGEWOOD DR
PANORAMA AVE
BLUFF STREET
ALPINE AVENUE
BALSAM DRIVE
MESA DRIVE
UNION PACIFIC
PEARL STREET
WALNUT ST
SOUTH ST
FOLSOM STREET
26TH STREET
CULVER COURT
ARAPAHOE AVENUE
29TH STREET
ARAPAHOE AVENUE OVERFLOW PROFILE BASELINE
MARINE ST
TAFT DRIVE
Footbridge
UNIVERSITY HEIGHTS AVE
BELLA VISTA LANE
COLORADO AVENUE
SUNDOWN LANE
SPRINGDALE LN
HOLLY PLACE
SHADOW CREEK DRIVE
EAST RIDGE AVENUE
CORONA TRAIL
ONEAL PARKWAY
FALCON WAY
VALMONT ROAD
LIMIT OF DETAILED STUDY
JOINS PANEL 0415
APPROXIMATE SCALE IN FEET
1,000 500 0 1,000
NATIONAL FLOOD INSURANCE PROGRAM
FIRM
FLOOD INSURANCE RATE MAP
BOULDER COUNTY, COLORADO
AND INCORPORATED AREAS
PANEL 395 OF 595
(SEE MAP INDEX FOR PANELS NOT PRINTED)
CONTAINS:
COMMUNITY NUMBER PANEL SUFFIX
BOULDER COUNTY UNINCORPORATED AREAS 080023 0395 F
BOULDER, CITY OF 080024 0395 F
REVISED TO REFLECT LOMR DATED SEP 16 2004
MAP NUMBER 08013C0395 F
EFFECTIVE DATE: JUNE 2, 1995
Federal Emergency Management Agency

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
					(FEET NGVD)			
Goose Creek								
A	1,000	212	640	9.9	5,211.0	5,204.3 [2]	5,204.3 [2]	0.0
B	2,075	81	245	10.0	5,218.3	5,217.5 [2]	5,217.5 [2]	0.0
C	3,330	80	235	9.8	5,227.4	5,227.4	5,227.4	0.0
D	4,160	88	242	9.5	5,234.0	5,234.0	5,234.0	0.0
E	4,900	71	270	5.9	5,242.7	5,242.7	5,242.7	0.0
F	8,068	228	734	4.9	5,272.9	5,272.9	5,272.9	0.0
G	8,824	58	327	10.6	5,279.5	5,279.5	5,279.5	0.0
~~H~~	~~6,720~~	~~270~~	~~138~~	~~4.1~~	~~5,263.4~~	~~5,263.4~~	~~5,263.6~~	~~0.2~~
~~I~~	~~7,380~~	~~360~~	~~453~~	~~2.9~~	~~5,268.4~~	~~5,268.4~~	~~5,268.8~~	~~0.4~~
~~J~~	~~7,620~~	~~663~~	~~705~~	~~5.1~~	~~5,275.0~~	~~5,275.0~~	~~5,275.2~~	~~0.2~~
~~K~~	~~8,810~~	~~390~~	~~742~~	~~4.7~~	~~5,287.4~~	~~5,287.4~~	~~5,287.6~~	~~0.2~~
L	10,184	80	455	5.9	5,292.2	5,292.2	5,292.2	0.0
M	10,418	46	216	12.4	5,299.9	5,299.9	5,299.9	0.0
N	10,778	77	267	10.1	5,309.3	5,309.3	5,309.3	0.0
O	11,226	241	373	7.2	5,314.1	5,314.1	5,314.2	0.1
~~P~~	~~11,720~~	~~167~~	~~321~~	~~5.0~~	~~5,325.1~~	~~5,325.1~~	~~5,325.3~~	~~0.2~~
Q	12,290	200	512	3.1	5,331.4	5,331.4	5,331.7	0.3
R	12,670	230	435	3.7	5,337.9	5,337.9	5,338.1	0.2
S	13,150	150	395	4.1	5,343.9	5,343.9	5,344.2	0.3
T	13,800	170	1,066	1.5	5,349.2	5,349.2	5,350.2	1.0
U	14,420	132	656	2.0	5,350.2	5,350.2	5,351.1	0.9
V	14,900	163	352	3.8	5,352.7	5,352.7	5,352.7	0.0
W	15,450	195	190	5.5	5,359.7	5,359.7	5,360.1	0.4
X	15,940	282	486	2.2	5,364.9	5,364.9	5,365.4	0.5
Y	16,280	178	428	2.2	5,373.2	5,373.2	5,373.8	0.6
Z	16,700	100	134	6.0	5,378.6	5,378.6	5,378.7	0.1
AA	17,280	200	523	1.2	5,379.6	5,379.6	5,380.4	0.8

REVISED DATA

REVISED DATA

THIS DATA WAS REVISED BY LOMR DATED JANUARY 16, 1996

THIS DATA WAS REVISED BY LOMR DATED OCTOBER 12, 1999

[1] Feet Above Confluence With Boulder Creek

[2] Elevations Computed Without Consideration of Backwater Effects From Boulder Creek

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

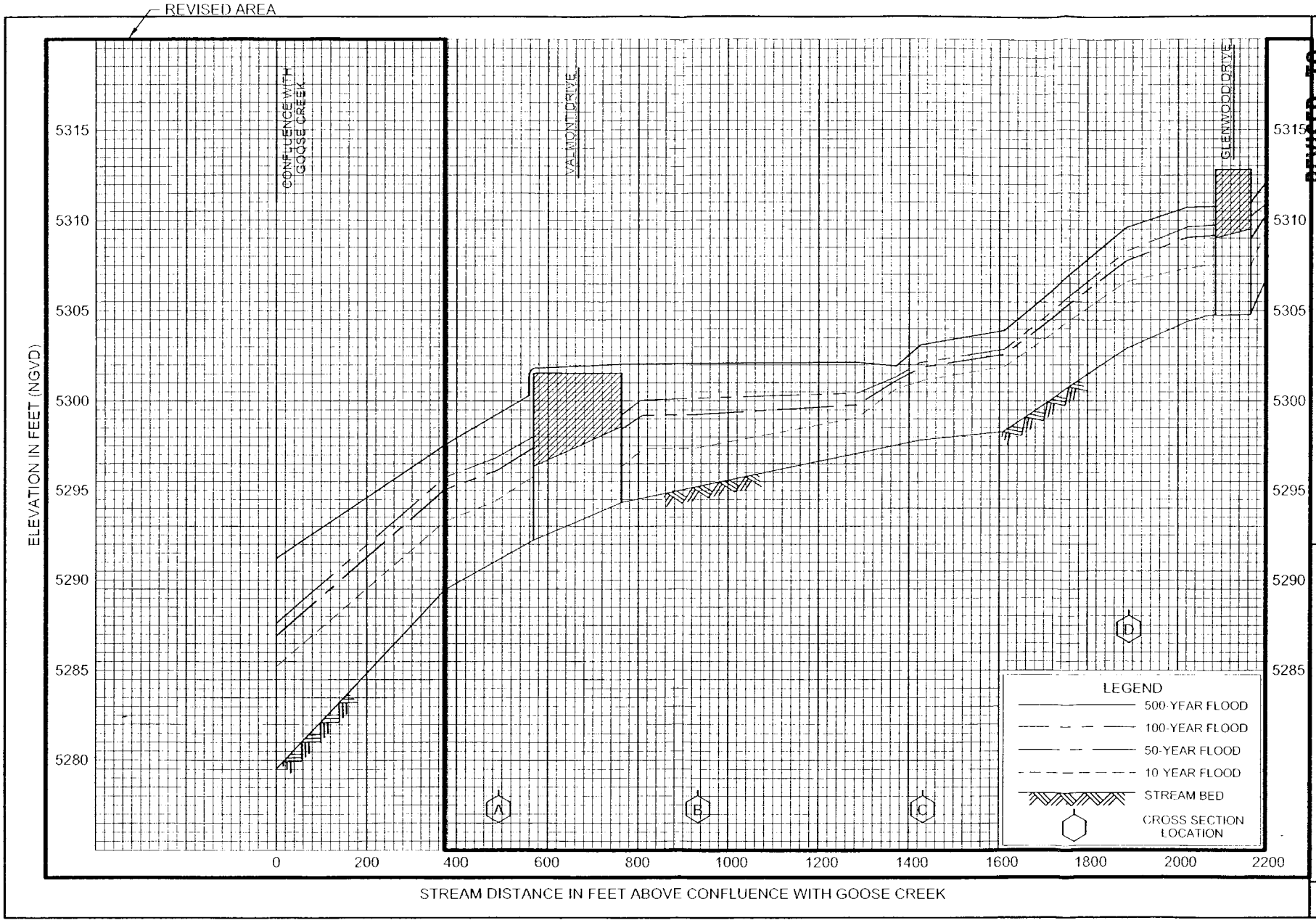
BOULDER COUNTY, CO AND INCORPORATED AREAS

FLOODWAY DATA

GOOSE CREEK

EFFECT LOMR

DATED SEP 16 2004



FLOOD PROFILES

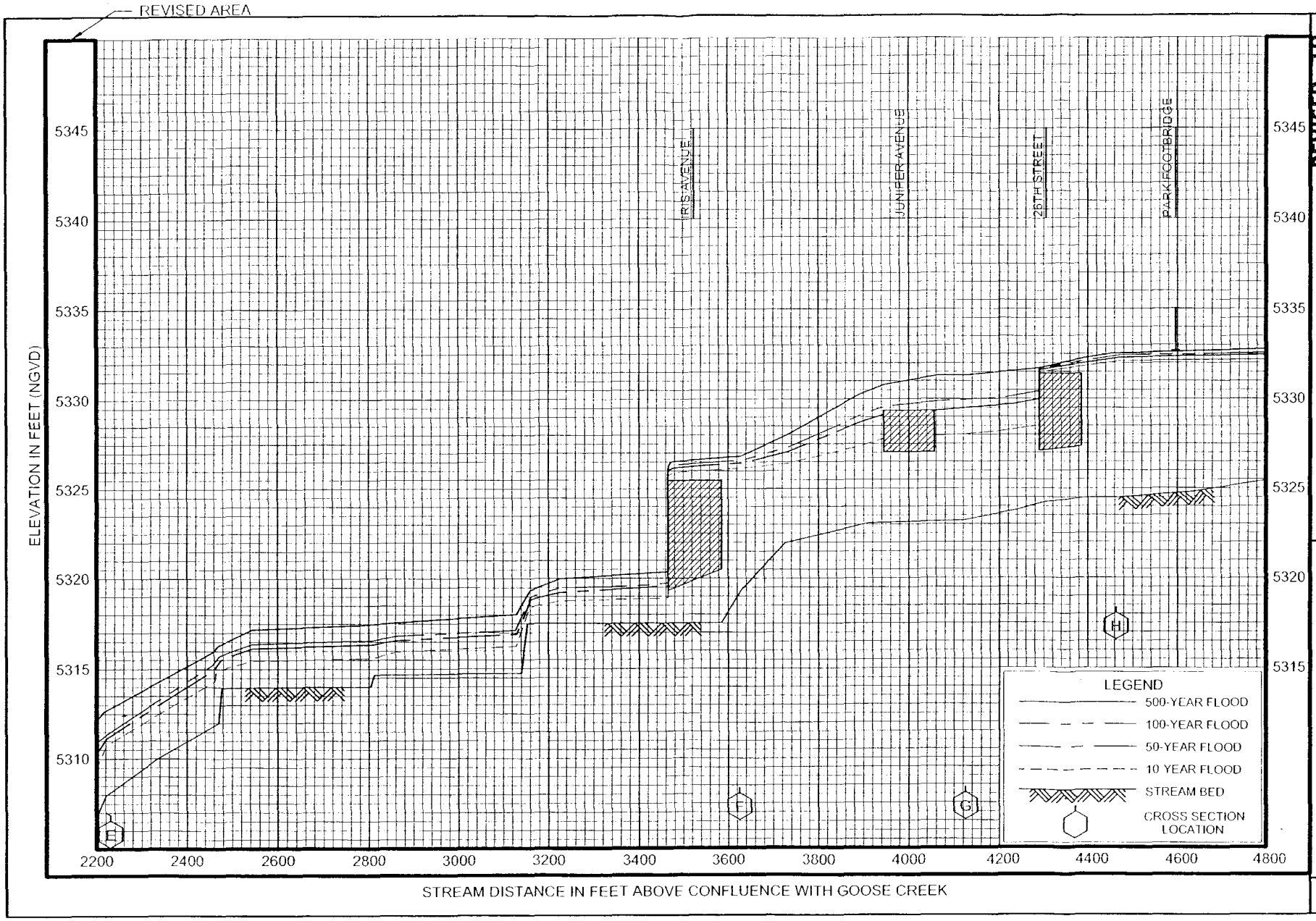
ELMERS TWOMILE CREEK

REVISED TO REFLECT LOMR DATED SEP 16 2004

FEDERAL EMERGENCY MANAGEMENT AGENCY

BOULDER COUNTY, CO
AND INCORPORATED AREAS

156P



FLOOD PROFILES

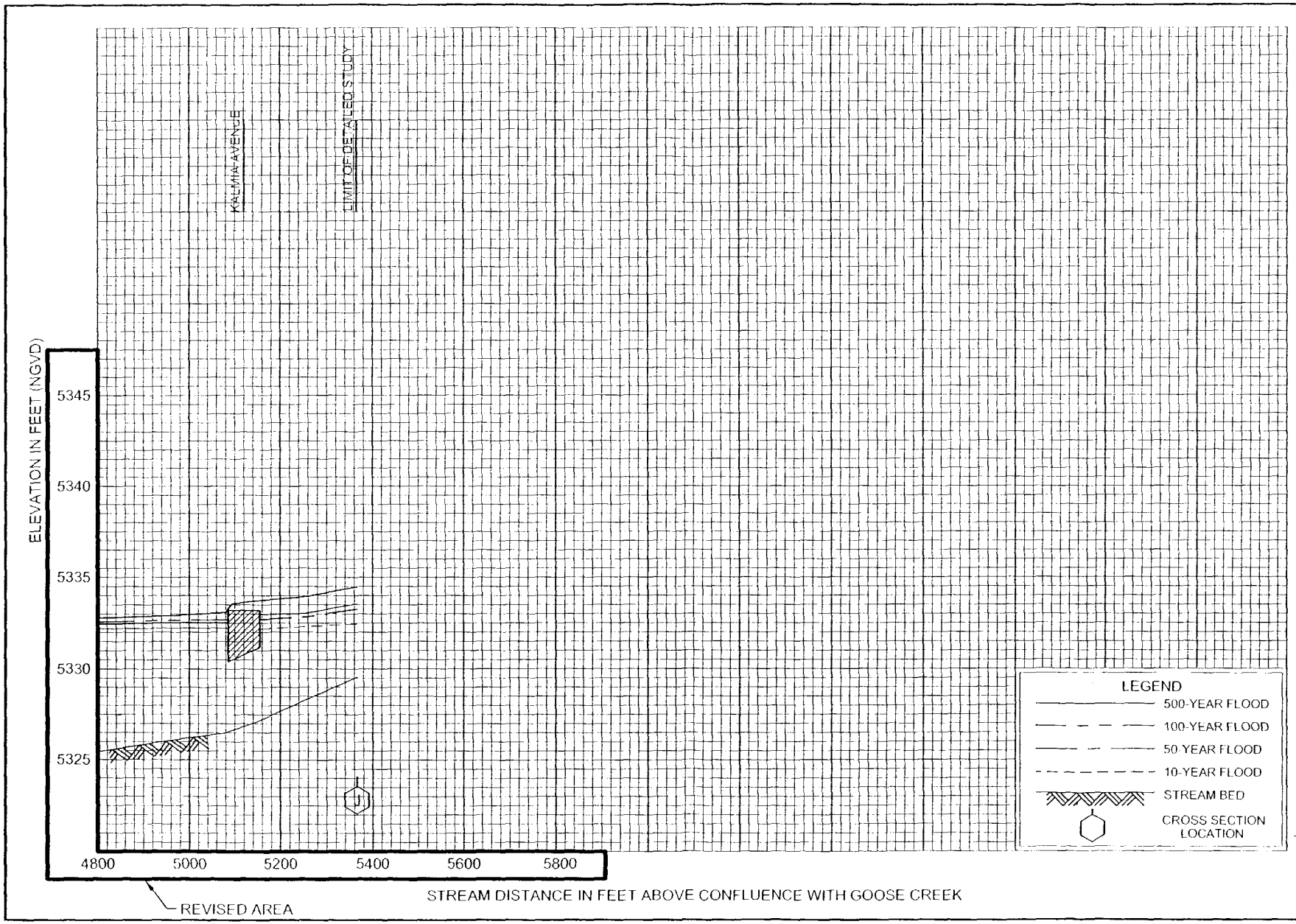
ELMERS TWOMILE CREEK

REVISED TO REFLECT LOWR DATED SEP 16 2004

FEDERAL EMERGENCY MANAGEMENT AGENCY

BOULDER COUNTY, CO
AND INCORPORATED AREAS

157P



FLOOD PROFILES

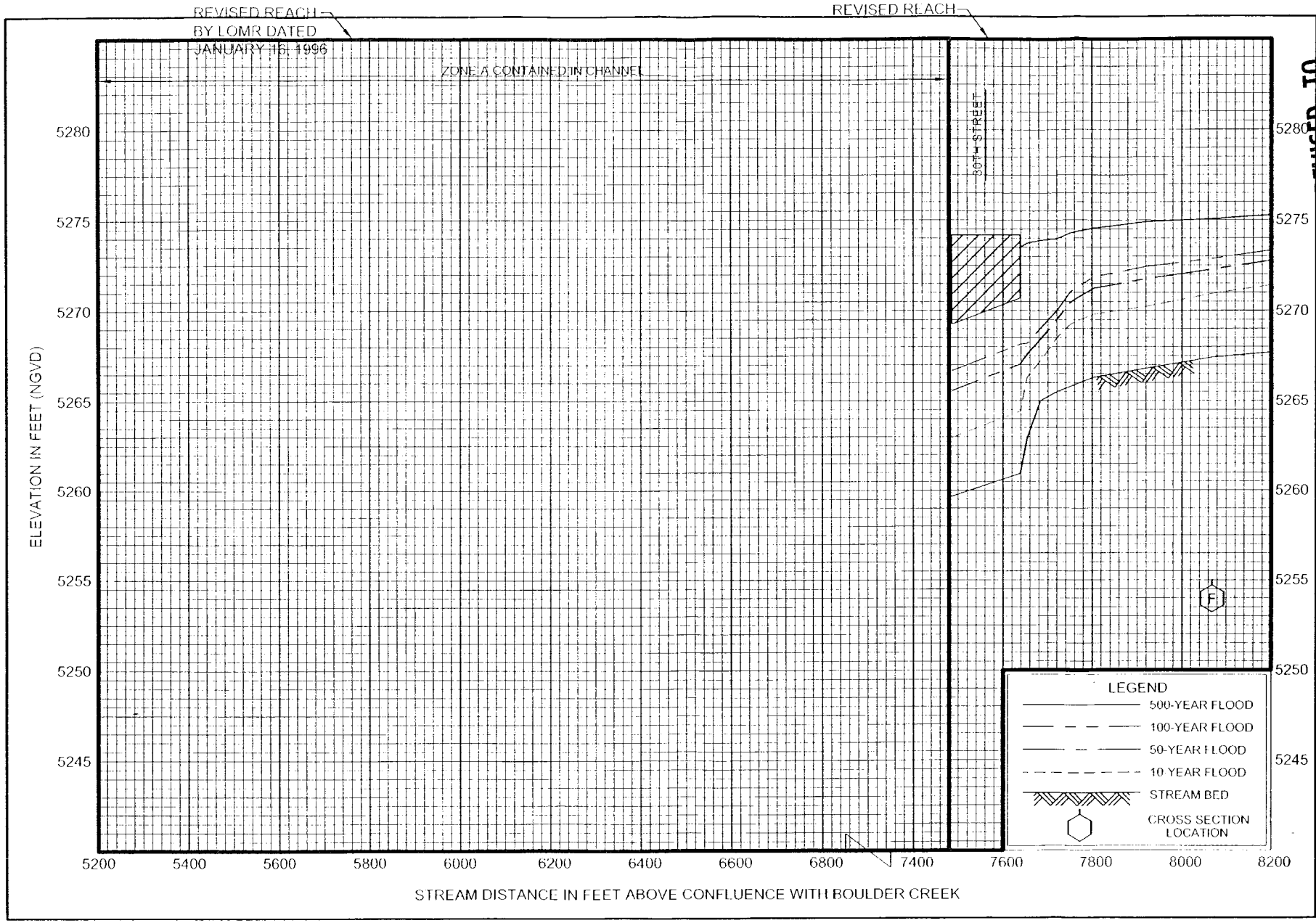
ELMERS TWOMILE CREEK

REVISED TO REFLECT LOMR EFFECTIVE SEP 16 2004

FEDERAL EMERGENCY MANAGEMENT AGENCY

BOULDER COUNTY, CO
AND INCORPORATED AREAS

157P (a)



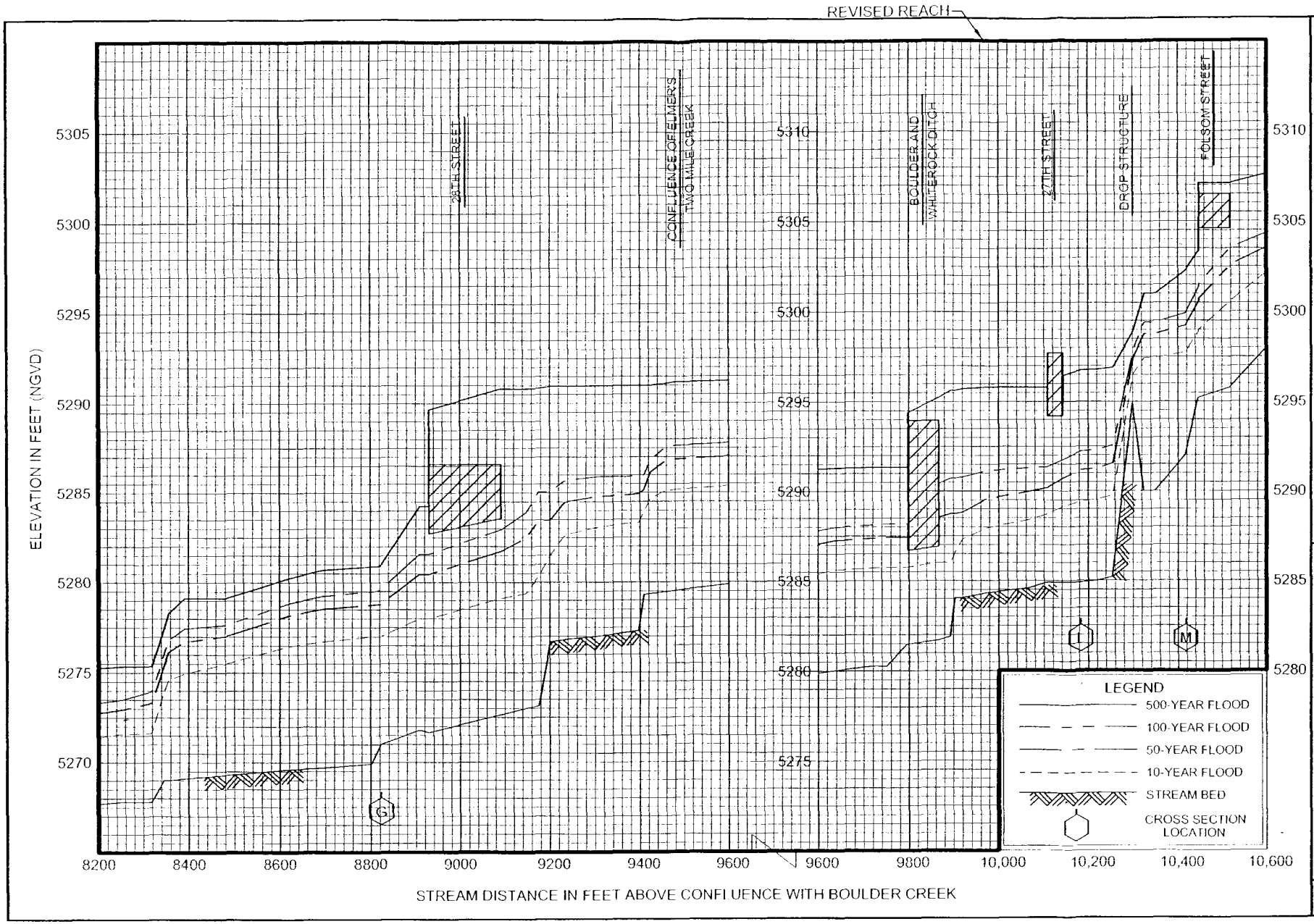
REVISED TO REFLECT LOMR DATED SEP 16 2004

FLOOD PROFILES

GOOSE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

BOULDER COUNTY, CO
AND INCORPORATED AREAS



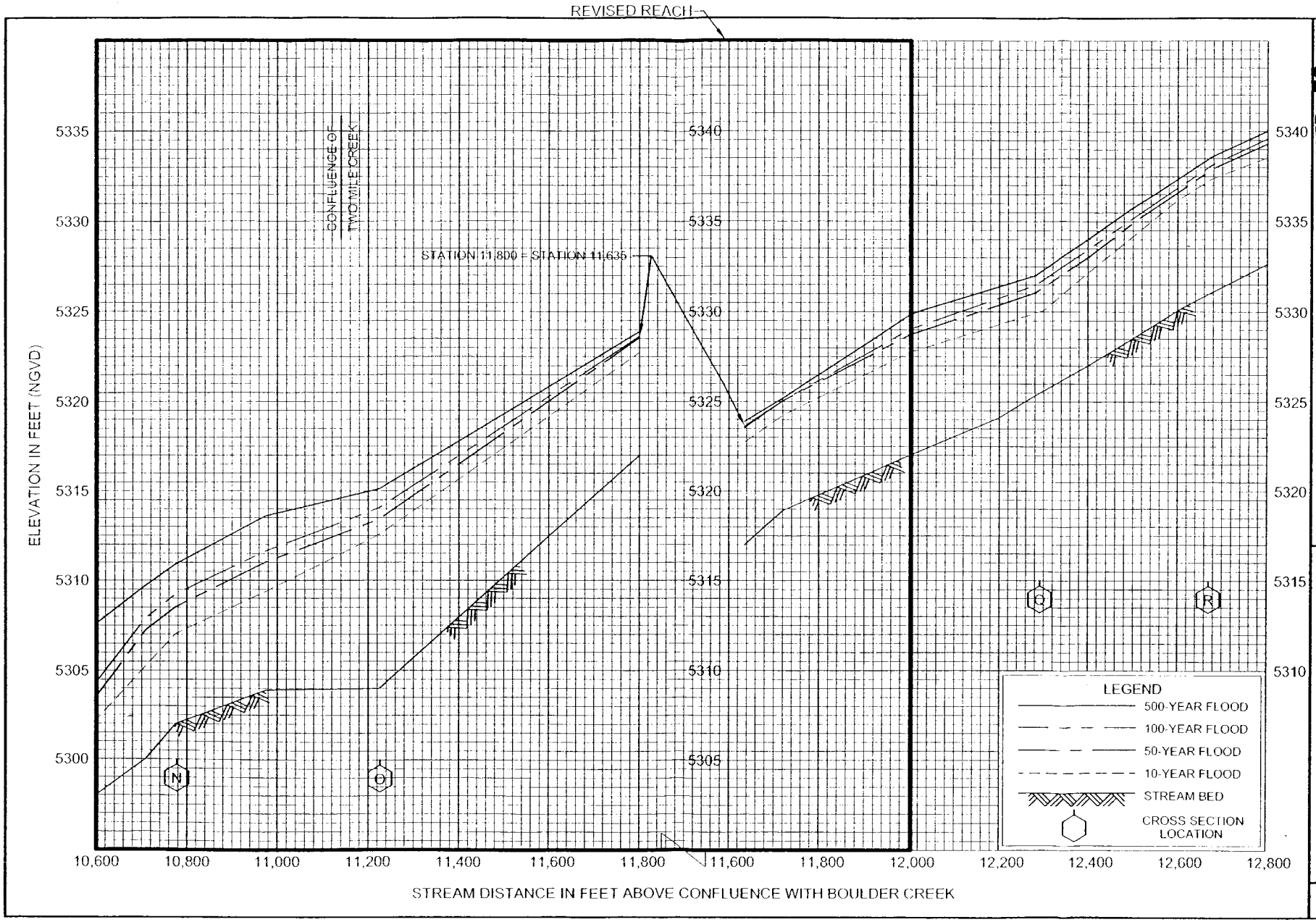
FLOOD PROFILES

GOOSE CREEK

REVISED TO REFLECT LOMR DATED SEP 16 2004

FEDERAL EMERGENCY MANAGEMENT AGENCY

BOULDER COUNTY, CO AND INCORPORATED AREAS



FLOOD PROFILES

GOOSE CREEK

REVISED TO REFLECT LOMR DATED SEP 16 2004

FEDERAL EMERGENCY MANAGEMENT AGENCY

BOULDER COUNTY, CO
AND INCORPORATED AREAS

Federal Emergency Management Agency

Washington, D.C. 20472

NOV 01 2004

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

The Honorable William R. Toor
Mayor, City of Boulder
P.O. Box 791
Boulder, CO 80306

IN REPLY REFER TO:

Case No.:	04-08-0494P
Community Name:	City of Boulder, CO
Community No.:	080024
Effective Date of This Revision:	NOV 01 2004

Dear Mayor Toor:

The Flood Insurance Study report and Flood Insurance Rate Map for your community have been revised by this Letter of Map Revision (LOMR). Please use the enclosed annotated map panel(s) revised by this LOMR for floodplain management purposes and for all flood insurance policies and renewals issued in your community.

Additional documents are enclosed which provide information regarding this LOMR. Please see the List of Enclosures below to determine which documents are included. Other attachments specific to this request may be included as referenced in the Determination Document. If you have any questions regarding floodplain management regulations for your community or the National Flood Insurance Program (NFIP) in general, please contact the Consultation Coordination Officer for your community. If you have any technical questions regarding this LOMR, please contact the Director, Federal Insurance and Mitigation Division of the Department of Homeland Security's Federal Emergency Management Agency (FEMA) in Denver, Colorado, at (303) 235-4830, or the FEMA Map Assistance Center toll free at 1-877-336-2627 (1-877-FEMA MAP). Additional information about the NFIP is available on our website at http://www.fema.gov/nfip.

Sincerely,

Kevin C. Long

Kevin C. Long, CFM, Project Engineer
Hazard Identification Section
Mitigation Division
Emergency Preparedness
and Response Directorate

For: Doug Bellomo, P.E., CFM, Chief
Hazard Identification Section
Mitigation Division
Emergency Preparedness
and Response Directorate

List of Enclosures:
- Letter of Map Revision Determination Document
- Annotated Flood Insurance Rate Map
- Annotated Flood Insurance Study Report

cc: The Honorable Paul Danish
Chairman, Boulder County
Board of Commissioners

Ms. Karen Meede
Project Manager
Greenways and Utilities
City of Boulder

[redacted], P.E.
Drexel Barrell & Co.

[redacted]

Mr. Bill DeGroot, P.E.
Manager, Floodplain Management Program
Urban Drainage and Flood Control District

 | Issue Date: NOV 01 2004 | Effective Date: NOV 01 2004 | Case No.: 04-08-0494P | LOMR-APP

Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP REVISION DETERMINATION DOCUMENT

COMMUNITY AND REVISION INFORMATION		PROJECT DESCRIPTION	BASIS OF REQUEST
COMMUNITY	City of Boulder Boulder County Colorado	NO PROJECT	NEW TOPOGRAPHIC DATA HYDRAULIC ANALYSIS
	COMMUNITY NO.: 080024		
IDENTIFIER	Twomile Canyon Creek	APPROXIMATE LATITUDE & LONGITUDE: 40° 02.555' N, 105° 17.671' W SOURCE: USGS QUADRANGLE DATUM: NGVD 29	

FLOODING SOURCE(S) & REVISED REACH(ES)	Twomile Canyon Creek – from approximately 530 feet upstream to approximately 730 feet upstream of Lake Briar Drive

SUMMARY OF REVISIONS

Effective Flooding:	Zone A	No Floodway	No BFEs*
Revised Flooding:	Zone AE	Floodway	BFEs
Increases:	YES	YES	YES
Decreases:	NONE	NONE	NONE

* BFEs – Base Flood Elevations

ANNOTATED MAPPING ENCLOSURES	ANNOTATED STUDY ENCLOSURES
TYPE: FIRM* NO.: 08013C0395 F Date: June 2, 1995	DATE OF EFFECTIVE FLOOD INSURANCE STUDY REPORT: May 6, 1996 FLOODWAY DATA TABLE PROFILE: 363P

* FIRM – Flood Insurance Rate Map; ** FBFM – Flood Boundary and Floodway Map; *** FHBM – Flood Hazard Boundary Map

DETERMINATION

This document provides the determination from the Department of Homeland Security's Federal Emergency Management Agency (FEMA) regarding a request for a Letter of Map Revision (LOMR) for the area described above. Using the information submitted, we have determined that a revision to the flood hazards depicted in the Flood Insurance Study (FIS) report and/or National Flood Insurance Program (NFIP) map is warranted. This document revises the effective NFIP map, as indicated in the attached documentation. Please use the enclosed annotated map panels revised by this LOMR for floodplain management purposes and for all flood insurance policies and renewals in your community.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Assistance Center toll free at 1-877-336-2677 (1-877-FEMA MAP) or by letter addressed to the LOMR Depot, 3601 Eisenhower Avenue, Alexandria, VA 22304. Additional information about the NFIP is available on our website at http://www.fema.gov/nfip.

Kevin C. Long

Kevin C. Long, CFM, Project Engineer
Hazard Identification Section
Mitigation Division
Emergency Preparedness and Response Directorate 102426 D.A04080494 102IAC

Federal Emergency Management Agency
Washington, D.C. 20472

LETTER OF MAP REVISION DETERMINATION DOCUMENT (CONTINUED)

COMMUNITY INFORMATION

APPLICABLE NFIP REGULATIONS/COMMUNITY OBLIGATION

We have made this determination pursuant to Section 206 of the Flood Disaster Protection Act of 1973 (P.L. 93-234) and in accordance with the National Flood Insurance Act of 1968, as amended (Title XIII of the Housing and Urban Development Act of 1968, P.L. 90-448), 42 U.S.C. 4001-4128, and 44 CFR Part 65. Pursuant to Section 1361 of the National Flood Insurance Act of 1968, as amended, communities participating in the NFIP are required to adopt and enforce floodplain management regulations that meet or exceed NFIP criteria. These criteria, including adoption of the FIS report and FIRM, and the modifications made by this LOMR, are the minimum requirements for continued NFIP participation and do not supersede more stringent State/Commonwealth or local requirements to which the regulations apply.

We provide the floodway designation to your community as a tool to regulate floodplain development. Therefore, the floodway revision we have described in this letter, while acceptable to us, must also be acceptable to your community and adopted by appropriate community action, as specified in Paragraph 60.3(d) of the NFIP regulations.

COMMUNITY REMINDERS

We based this determination on the 1-percent-annual-chance flood discharges computed in the FIS for your community without considering subsequent changes in watershed characteristics that could increase flood discharges. Future development of projects upstream could cause increased flood discharges, which could cause increased flood hazards. A comprehensive restudy of your community's flood hazards would consider the cumulative effects of development on flood discharges subsequent to the publication of the FIS report for your community and could, therefore, establish greater flood hazards in this area.

Your community must regulate all proposed floodplain development and ensure that permits required by Federal and/or State/Commonwealth law have been obtained. State/Commonwealth or community officials, based on knowledge of local conditions and in the interest of safety, may set higher standards for construction or may limit development in floodplain areas. If your State/Commonwealth or community has adopted more restrictive or comprehensive floodplain management criteria, those criteria take precedence over the minimum NFIP requirements.

We will not print and distribute this LOMR to primary users, such as local insurance agents or mortgage lenders; instead, the community will serve as a repository for the new data. We encourage you to disseminate the information in this LOMR by preparing a news release for publication in your community's newspaper that describes the revision and explains how your community will provide the data and help interpret the NFIP maps. In that way, interested persons, such as property owners, insurance agents, and mortgage lenders, can benefit from the information.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Assistance Center toll free at 1-877-336-2677 (1-877-FEMA MAP) or by letter addressed to the LOMR Depot, 3601 Eisenhower Avenue, Alexandria, VA 22304. Additional information about the NFIP is available on our website at http://www.fema.gov/nfip.

Kevin C. Long

Kevin C. Long, CFM, Project Engineer
Hazard Identification Section
Mitigation Division
Emergency Preparedness and Response Directorate

102426 D.A04080494 102IAC

Federal Emergency Management Agency
Washington, D.C. 20472

LETTER OF MAP REVISION DETERMINATION DOCUMENT (CONTINUED)

COMMUNITY INFORMATION (CONTINUED)

We have designated a Consultation Coordination Officer (CCO) to assist your community. The CCO will be the primary liaison between your community and FEMA. For information regarding your CCO, please contact:

Mr. Robert Ives
Acting Director, Federal Insurance and Mitigation Division
Federal Emergency Management Agency, Region VIII
Denver Federal Center, Building 710
P.O. Box 25267
Denver, CO 80225-0267
(303) 235-4830

STATUS OF THE COMMUNITY NFIP MAPS

We will not physically revise and republish the FIRM and FIS report for your community to reflect the modifications made by this LOMR at this time. When changes to the previously cited FIRM panel and FIS report warrant physical revision and republication in the future, we will incorporate the modifications made by this LOMR at that time.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Assistance Center toll free at 1-877-336-2677 (1-877-FEMA MAP) or by letter addressed to the LOMR Depot, 3601 Eisenhower Avenue, Alexandria, VA 22304. Additional information about the NFIP is available on our website at http://www.fema.gov/nfip.

Kevin C. Long

Kevin C. Long, CFM, Project Engineer
Hazard Identification Section
Mitigation Division
Emergency Preparedness and Response Directorate

102426 D.A04080494 102IAC

Federal Emergency Management Agency
Washington, D.C. 20472

LETTER OF MAP REVISION
DETERMINATION DOCUMENT (CONTINUED)

PUBLIC NOTIFICATION OF REVISION

Within 90 days of the second publication in the local newspaper, a citizen may request that we reconsider this determination. Any request for reconsideration must be based on scientific or technical data. This revision is effective as of the date of this letter. However, until the 90-day period has elapsed, the revised BFEs presented in this LOMR may be changed.

A notice of changes will be published in the *Federal Register*. This information also will be published in your local newspaper on or about the dates listed below.

LOCAL NEWSPAPER Name: *Boulder Daily Camera*
Dates: 11/10/2004 11/17/2004

PUBLIC NOTIFICATION

FLOODING SOURCE	LOCATION OF REFERENCED ELEVATION	BFE (FEET NGVD)		MAP PANEL NUMBER(S)
		EFFECTIVE	REVISED	
Twomile Canyon Creek	Approximately 560 feet upstream of Lake Briar Drive	None	5,638	08013C0395 F
	Approximately 700 feet upstream of Lake Briar Drive	None	5,649	08013C0395 F

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Assistance Center toll free at 1-877-336-2677 (1-877-FEMA MAP) or by letter addressed to the LOMR Depot, 3601 Eisenhower Avenue, Alexandria, VA 22304. Additional information about the NFIP is available on our website at http://www.fema.gov/nfip.

Kevin C. Long

Kevin C. Long, CFM, Project Engineer
Hazard Identification Section
Mitigation Division
Emergency Preparedness and Response Directorate 102426 D.A04080494 102IAC

CHANGES ARE MADE IN DETERMINATIONS OF BASE FLOOD ELEVATIONS FOR THE CITY OF BOULDER AND THE UNINCORPORATED AREAS OF BOULDER COUNTY, COLORADO, UNDER THE NATIONAL FLOOD INSURANCE PROGRAM

On June 2, 1995, the Department of Homeland Security's Federal Emergency Management Agency identified Special Flood Hazard Areas (SFHAs) in the City of Boulder and in the unincorporated areas of Boulder County, Colorado, through issuance of a Flood Insurance Rate Map (FIRM). The Mitigation Division has determined that modification of the elevations of the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood) for certain locations in these communities is appropriate. The modified Base Flood Elevations (BFEs) revise the FIRM for the communities.

The changes are being made pursuant to Section 206 of the Flood Disaster Protection Act of 1973 (Public Law 93-234) and are in accordance with the National Flood Insurance Act of 1968, as amended (Title XIII of the Housing and Urban Development Act of 1968, Public Law 90-448), 42 U.S.C. 4001-4128, and 44 CFR Part 65.

A detailed hydraulic analysis was performed to incorporate more detailed topographic information for Twomile Canyon Creek from approximately 530 feet upstream to approximately 1,040 feet upstream of Lake Briar Drive. This has resulted in an increase in SFHA width and the establishment of a regulatory floodway and BFEs for Twomile Canyon Creek. The table below indicates existing and modified BFEs for selected locations along the affected lengths of the flooding source(s) cited above.

Location	Existing BFE (feet)*	Modified BFE (feet)*
[1]Approximately 560 feet upstream of Lake Briar Drive	None	5,638
[1]Approximately 700 feet upstream of Lake Briar Drive	None	5,649
[2]Approximately 880 feet upstream of Lake Briar Drive	None	5,659
[2]Approximately 1,020 feet upstream of Lake Briar Drive	None	5,670

*National Geodetic Vertical Datum, rounded to nearest whole foot
[1]City of Boulder
[2]Unincorporated areas of Boulder County

Under the above-mentioned Acts of 1968 and 1973, the Mitigation Division must develop criteria for floodplain management. To participate in the National Flood Insurance Program (NFIP), the community must use the modified BFEs to administer the floodplain management measures of the NFIP. These modified BFEs will also be used to calculate the appropriate flood insurance premium rates for new buildings and their contents and for the second layer of insurance on existing buildings and contents.

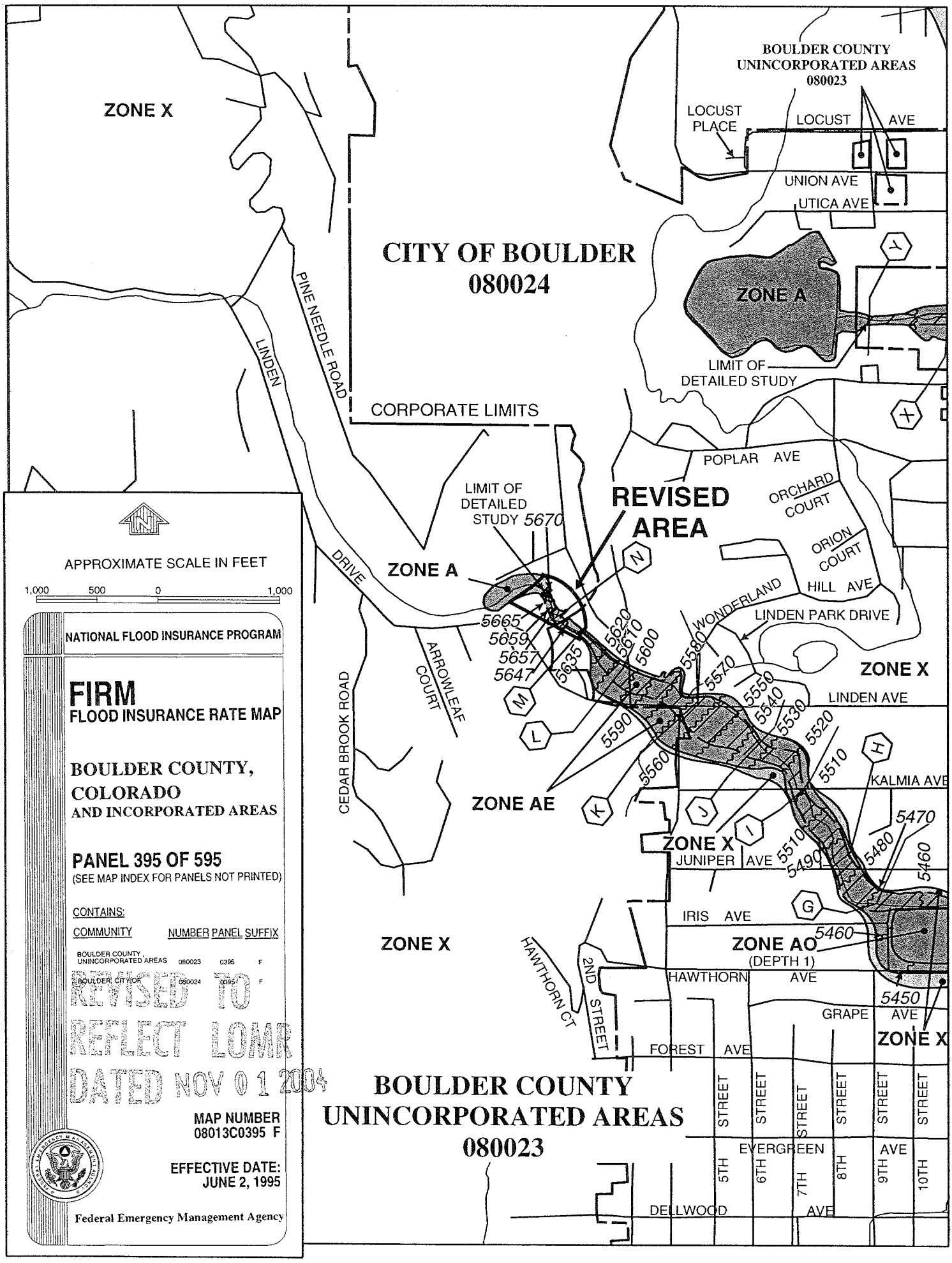
Upon the second publication of notice of these changes in this newspaper, any person has 90 days in which he or she can request, through the Chief Executive Officer of the community, that the Mitigation Division reconsider the determination. Any request for reconsideration must be based on knowledge of changed conditions or new scientific or technical data. All interested parties are on notice that until the 90-day period elapses, the Mitigation Division's determination to modify the BFEs may itself be changed.

Any person having knowledge or wishing to comment on these changes should immediately notify:

The Honorable William R. Toor
Mayor, City of Boulder
P. O. Box 791
Boulder, CO 80306

OR

The Honorable Paul Danish
Chairman, Boulder County
Board of Commissioners
P.O. Box 471
Boulder, CO 80306


ZONE X
BOULDER COUNTY
UNINCORPORATED AREAS
080023
LOCUST PLACE
LOCUST AVE
UNION AVE
UTICA AVE
CITY OF BOULDER
080024
ZONE A
LIMIT OF DETAILED STUDY
PINE NEEDLE ROAD
LINDEN DRIVE
CORPORATE LIMITS
POPLAR AVE
ORCHARD COURT
ORION COURT
HILL AVE
LIMIT OF DETAILED STUDY 5670
REVISED AREA
ZONE A
WONDERLAND
LINDEN PARK DRIVE
5665
5659
5657
5647
5635
5620
5610
5600
5580
5570
5550
5540
5530
5520
5510
5590
5560
ARROWLEAF COURT
CEDAR BROOK ROAD
ZONE X
LINDEN AVE
ZONE AE
KALMIA AVE
ZONE X
JUNIPER AVE
5510
5490
5480
5470
5460
IRIS AVE
ZONE X
ZONE AO
(DEPTH 1)
5460
HAWTHORN CT
2ND STREET
HAWTHORN AVE
5450
GRAPE AVE
ZONE X
FOREST AVE
BOULDER COUNTY
UNINCORPORATED AREAS
080023
5TH STREET
6TH STREET
7TH STREET
8TH STREET
9TH STREET
10TH STREET
EVERGREEN AVE
DELLWOOD AVE
APPROXIMATE SCALE IN FEET
1,000 500 0 1,000
NATIONAL FLOOD INSURANCE PROGRAM
FIRM
FLOOD INSURANCE RATE MAP
BOULDER COUNTY, COLORADO
AND INCORPORATED AREAS
PANEL 395 OF 595
(SEE MAP INDEX FOR PANELS NOT PRINTED)
CONTAINS:
COMMUNITY NUMBER PANEL SUFFIX
BOULDER COUNTY, UNINCORPORATED AREAS 080023 0395 F
BOULDER, CITY OF 080024 0395 F
REVISED TO REFLECT LOMR DATED NOV 01 2004
MAP NUMBER
08013C0395 F
EFFECTIVE DATE:
JUNE 2, 1995
Federal Emergency Management Agency

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NGVD)			
CROSS SECTION	DISTANCE[2]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Twomile Canyon Creek								
A-F[1]								
G	7,115	266	212	3.5	5,468.5	5,468.5	5,468.5	0.0
H	7,615	177	239	3.5	5,485.5	5,485.5	5,485.5	0.0
I	8,325	120	171	5.0	5,510.2	5,510.2	5,510.3	0.1
J	8,865	206	184	4.3	5,534.7	5,534.7	5,534.8	0.1
K	9,540	244	169	4.7	5,569.2	5,569.2	5,569.3	0.1
L	10,215	155	135	5.5	5,606.8	5,606.8	5,606.9	0.1
M	10,660	44	84	8.0	5,635.6	5,635.6	5,635.6	0.0
N	10,920	20	69	10.4	5,654.9	5,654.9	5,655.6	0.7

REVISED DATA

REVISED TO REFLECT LOMR DATED NOV 01 2004

[1] Floodway Removed by LOMR Dated April 5, 1994 [2] Miles Above Mouth

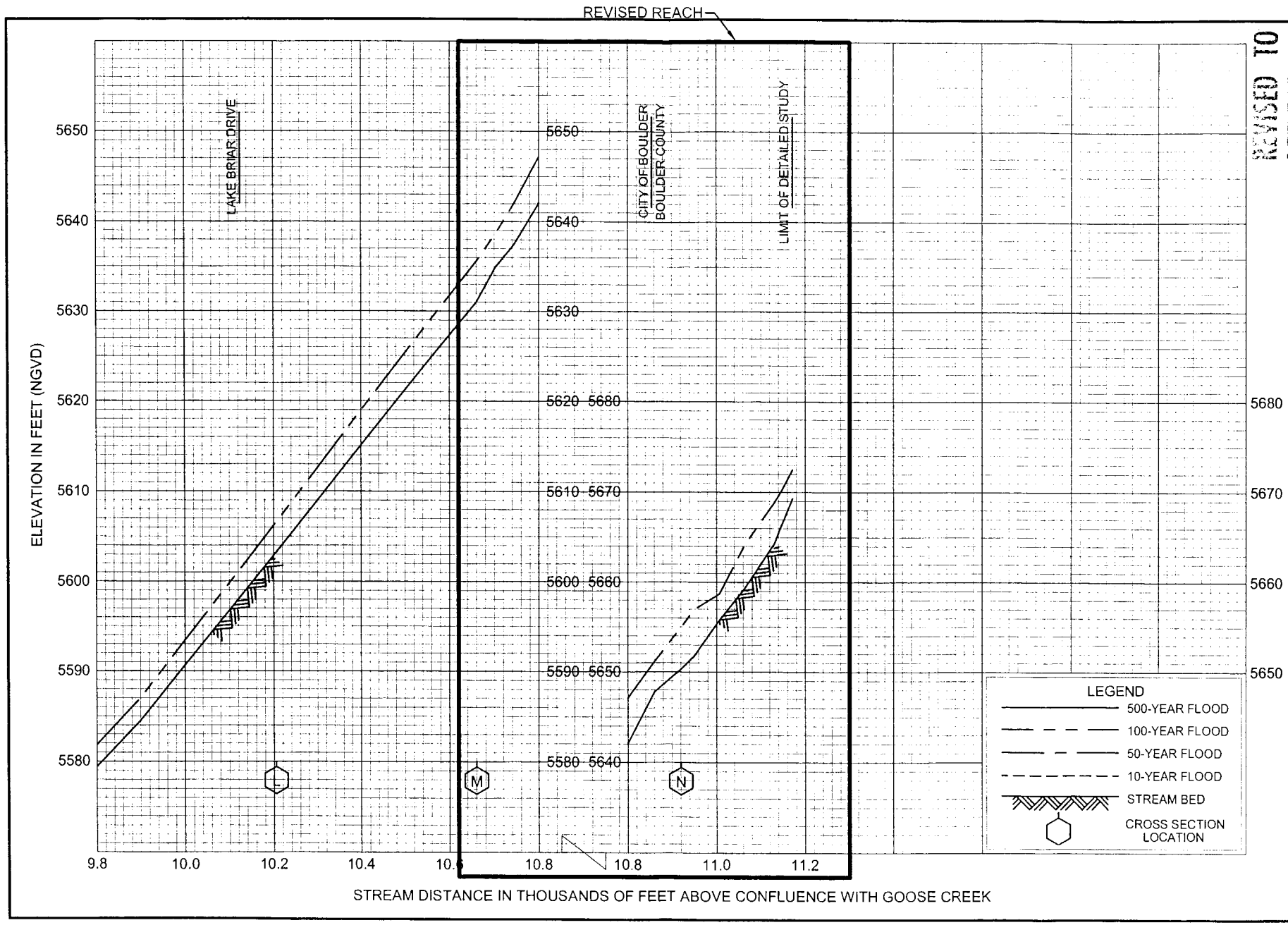
TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

BOULDER COUNTY, CO AND INCORPORATED AREAS

FLOODWAY DATA

TWOMILE CANYON CREEK



REVISED TO REFLECT LOMR DATED NOV 04 2004

FLOOD PROFILES

TWO-MILE CANYON CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

BOULDER COUNTY, CO
AND INCORPORATED AREAS

Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP REVISION DETERMINATION DOCUMENT

COMMUNITY AND REVISION INFORMATION		PROJECT DESCRIPTION	BASIS OF REQUEST
COMMUNITY	Boulder County Colorado (Unincorporated Areas)	EXCAVATION FILL	FLOODWAY HYDRAULIC ANALYSIS NEW TOPOGRAPHIC DATA
	COMMUNITY NO.: 080023		
IDENTIFIER	3787 Spring Valley Road	APPROXIMATE LATITUDE & LONGITUDE: 40.043, -105.295 SOURCE: Other DATUM: NAD 83	

ANNOTATED MAPPING ENCLOSURES	ANNOTATED STUDY ENCLOSURES
TYPE: FIRM* NO.: 08013C0395 F DATE: June 2, 1995	DATE OF EFFECTIVE FLOOD INSURANCE STUDY: October 4, 2002 PROFILE(S): 363P FLOODWAY DATA TABLE: 5

Enclosures reflect changes to flooding sources affected by this revision.
* FIRM - Flood Insurance Rate Map; ** FBFM - Flood Boundary and Floodway Map; *** FHBM - Flood Hazard Boundary Map

FLOODING SOURCE(S) & REVISED REACH(ES)

Twomile Canyon Creek – from approximately 770 feet upstream to approximately 1,050 feet upstream of Lake Briar Drive

SUMMARY OF REVISIONS

Flooding Source	Effective Flooding	Revised Flooding	Increases	Decreases
Twomile Canyon Creek	Zone AE	Zone AE	YES	YES
	Floodway	Floodway	YES	YES
	BFEs*	BFEs	YES	NONE
	Zone A	Zone A	NONE	YES

* BFEs - Base Flood Elevations

DETERMINATION

This document provides the determination from the Department of Homeland Security's Federal Emergency Management Agency (FEMA) regarding a request for a Letter of Map Revision (LOMR) for the area described above. Using the information submitted, we have determined that a revision to the flood hazards depicted in the Flood Insurance Study (FIS) report and/or National Flood Insurance Program (NFIP) map is warranted. This document revises the effective NFIP map, as indicated in the attached documentation. Please use the enclosed annotated map panels revised by this LOMR for floodplain management purposes and for all flood insurance policies and renewals in your community.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Assistance Center toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 6730 Santa Barbara Court, Elkridge, MD 21075. Additional Information about the NFIP is available on our website at http://www.fema.gov/nfip.

David N. Bascom, CFM, Program Specialist
Engineering Management Branch
Mitigation Directorate

Federal Emergency Management Agency
Washington, D.C. 20472

LETTER OF MAP REVISION
DETERMINATION DOCUMENT (CONTINUED)

COMMUNITY INFORMATION

APPLICABLE NFIP REGULATIONS/COMMUNITY OBLIGATION

We have made this determination pursuant to Section 206 of the Flood Disaster Protection Act of 1973 (P.L. 93-234) and in accordance with the National Flood Insurance Act of 1968, as amended (Title XIII of the Housing and Urban Development Act of 1968, P.L. 90-448), 42 U.S.C. 4001-4128, and 44 CFR Part 65. Pursuant to Section 1361 of the National Flood Insurance Act of 1968, as amended, communities participating in the NFIP are required to adopt and enforce floodplain management regulations that meet or exceed NFIP criteria. These criteria, including adoption of the FIS report and FIRM, and the modifications made by this LOMR, are the minimum requirements for continued NFIP participation and do not supersede more stringent State/Commonwealth or local requirements to which the regulations apply.

We provide the floodway designation to your community as a tool to regulate floodplain development. Therefore, the floodway revision we have described in this letter, while acceptable to us, must also be acceptable to your community and adopted by appropriate community action, as specified in Paragraph 60.3(d) of the NFIP regulations.

COMMUNITY REMINDERS

We based this determination on the 1-percent-annual-chance flood discharges computed in the FIS for your community without considering subsequent changes in watershed characteristics that could increase flood discharges. Future development of projects upstream could cause increased flood discharges, which could cause increased flood hazards. A comprehensive restudy of your community's flood hazards would consider the cumulative effects of development on flood discharges subsequent to the publication of the FIS report for your community and could, therefore, establish greater flood hazards in this area.

Your community must regulate all proposed floodplain development and ensure that permits required by Federal and/or State/Commonwealth law have been obtained. State/Commonwealth or community officials, based on knowledge of local conditions and in the interest of safety, may set higher standards for construction or may limit development in floodplain areas. If your State/Commonwealth or community has adopted more restrictive or comprehensive floodplain management criteria, those criteria take precedence over the minimum NFIP requirements.

We will not print and distribute this LOMR to primary users, such as local insurance agents or mortgage lenders; instead, the community will serve as a repository for the new data. We encourage you to disseminate the information in this LOMR by preparing a news release for publication in your community's newspaper that describes the revision and explains how your community will provide the data and help interpret the NFIP maps. In that way, interested persons, such as property owners, insurance agents, and mortgage lenders, can benefit from the information.

This revision has met our criteria for removing an area from the 1-percent-annual-chance floodplain to reflect the placement of fill. However, we encourage you to require that the lowest adjacent grade and lowest floor (including basement) of any structure placed within the subject area be elevated to or above the Base (1-percent-annual-chance) Flood Elevation.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Assistance Center toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 6730 Santa Barbara Court, Elkridge, MD 21075. Additional Information about the NFIP is available on our website at http://www.fema.gov/nfip.

David N. Bascom, CFM, Program Specialist
Engineering Management Branch
Mitigation Directorate

Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP REVISION
DETERMINATION DOCUMENT (CONTINUED)

We have designated a Consultation Coordination Officer (CCO) to assist your community. The CCO will be the primary liaison between your community and FEMA. For information regarding your CCO, please contact:

Ms. Jeanine D. Petterson
Director, Mitigation Division
Federal Emergency Management Agency, Region VIII
Denver Federal Center, Building 710
P.O. Box 25267
Denver, CO 80225-0267
(303) 235-4830

STATUS OF THE COMMUNITY NFIP MAPS

We will not physically revise and republish the FIRM and FIS report for your community to reflect the modifications made by this LOMR at this time. When changes to the previously cited FIRM panel(s) and FIS report warrant physical revision and republication in the future, we will incorporate the modifications made by this LOMR at that time.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Assistance Center toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 6730 Santa Barbara Court, Elkridge, MD 21075. Additional Information about the NFIP is available on our website at http://www.fema.gov/nfip.

David N. Bascom, CFM, Program Specialist
Engineering Management Branch
Mitigation Directorate

Federal Emergency Management Agency
Washington, D.C. 20472

LETTER OF MAP REVISION
DETERMINATION DOCUMENT (CONTINUED)

PUBLIC NOTIFICATION OF REVISION

PUBLIC NOTIFICATION

FLOODING SOURCE	LOCATION OF REFERENCED ELEVATION	BFE (FEET NGVD 29)		MAP PANEL NUMBER(S)
		EFFECTIVE	REVISED	
Twomile Canyon Creek	Approximately 880 feet upstream of Lake Briar Drive	5,659	5,660	08013C0395 F
	Approximately 1,050 feet upstream of Lake Briar Drive	5,672	5,673	08013C0395 F

Within 90 days of the second publication in the local newspaper, a citizen may request that we reconsider this determination. Any request for reconsideration must be based on scientific or technical data. Therefore, this letter will be effective only after the 90-day appeal period has elapsed and we have resolved any appeals that we receive during this appeal period. Until this LOMR is effective, the revised BFEs presented in this LOMR may be changed.

A notice of changes will be published in the *Federal Register*. A short notice also will be published in your local newspaper on or about the dates listed below. Please refer to FEMA's website at https://www.floodmaps.fema.gov/fhm/Scripts/bfe_main.asp for a more detailed description of proposed BFE changes, which will be posted within a week of the date of this letter.

LOCAL NEWSPAPER Name: *The Boulder Daily Camera*
Dates: 08/07/2009 08/14/2009

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Assistance Center toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 6730 Santa Barbara Court, Elkridge, MD 21075. Additional Information about the NFIP is available on our website at http://www.fema.gov/nfip.

David N. Bascom, CFM, Program Specialist
Engineering Management Branch
Mitigation Directorate

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NGVD)			
CROSS SECTION	DISTANCE[2]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Twomile Canyon Creek								
A-F[1]								
G	7,115	266	212	3.5	5,468.5	5,468.5	5,468.5	0.0
H	7,615	177	239	3.5	5,485.5	5,485.5	5,485.5	0.0
I	8,325	120	171	5.0	5,510.2	5,510.2	5,510.3	0.1
J	8,865	206	184	4.3	5,534.7	5,534.7	5,534.8	0.1
K	9,540	244	169	4.7	5,569.2	5,569.2	5,569.3	0.1
L	10,215	155	135	5.5	5,606.8	5,606.8	5,606.9	0.1
M	10,660	44	84	8.0	5,635.6	5,635.6	5,635.6	0.0
N	10,920	38	99	7.3	5,655.1	5,655.1	5,655.6	0.5

THIS DATA WAS REVISED BY LOMR DATED NOVEMBER 1, 2004

REVISED DATA

[1] Floodway Removed by LOMR Dated April 5, 1994

[2] Miles Above Mouth

REVISED TO REFLECT LOMR EFFECTIVE: **December 14, 2009**

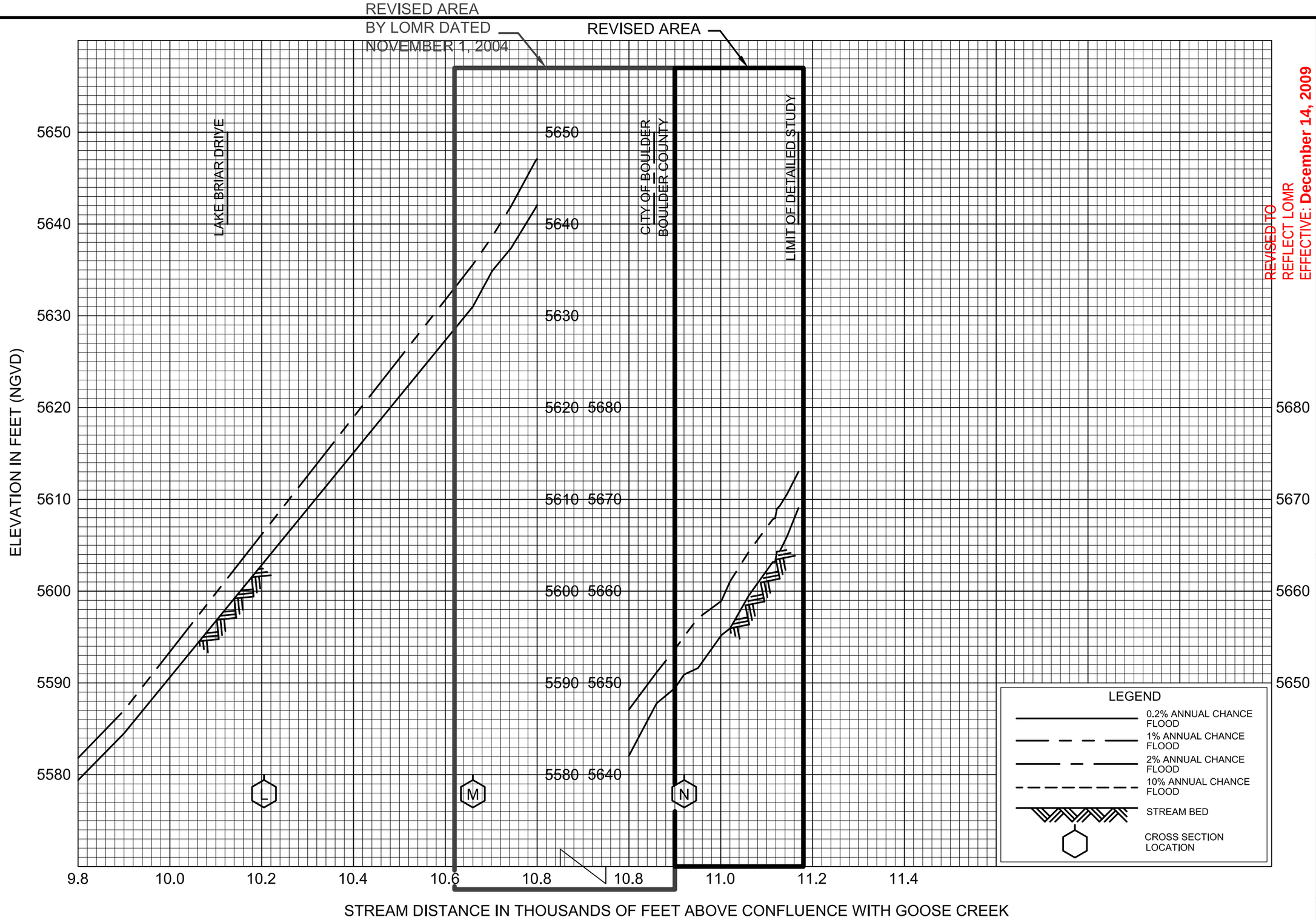
TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

BOULDER COUNTY, CO AND INCORPORATED AREAS

FLOODWAY DATA

TWOMILE CANYON CREEK



REVISED TO
REFLECT LOMR
EFFECTIVE: **December 14, 2009**

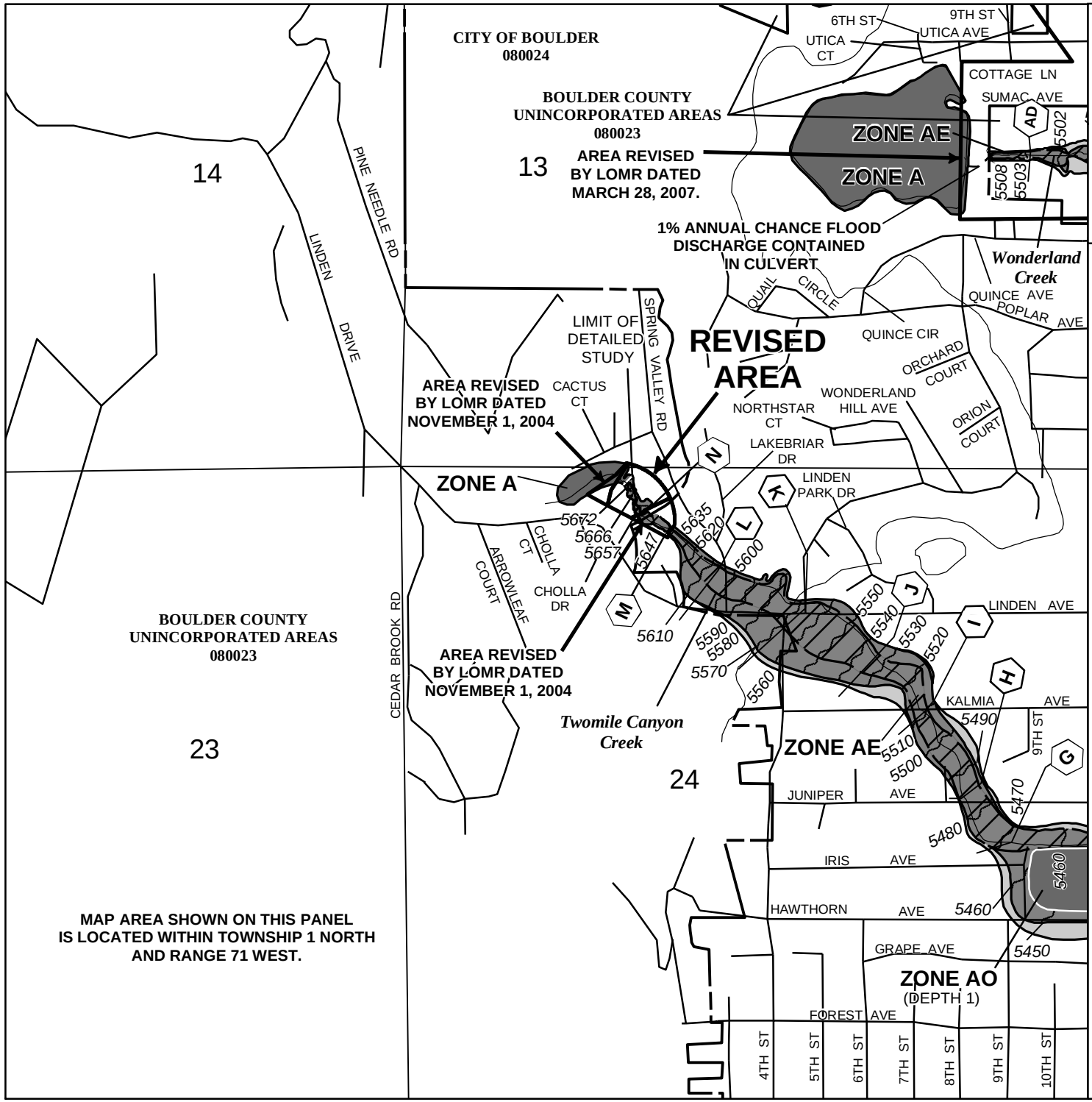
FLOOD PROFILES

TWO-MILE CANYON CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

BOULDER COUNTY, CO
AND INCORPORATED AREAS

363P



Legend

- 1% annual chance (100-Year) Floodplain
- 1% annual chance (100-Year) Floodway
- 0.2% annual chance (500-Year) Floodplain

APPROXIMATE SCALE IN FEET

1,000 0 1,000

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

BOULDER COUNTY, COLORADO
AND INCORPORATED AREAS

PANEL 395 OF 595
(SEE MAP INDEX FOR PANELS NOT PRINTED)

CONTAINS:

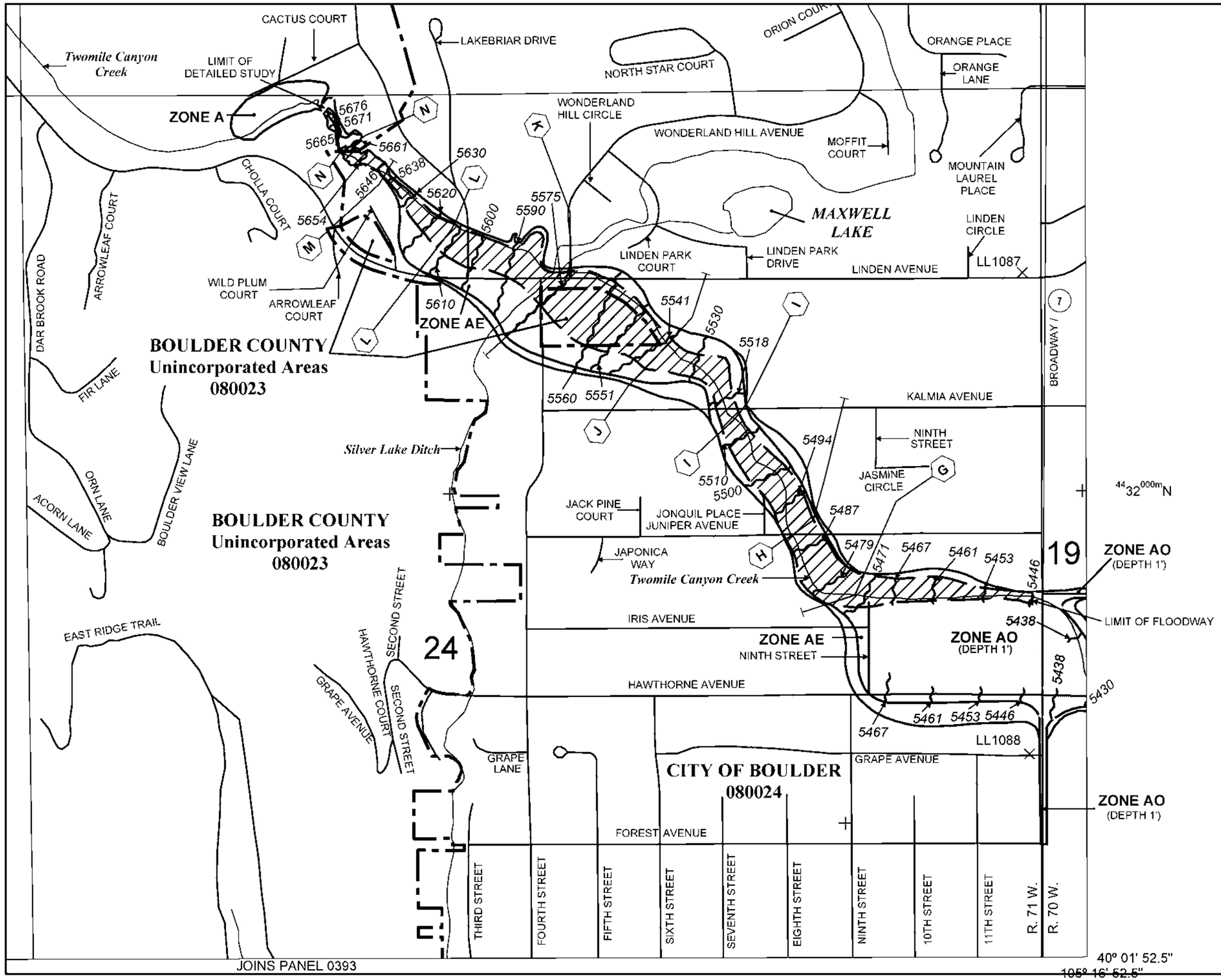
COMMUNITY	NUMBER	PANEL	SUFFIX
BOULDER COUNTY, UNINCORPORATED AREAS	080023	0395	F
BOULDER, CITY OF	080024	0395	F

REVISED TO
REFLECT LOMR
EFFECTIVE: **December 14, 2009**

MAP NUMBER
08013C0395 F

EFFECTIVE DATE:
JUNE 2, 1995

Federal Emergency Management Agency



MAP SCALE 1" = 500'

250 0 500 1000 FEET

METER

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0391J

FIRM

FLOOD INSURANCE RATE MAP

BOULDER COUNTY, COLORADO

AND INCORPORATED AREAS

PANEL 391 OF 615

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
BOULDER, CITY OF	080024	0391	J
BOULDER COUNTY	080023	0391	J

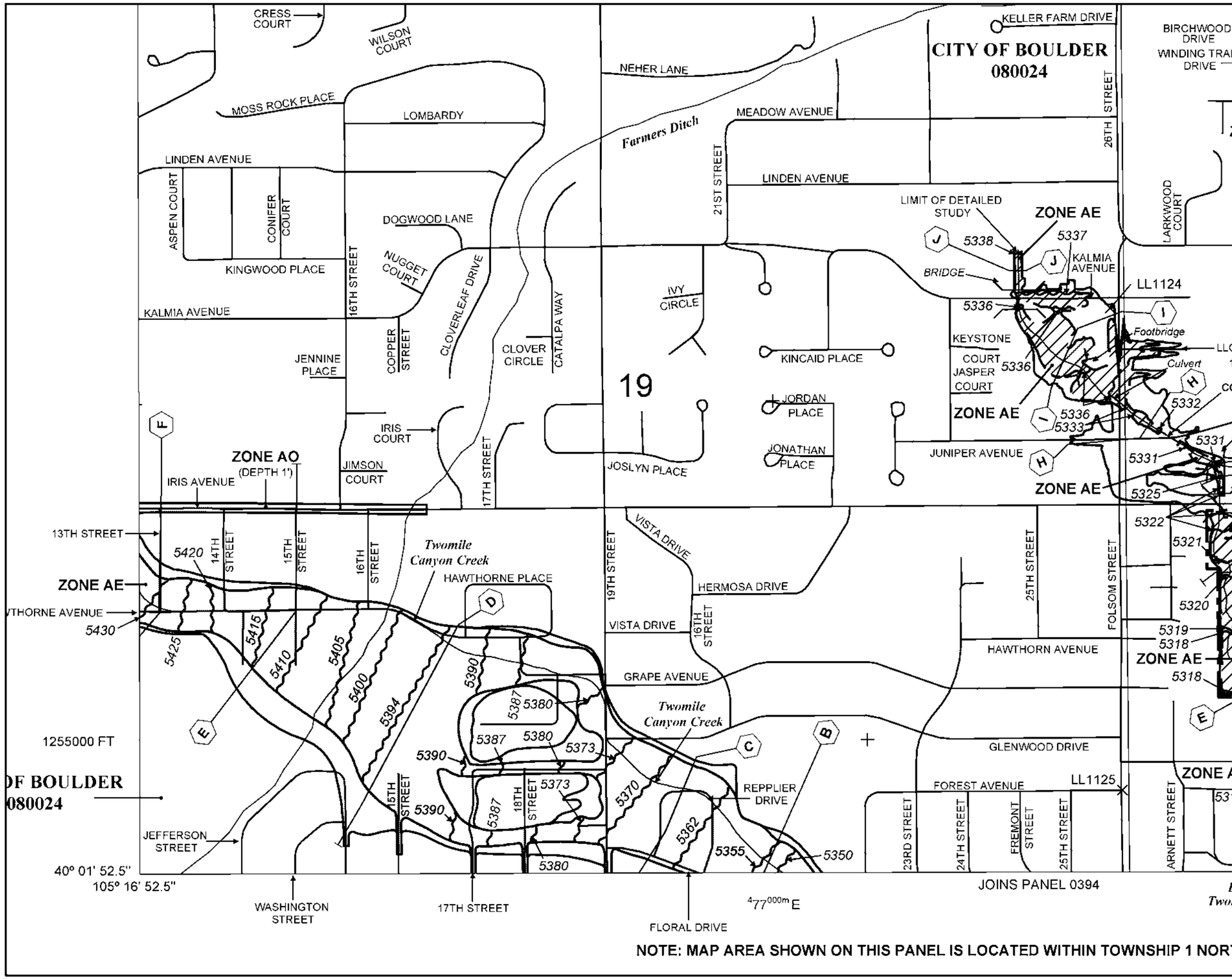
Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
08013C0391J

MAP REVISED
DECEMBER 18, 2012

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN TOWNSHIP 1 NORT

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0392J

FIRM

FLOOD INSURANCE RATE MAP

BOULDER COUNTY, COLORADO

AND INCORPORATED AREAS

PANEL 392 OF 615

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
BOULDER, CITY OF	080024	0392	J
BOULDER COUNTY	080023	0392	J

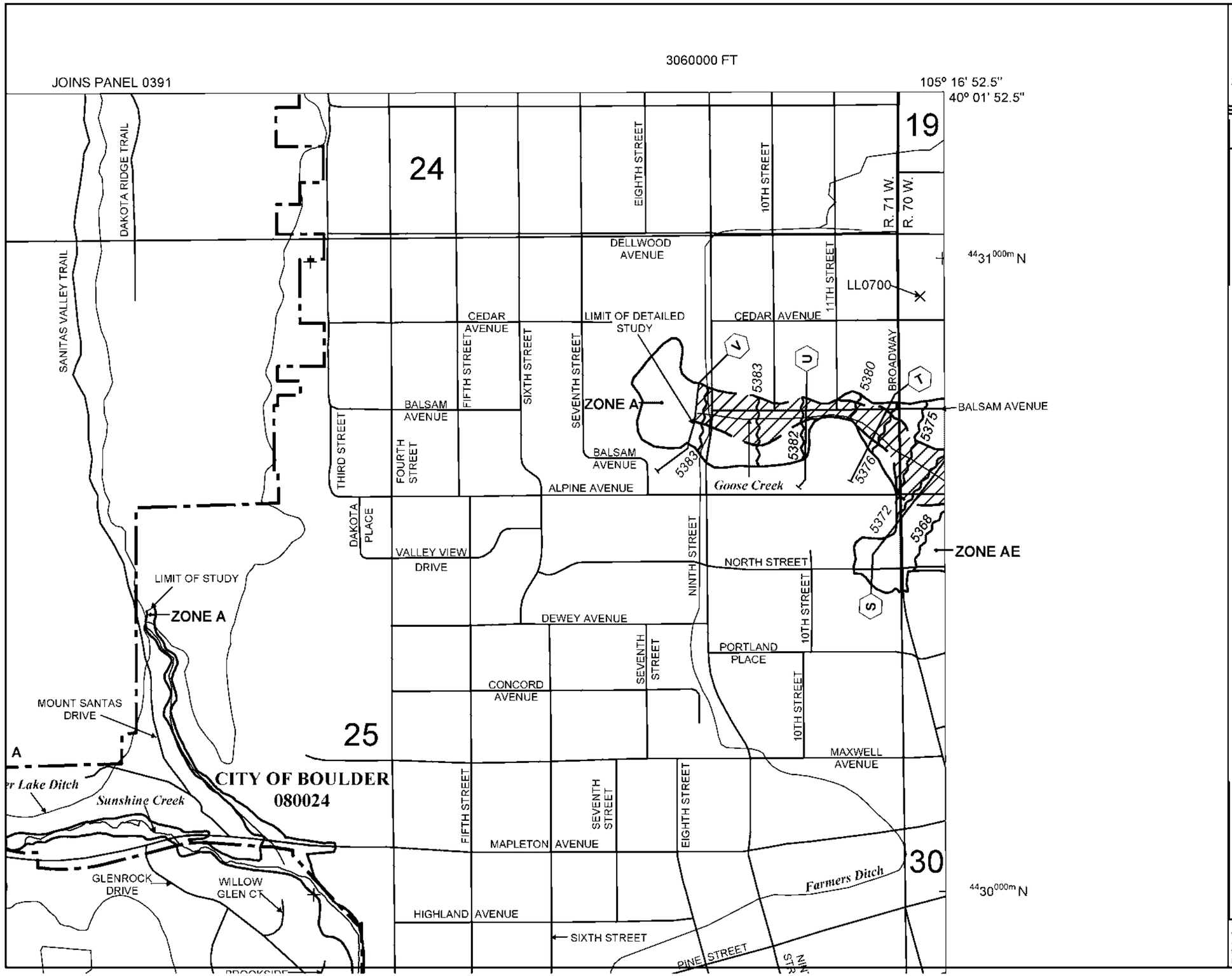
Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
08013C0392J

MAP REVISED
DECEMBER 18, 2012

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



MAP SCALE 1" = 500'

250 0 500 1000 FEET

METER

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0393J

FIRM

FLOOD INSURANCE RATE MAP

BOULDER COUNTY, COLORADO

AND INCORPORATED AREAS

PANEL 393 OF 615

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
BOULDER, CITY OF	080024	0393	J
BOULDER COUNTY	080023	0393	J

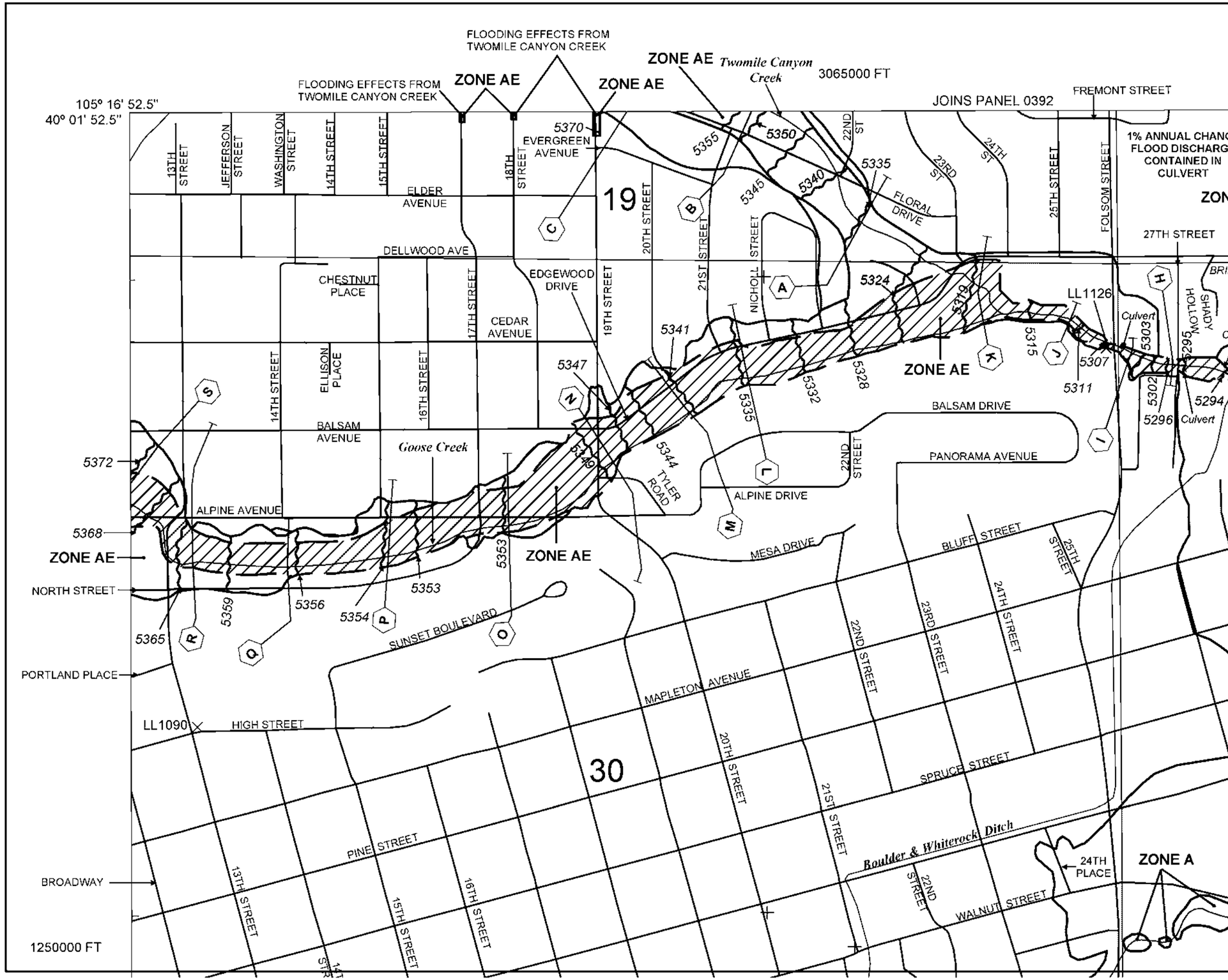
Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
08013C0393J

MAP REVISED
DECEMBER 18, 2012

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



MAP SCALE 1" = 500'

250 0 500 1000 FEET

METER

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0394J

FIRM

FLOOD INSURANCE RATE MAP

BOULDER COUNTY, COLORADO

AND INCORPORATED AREAS

PANEL 394 OF 615

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
BOULDER, CITY OF	080024	0394	J

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
08013C0394J

MAP REVISED
DECEMBER 18, 2012

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

FLOOD INSURANCE STUDY

VOLUME 1 OF 4

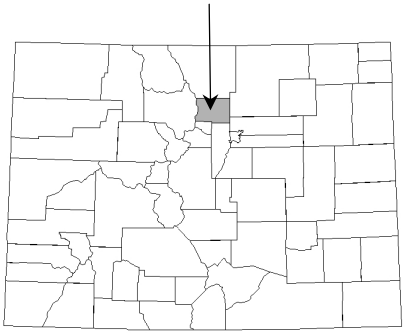
BOULDER COUNTY, COLORADO

AND INCORPORATED AREAS

Community Name	*Community Number*
BOULDER, CITY OF	080024
BOULDER COUNTY (UNINCORPORATED AREAS)	080023
ERIE, TOWN OF	080181
JAMESTOWN, TOWN OF	080216
LAFAYETTE, CITY OF	080026
LONGMONT, CITY OF	080027
LOUSIVILLE, CITY OF	085076
LYONS, TOWN OF	080029
NEDERLAND, TOWN OF	080255
SUPERIOR, TOWN OF	080203
*WARD, TOWN OF	080292

* No Special Flood Hazard Areas Identified

Boulder County



Revised: December 18, 2012

Federal Emergency Management Agency

FLOOD INSURANCE STUDY NUMBER
08013CV001B

Table 4 – Summary of Discharges (Continued)

Flooding Source and Location	Drainage Area (Square Miles)	Peak Discharges (cfs) 10-Percent Annual Chance	2-Percent Annual Chance	1-Percent Annual Chance	0.2-Percent Annual Chance
Fourmile Creek					
At Confluence with Boulder Creek	25.0	1,420	4,440	6,230	11,640
Goose Creek					
At Confluence with Boulder Creek	5.46	2,865	5,065	6,315	9,325
At Confluence of Elmers Twomile Creek	3.63	1,050	2,100	2,680	4,300
At Confluence of Twomile Canyon Creek	1.32	670	1,270	1,590	2,400
At 19th Street	1.28	700	1,320	1,600	2,450
At Upstream Limit of Detailed Study	0.48	260	520	620	1,000
Gregory Canyon Creek					
At Marine Street	2.29	673	1,672	2,092	3,700
Downstream of College Avenue	--[1]	600	1,504	1,900	3,300
At Upstream Limit of Detailed Study	1.56	400	1,060	1,450	2,600
Highway 93 Split Flow					
At Downstream Limit	--[1]	0	600	1,660	5,000
At Upstream Limit	--[1]	0	2,580	3,850	7,750
James Creek					
At Cross Section A	14.5	355	2,180	3,930	10,880
At Main Street Bridge	12.2	300	1,785	3,205	8,850
At Confluence of Little James Creek	12.1	300	1,760	3,160	8,725
At Upstream Limit of Detailed Study	8.9	200	1,190	2,140	6,010
Lefthand Creek					
At Confluence with St. Vrain Creek	72.0	520	2,480	4,610	10,320
Lefthand Creek (North Overflow Channel)					
At Divergence from Lefthand Creek	--[1]	--[1]	--[1]	333	--[1]
At Confluence with Lefthand Creek	--[1]	--[1]	--[1]	333	--[1]

[1] Data Not Available

Table 4 – Summary of Discharges (Continued)

Flooding Source and Location	Drainage Area (Square Miles)	Peak Discharges (cfs) 10-Percent Annual Chance	2-Percent Annual Chance	1-Percent Annual Chance	0.2-Percent Annual Chance
Skunk Creek (continued)					
At Upstream Limit of Detailed Study	1.20	180	460	640	1,200
South Boulder Creek					
Near Eldorado Springs	--[1]	1,310	2,640	4,340	7,400
At State Highway 93	--[1]	1,450	3,270	6,200	9,950
At US Highway 36	--[1]	1,300	3,530	7,240	11,640
At Baseline Road	--[1]	1,390	3,050	5,610	9,210
At Confluence with Boulder Creek	--[1]	1,570	3,180	4,980	7,750
Spring Gulch					
At Confluence with St. Vrain Creek	--[1]	1,950	3,150	3,650	4,200
Steele Lakes Tributary					
At 75th Street	--[1]	494	1,165	1,512	2,428
Twomile Canyon Creek					
At Confluence with Goose Creek	2.9	360	840	1,120	2,000
At Broadway	1.68	210	675	890	1,800
At Upstream Limit of Detailed Study	1.40	210	540	710	1,430
Wonderland Creek[2]					
At Confluence with North Goose Creek	1.91	607	1,419	2,107	4,620
At 28th Street	1.35	404	1,032	1,484	3,799
At Broadway	0.85	205	415	531	1,600
At Upstream Limit of Detailed Study	0.38	92	192	253	860

[1] Data Not Available
[2] Includes Flow Diversions From Fourmile Canyon Creek

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY (FEET NAVD)	WITHOUT FLOODWAY (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
GOOSE CREEK								
A	1,000	212	640	9.9	5,215.8	5,207.6[2]	5,207.6[2]	0.0
B	2,075	81	245	10.0	5,222.5	5,220.8[2]	5,220.8[2]	0.0
C	3,330	80	235	9.8	5,230.7	5,230.7	5,230.7	0.0
D	4,160	45	242	9.5	5,237.3	5,237.3	5,237.3	0.0
E	4,900	71	270	5.9	5,246.0	5,246.0	5,246.0	0.0
F	8,068	228	734	4.9	5,276.2	5,276.2	5,276.2	0.0
G	8,824	58	327	10.6	5,282.8	5,282.8	5,282.8	0.0
H	10,184	80	455	5.9	5,295.5	5,295.5	5,295.5	0.0
I	10,418	46	216	12.4	5,303.2	5,303.2	5,303.2	0.0
J	10,778	77	267	10.1	5,312.6	5,312.6	5,312.6	0.0
K	11,226	241	373	7.2	5,317.4	5,317.4	5,317.5	0.1
L	12,290	200	512	3.1	5,334.7	5,334.7	5,335.0	0.3
M	12,670	230	435	3.7	5,341.2	5,341.2	5,341.4	0.2
N	13,150	150	395	4.1	5,347.2	5,347.2	5,347.5	0.3
O	13,800	170	1,066	1.5	5,352.5	5,352.5	5,353.5	1.0
P	14,420	132	656	2.0	5,353.5	5,353.5	5,354.4	0.9
Q	14,900	163	352	3.8	5,356.0	5,356.0	5,356.0	0.0
R	15,450	195	190	5.5	5,363.0	5,363.0	5,363.4	0.4
S	15,940	282	486	2.2	5,368.2	5,368.2	5,368.7	0.5
T	16,280	178	428	2.2	5,376.5	5,376.5	5,377.1	0.6
U	16,700	100	134	6.0	5,381.9	5,381.9	5,382.0	0.1
V	17,280	200	523	1.2	5,382.9	5,382.9	5,383.7	0.8

[1]Feet above confluence with Boulder Creek [2]Elevation computed without consideration of flooding controlled by Boulder Creek

TABLE 6

FEDERAL EMERGENCY MANAGEMENT AGENCY

BOULDER COUNTY, CO
AND INCORPORATED AREAS

FLOODWAY DATA

GOOSE CREEK

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY (FEET NAVD)	WITHOUT FLOODWAY (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
TWOMILE CANYON CREEK								
A-F[1]								
G	7,115	266	212	3.5	5,471.9	5,471.9	5,471.9	0.0
H	7,615	177	239	3.5	5,488.9	5,488.9	5,488.9	0.0
I	8,325	120	171	5.0	5,513.6	5,513.6	5,513.7	0.1
J	8,865	206	184	4.3	5,538.1	5,538.1	5,538.2	0.1
K	9,540	244	169	4.7	5,572.6	5,572.6	5,572.7	0.1
L	10,215	155	135	5.5	5,610.2	5,610.2	5,610.3	0.1
M	10,660	44	84	8.0	5,639.0	5,639.0	5,639.0	0.0
N	10,920	38	99	7.3	5,658.5	5,658.5	5,659.0	0.5

[1]Floodway removed by LOMR dated April 5, 1994
[2]Feet above confluence with Goose Creek

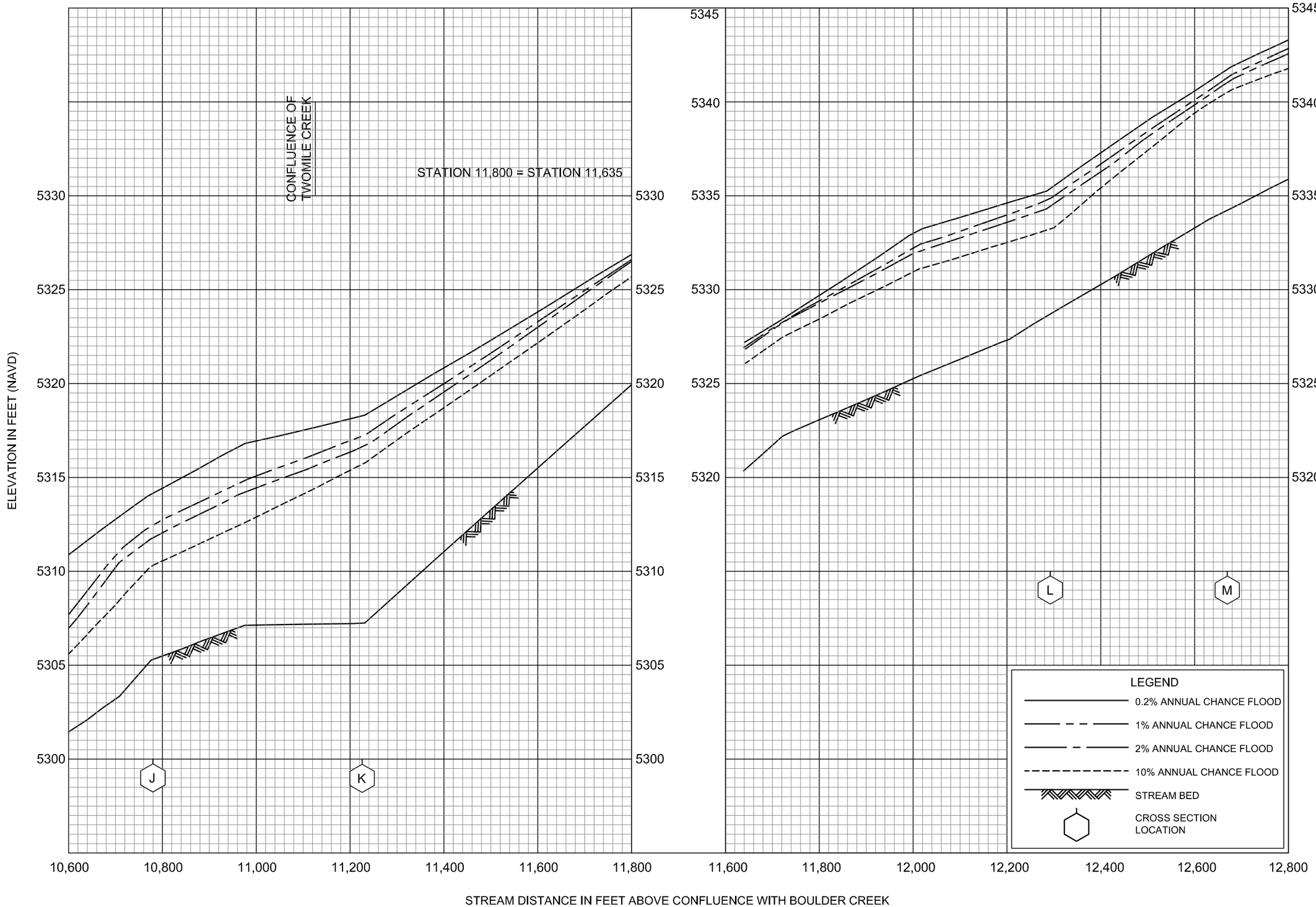
TABLE 6

FEDERAL EMERGENCY MANAGEMENT AGENCY

BOULDER COUNTY, CO
AND INCORPORATED AREAS

FLOODWAY DATA

TWOMILE CANYON CREEK



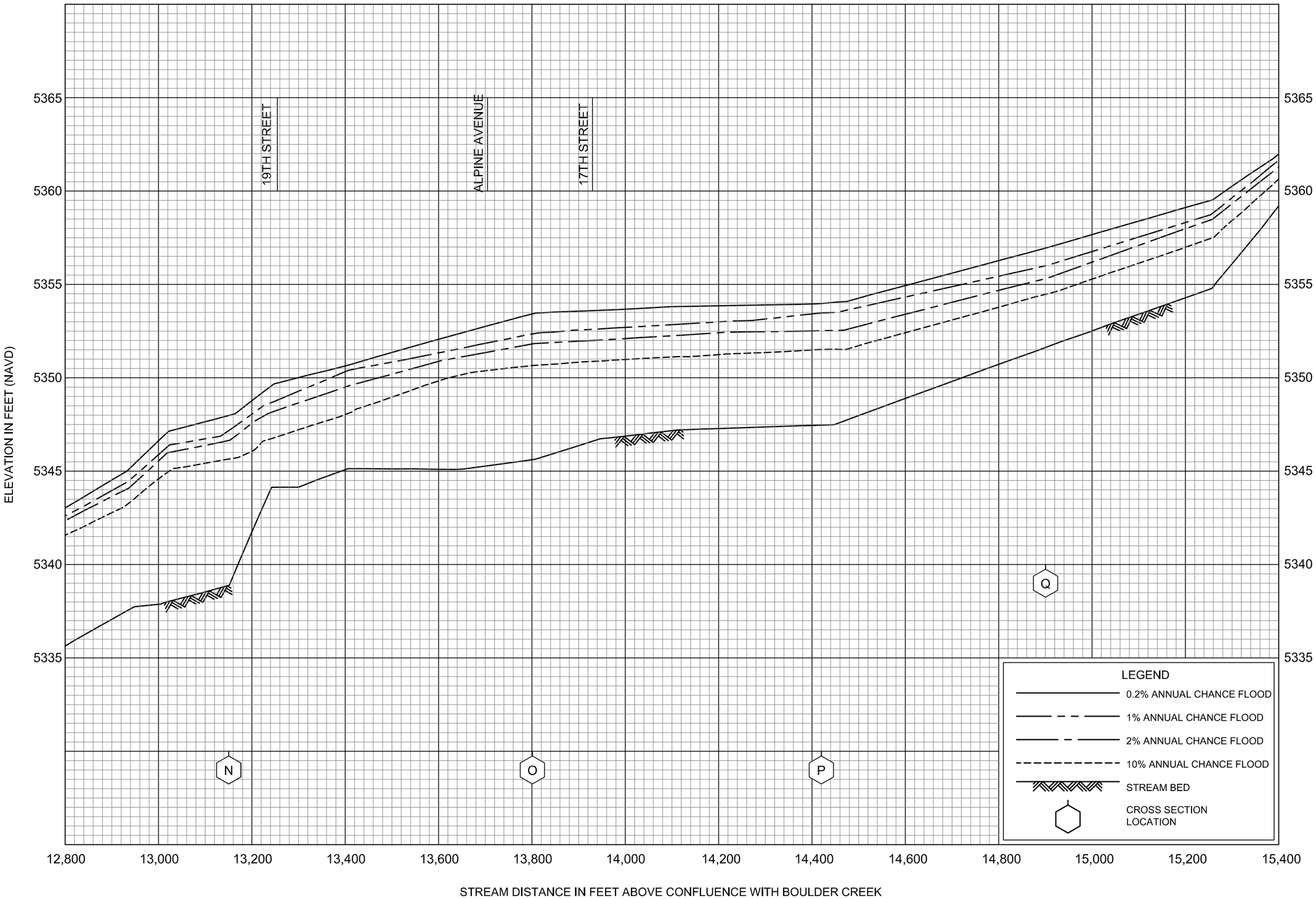
FLOOD PROFILES

GOOSE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

BOULDER COUNTY, CO

AND INCORPORATED AREAS



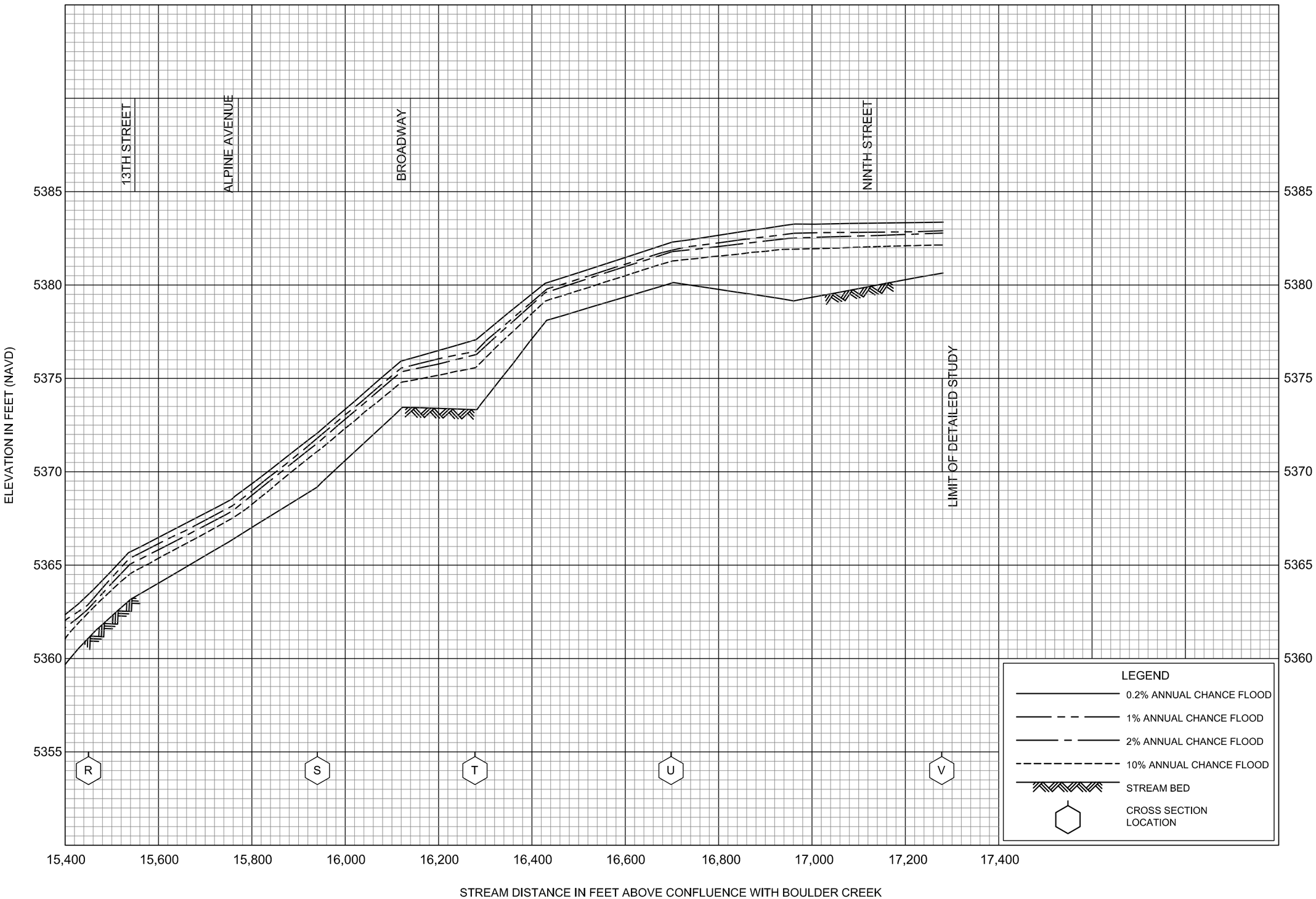
FLOOD PROFILES

GOOSE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

BOULDER COUNTY, CO

AND INCORPORATED AREAS



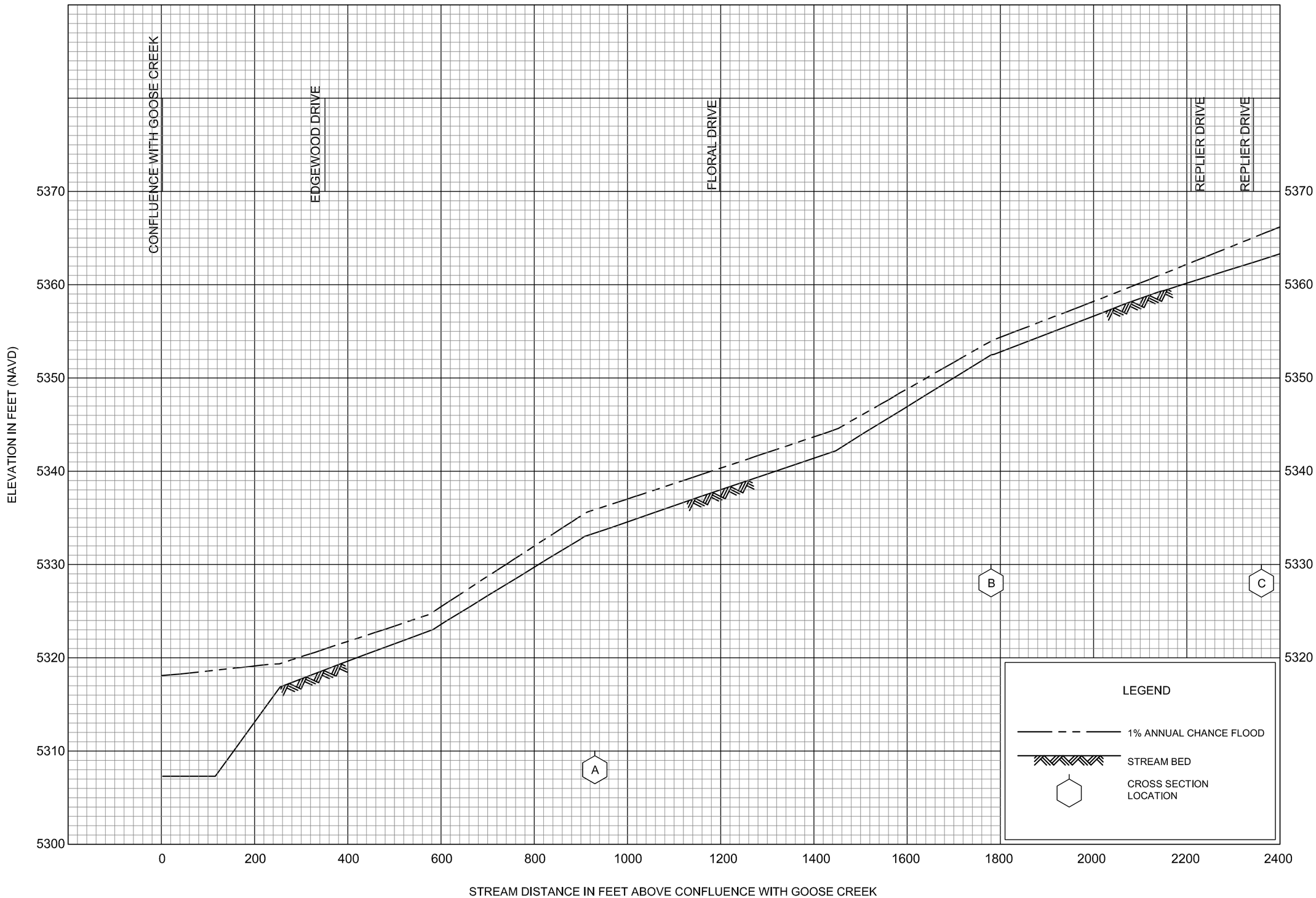
FLOOD PROFILES

GOOSE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

BOULDER COUNTY, CO

AND INCORPORATED AREAS



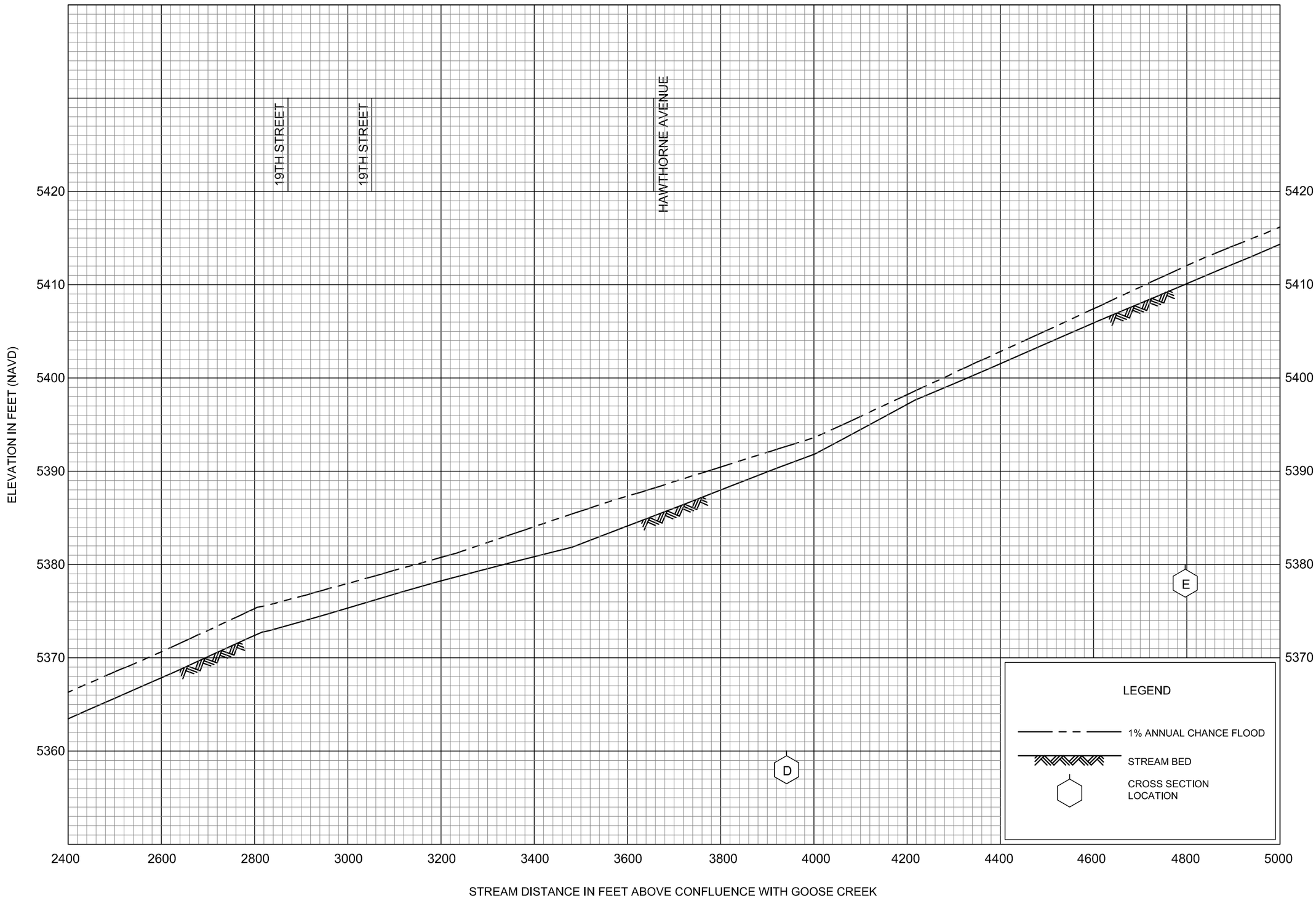
FLOOD PROFILES

TWOMILE CANYON CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

BOULDER COUNTY, CO

AND INCORPORATED AREAS



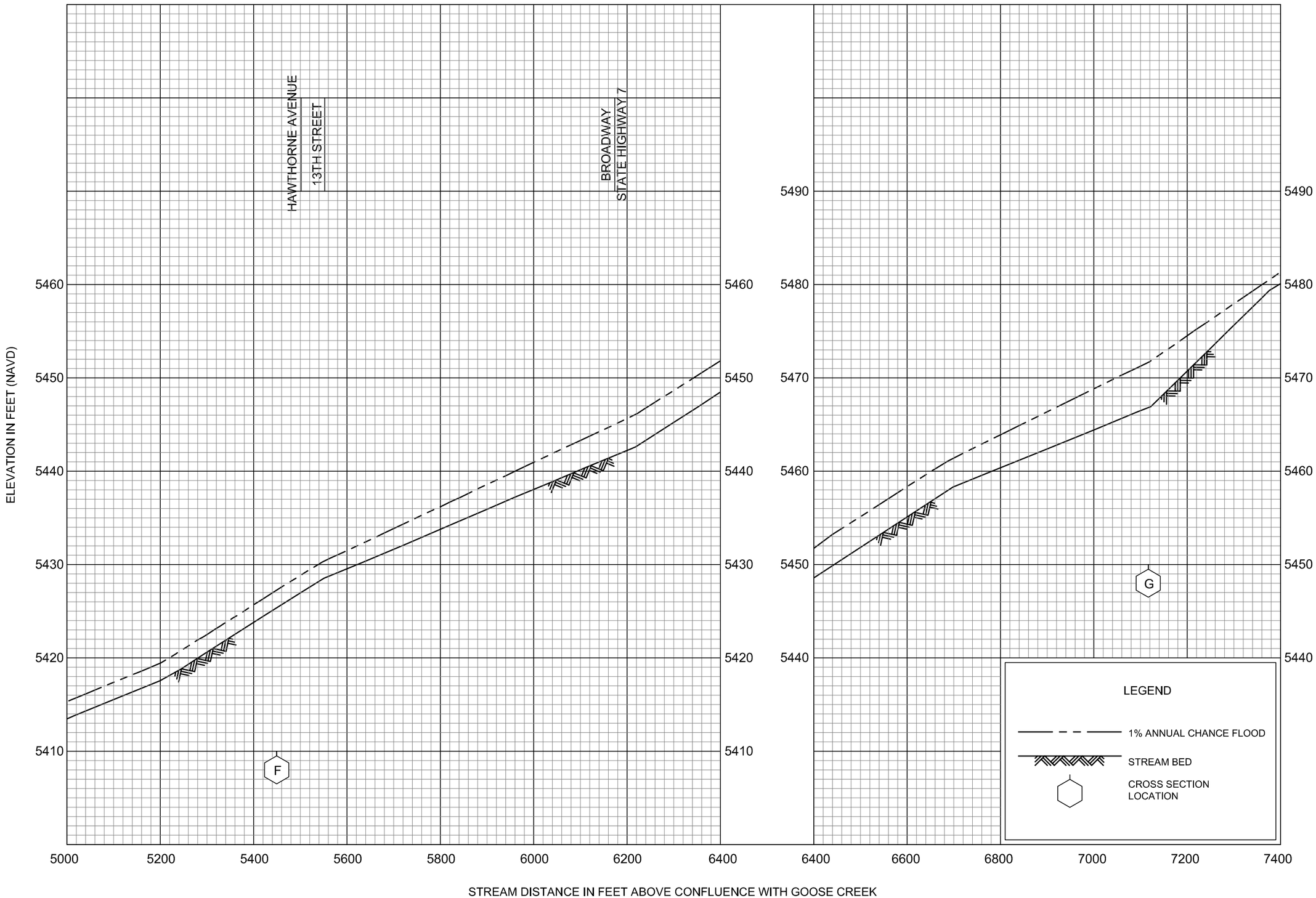
FLOOD PROFILES

TWOMILE CANYON CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

BOULDER COUNTY, CO

AND INCORPORATED AREAS



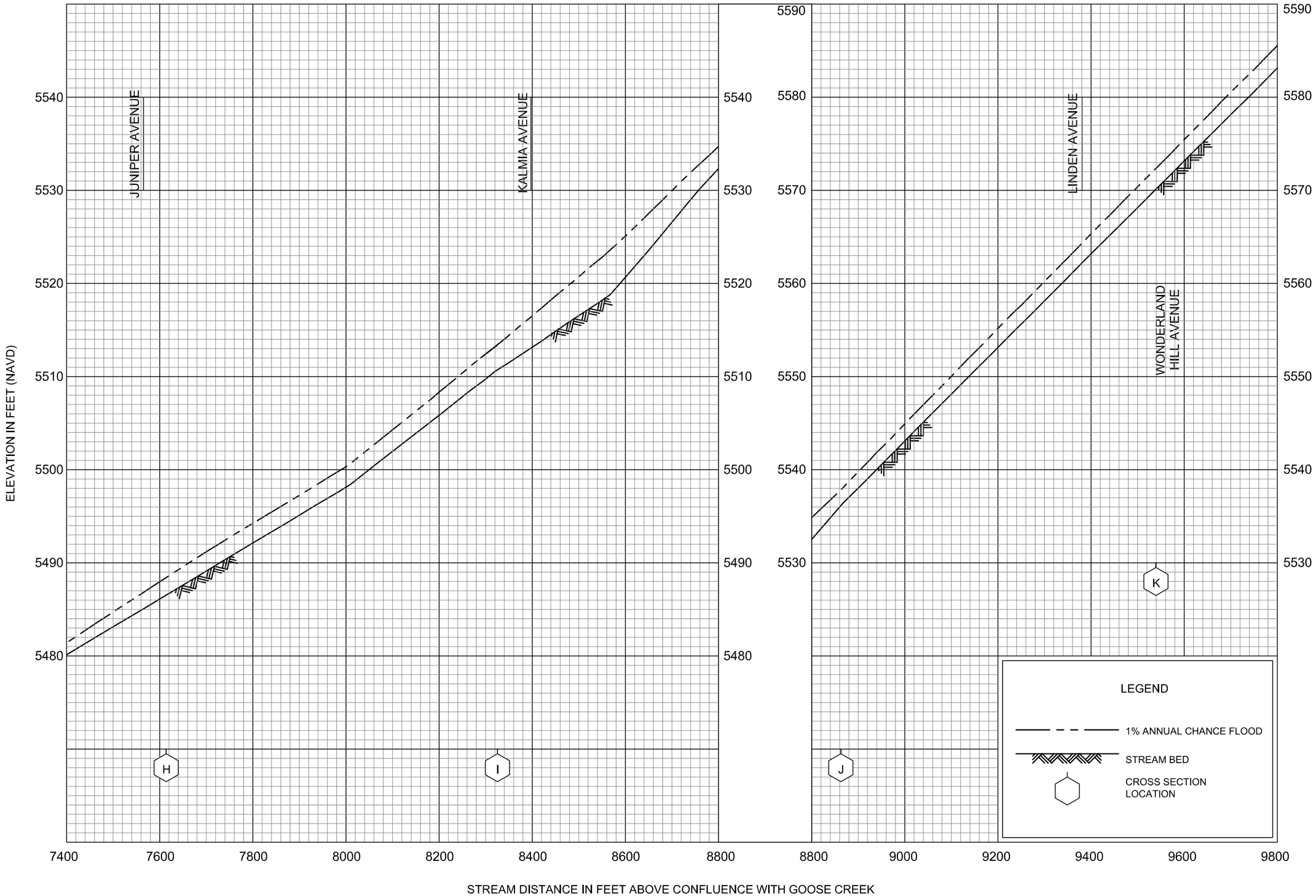
FLOOD PROFILES

TWOMILE CANYON CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

BOULDER COUNTY, CO

AND INCORPORATED AREAS



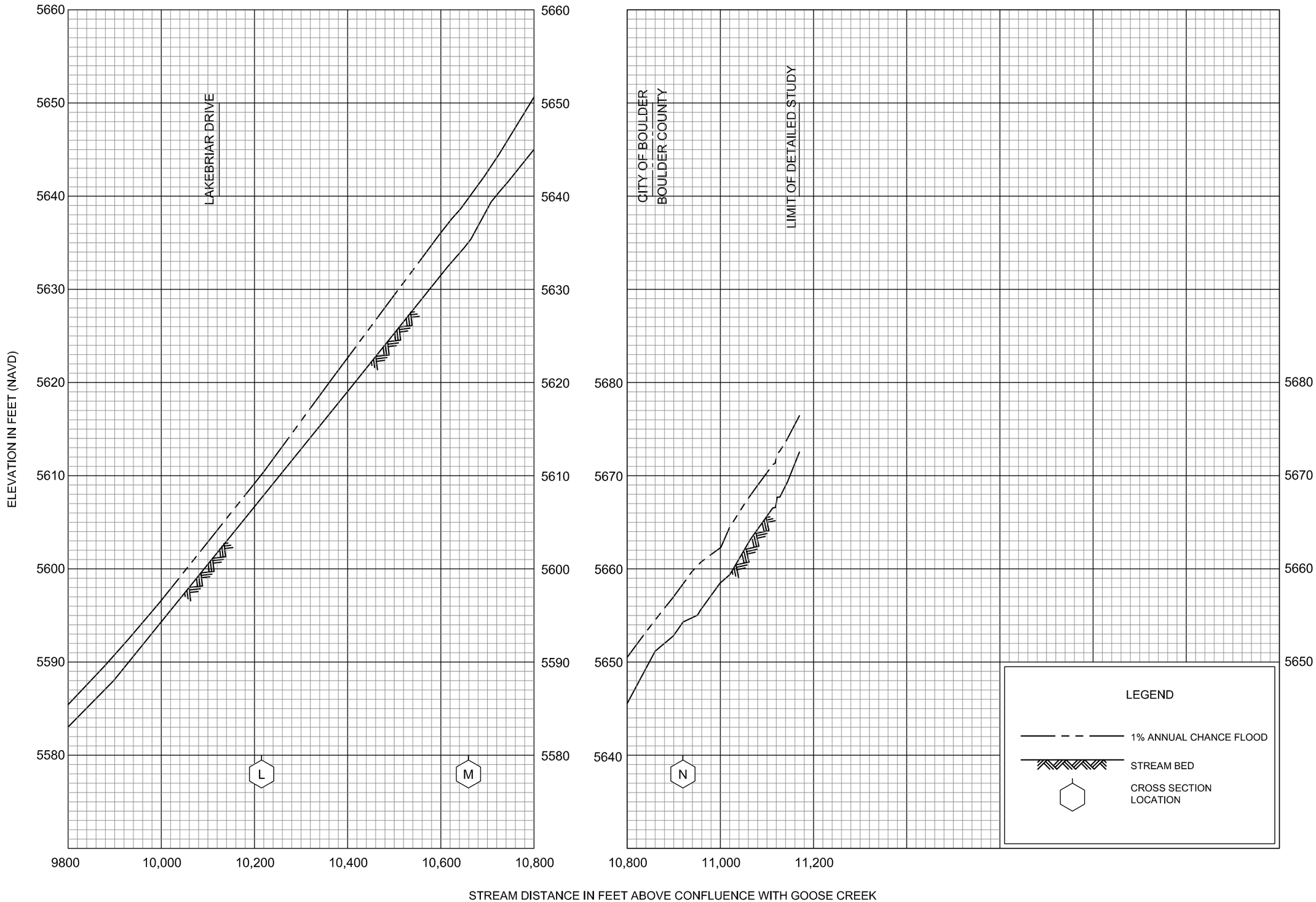
FLOOD PROFILES

TWOMILE CANYON CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

BOULDER COUNTY, CO

AND INCORPORATED AREAS



FLOOD PROFILES

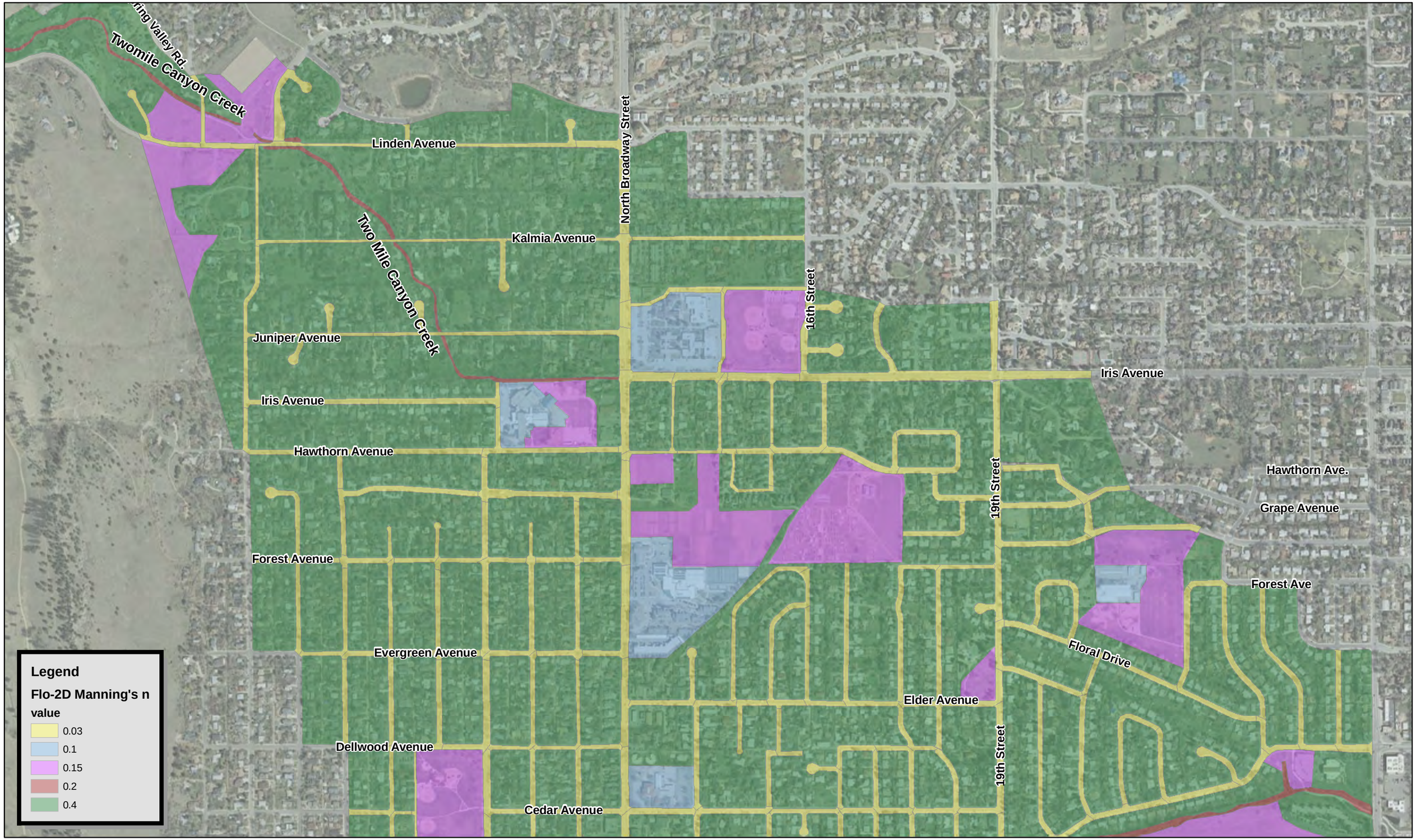
TWOMILE CANYON CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

BOULDER COUNTY, CO

AND INCORPORATED AREAS

Appendix B –
Manning's n Value Workmaps

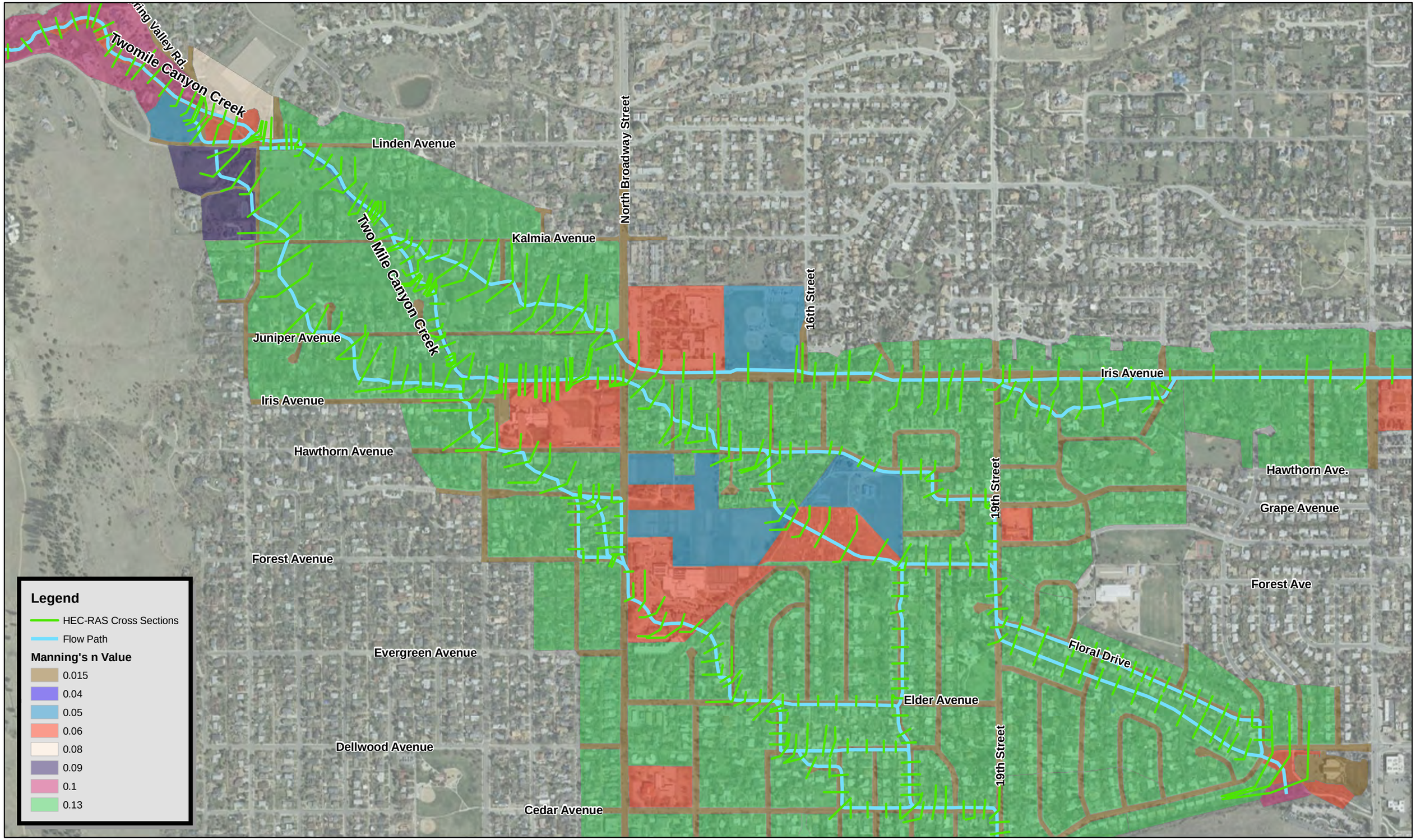


ICON ENGINEERING, INC.

Twomile Canyon Creek Flo-2D Manning's n Value Workmap

N

600 Feet



ICON ENGINEERING, INC.

Twomile Canyon Creek HEC-RAS Manning's n Value Workmap

N

600 Feet

Appendix C –
Hydraulic Models

```
                    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    X    X   X
          XXXXXXX  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     X  XXXXXX    XXXX        X    X   X    X   XXXXX



PROJECT DATA
Project Title: UpperGooseCreek
Project File : UpperGooseCreek.prj
Run Date and Time: 2014-10-16 5:32:17 PM

Project in English units


PLAN DATA

Plan Title: 100-yr_REV
Plan File : p:\P\11022TGF\Hydraulics\HEC_RAS_PMR\UpperGooseCreek.p07

           Geometry Title: 100-yr_REV
           Geometry File : p:\P\11022TGF\Hydraulics\HEC_RAS_PMR\UpperGooseCreek.g07

           Flow Title    : 100-yr_REV
           Flow File     : p:\P\11022TGF\Hydraulics\HEC_RAS_PMR\UpperGooseCreek.f08

Plan Summary Information:
Number of:  Cross Sections =   63    Multiple Openings  =    0
            Culverts       =    0    Inline Structures  =    0
            Bridges        =    1    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

Encroachment Data
   Equal Conveyance = True
   Left Offset      =        0
   Right Offset     =        0

River = Upper Goose      Reach = Reach 1
RS      Profile           Method  Value1  Value2
3849    FLOODWAY               1     185     245
3727    FLOODWAY               1     300     360
3551    FLOODWAY               1     310     365
3277    FLOODWAY               1     220  391.96
3078    FLOODWAY               1     190     330
2839    FLOODWAY               1      70     312
2761    FLOODWAY               1      75     260
2502    FLOODWAY               1     135  315.93
2307    FLOODWAY               1     245     449
2148    FLOODWAY               1     227  429.36
1938    FLOODWAY               1     166     375
1734    FLOODWAY               1  110.04  321.32
1525    FLOODWAY               1      80  285.15
1337    FLOODWAY               1     120     302
1138    FLOODWAY               1     260  448.22
894     FLOODWAY               1     280  488.69
757     FLOODWAY               1      95     436
600     FLOODWAY               1  263.86  418.94
525     FLOODWAY               1     300  442.66
495     FLOODWAY               1     330  453.29
426     FLOODWAY               1     360  464.31
316     FLOODWAY               1     392     447
212     FLOODWAY               1 1000.92  1077.9

River = Upper Goose      Reach = Reach 2
RS      Profile           Method  Value1  Value2
5320    FLOODWAY               1  101.73  131.92
5091    FLOODWAY               1     156     201
4903    FLOODWAY               1     116     182
4690    FLOODWAY               1     117     172
4493    FLOODWAY               1     118     164
4269    FLOODWAY               1      84     129
4074    FLOODWAY               1   58.78  102.19

River = Upper Goose      Reach = Reach 3
RS      Profile           Method  Value1  Value2
5456    FLOODWAY               1   10.17   69.03
5405    FLOODWAY               1   45.24  106.32

River = Upper Goose      Reach = Reach 4
RS      Profile           Method  Value1  Value2
5863    FLOODWAY               1     370     460
5742    FLOODWAY               1  374.88  494.88
5547    FLOODWAY               1  406.53  488.17

River = Upper Goose      Reach = Reach 5
RS      Profile           Method  Value1  Value2
6028    FLOODWAY               1   44.84   99.92
6025    FLOODWAY               1   45.35     100

River = Upper Goose      Reach = Reach 6
RS      Profile           Method  Value1  Value2
6383    FLOODWAY               1     195     250
6298    FLOODWAY               1     147     200
6232    FLOODWAY               1      60     120
6114    FLOODWAY               1  200.04  270.98

River = Upper Goose      Reach = Reach 7
RS      Profile           Method  Value1  Value2
7239    FLOODWAY               1     406     560
7160    FLOODWAY               1     348     480
7122    FLOODWAY               1     350     480
6934    FLOODWAY               1     205     290
6736    FLOODWAY               1     140     195
6464    FLOODWAY               1     175     230
```

River = AlpineSplit Reach = Reach1

RS	Profile	Method	Value1	Value2
1435	FLOODWAY	1	350	400
1177	FLOODWAY	1	250	290
1009	FLOODWAY	1	215	255
789	FLOODWAY	1	195	230
596	FLOODWAY	1	175	212
386	FLOODWAY	1	165	205
223	FLOODWAY	1	140	175

FLOW DATA

Flow Title: 100-yr_REV
Flow File : p:\P\11022TGF\Hydraulics\HEC_RAS_PMR\UpperGooseCreek.f08

Flow Data (cfs)

River	Reach	RS	100-YR	FLOODWAY
AlpineSplit	Reach1	1435	232	232
AlpineSplit	Reach1	789	203	203
BroadwaySplit	Reach1	871	117	1
HospitalSplit	Reach1	270	173	1
Upper Goose	Reach 7	7239	502	502
Upper Goose	Reach 7	6736	466	466
Upper Goose	Reach 6	6383	294	466
Upper Goose	Reach 6	6114	320	492
Upper Goose	Reach 5	6028	492	492
Upper Goose	Reach 4	5863	342	458
Upper Goose	Reach 3	5456	93	209
Upper Goose	Reach 2	5320	209	209
Upper Goose	Reach 1	3849	412	412
Upper Goose	Reach 1	2839	2419	2419
Upper Goose	Reach 1	1525	2463	2463
Upper Goose	Reach 1	757	2624	2624

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
Upper Goose	Reach 1	100-YR		Known WS = 5312.6
Upper Goose	Reach 1	FLOODWAY		Known WS = 5312.6

GEOMETRY DATA

Geometry Title: 100-yr_REV
Geometry File : p:\P\11022TGF\Hydraulics\HEC_RAS_PMR\UpperGooseCreek.g07

Reach Connection Table

River	Reach	Upstream Boundary	Downstream Boundary
AlpineSplit	Reach1	Junct 3	Junct 1
BroadwaySplit	Reach1	Junct 4	Junct 2
HospitalSplit	Reach1	Junction 6	Junct 5
Upper Goose	Reach 7		Junction 6
Upper Goose	Reach 6	Junction 6	Junct 5
Upper Goose	Reach 5	Junct 5	Junct 4
Upper Goose	Reach 4	Junct 4	Junct 3
Upper Goose	Reach 3	Junct 3	Junct 2
Upper Goose	Reach 2	Junct 2	Junct 1
Upper Goose	Reach 1	Junct 1	

JUNCTION INFORMATION

Name: Junct 1
Description:
Energy computation Method

Length across Junction River	Reach	Tributary River	Reach	Length	Angle
AlpineSplit	Reach1	to Upper Goose	Reach 1	229.08	
Upper Goose	Reach 2	to Upper Goose	Reach 1	225.51	

Name: Junct 3
Description:
Energy computation Method

Length across Junction River	Reach	Tributary River	Reach	Length	Angle
Upper Goose	Reach 4	to AlpineSplit	Reach1	146.49	
Upper Goose	Reach 4	to Upper Goose	Reach 3	91.47	

Name: Junct 2
Description:
Energy computation Method

Length across Junction River	Reach	Tributary River	Reach	Length	Angle
BroadwaySplit	Reach1	to Upper Goose	Reach 2	235	
Upper Goose	Reach 3	to Upper Goose	Reach 2	85.17	

Name: Junct 4
Description:
Energy computation Method

Length across Junction River	Reach	Tributary River	Reach	Length	Angle
Upper Goose	Reach 5	to BroadwaySplit	Reach1	282.29	
Upper Goose	Reach 5	to Upper Goose	Reach 4	165	

Name: Junction 6
Description:
Energy computation Method

Length across Junction River	Reach	Tributary River	Reach	Length	Angle
Upper Goose	Reach 7	to Upper Goose	Reach 6	80.59	
Upper Goose	Reach 7	to HospitalSplit	Reach1	79.97	

Name: Junct 5
Description:
Energy computation Method

Length across Junction River	Reach	Tributary River	Reach	Length	Angle
HospitalSplit	Reach1	to Upper Goose	Reach 5	34	
Upper Goose	Reach 6	to Upper Goose	Reach 5	86.36	

CROSS SECTION

RIVER: AlpineSplit

```
REACH: Reach1             RS: 1435

INPUT
Description:
Station Elevation Data    num=      55
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5370.88    1.83 5370.79    2.25 5370.78    4.54  5370.7   12.12 5370.35
    20.8    5370   22.67 5369.89   23.15 5369.88    23.9 5369.87   27.42 5369.74
   32.18 5369.53   38.76 5369.22   44.41    5369   45.55 5368.93    48.6 5368.79
   50.39 5368.77   56.27 5368.58   60.31 5368.42   68.96 5368.06   70.46    5368
   77.53  5367.6   82.15 5367.36   89.06 5367.04   89.14 5367.04   90.02    5367
   94.39  5366.8   97.68 5366.68   99.07 5366.62  103.36 5366.46  105.42 5366.34
  117.58    5366  118.93 5365.88  119.26 5365.86  125.22 5365.64  128.52 5365.51
  131.46 5365.41  142.43    5365  147.91 5364.64  151.56 5364.37   153.2 5364.21
  158.44    5364   262.5  5363.5  336.26    5364  375.73 5364.43  402.59    5364
  403.16 5364.05  403.41 5364.08   404.9 5364.23  407.31 5364.44  407.63 5364.48
     409 5364.64  409.62  5364.7  410.04 5364.75  412.26    5365   418.9  5365.5

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .015  336.26    .015  402.59     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         336.26  402.59           241.21  258.09  264.97             .1       .3
Ineffective Flow     num=        1
   Sta L   Sta R    Elev  Permanent
       0     324    5374       F

CROSS SECTION


RIVER: AlpineSplit
REACH: Reach1             RS: 1177

INPUT
Description:
Station Elevation Data    num=      87
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5366.98   23.17 5366.38   27.06 5366.28    38.2    5366   39.46    5366
   40.44 5365.63   41.02 5365.46   41.61 5365.24   42.87 5364.98   44.53 5364.77
   45.99 5364.76    47.2 5364.74   50.99  5364.6   53.12 5364.54   56.08 5364.42
   58.34 5364.34   61.35 5364.23   67.48    5364   72.22 5363.82      73 5363.81
   73.36 5363.83   76.24 5363.77    78.7 5363.71   79.72 5363.86   82.71    5364
   84.32    5364   85.42 5364.16   87.68 5364.43   89.24 5364.42   95.22 5364.89
   96.58    5365     114    5365  138.82 5365.22  140.22 5365.23  141.88 5365.25
  147.05 5365.17  147.37 5365.17  151.16 5365.12  151.43 5365.12  152.65 5365.15
  153.44 5365.18  154.88 5365.17  155.63  5365.2  157.67 5365.21  158.31 5365.24
  160.89 5365.28  163.66 5365.34  164.43 5365.36  166.57 5365.38  166.78 5365.39
  168.53 5365.39  172.03 5365.29  175.35 5365.04  175.78    5365  181.46 5364.56
  185.34 5364.37  185.85 5364.36   194.3 5364.83  195.95    5365  198.13 5365.24
  203.41 5365.55  204.54 5365.69  205.33 5365.71  207.62    5366  209.61    5366
  210.09 5366.09  213.72    5367  218.54    5367  221.26 5366.84   222.8 5366.67
  226.07 5366.41  228.39 5366.07  228.66 5366.04  229.57 5365.85  233.79    5365
  235.99 5364.59  239.06    5364  244.36    5363  245.14 5362.87  250.09    5362
   253.1  5361.5   270.5  5362.5   287.6  5361.9  288.63    5362  295.24 5362.93
   295.7    5363  303.17  5363.1

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04       0    .015  303.17     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
               0  303.17           166.13  168.38  169.03             .1       .3
Blocked Obstructions      num=       3
   Sta L   Sta R    Elev   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0   16.13    5377   70.65  102.73    5375  137.33   216.9    5377

CROSS SECTION


RIVER: AlpineSplit
REACH: Reach1             RS: 1009

INPUT
Description:
Station Elevation Data    num=      37
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0    5364    3.12 5363.93    3.37 5363.92    8.81  5363.8   11.61 5363.78
   16.91 5363.67    17.3 5363.67   18.89 5363.66   23.36 5363.58   24.07 5363.57
      96    5363     115    5363  148.87 5363.07  149.16 5363.07  151.65 5363.05
  151.86 5363.05  153.37 5363.04  154.52 5363.04  185.97    5363  199.47 5362.36
  202.72  5362.2  207.16    5362  207.69    5362  209.57  5361.6  212.15    5361
  212.51 5360.95   213.3 5360.86   220.1  5360.1  228.47 5360.47   238.2  5360.8
  244.75 5360.42  250.53 5360.12  253.15    5360  255.17 5359.97  257.56    5360
   262.8  5360.2     275  5360.4

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04   213.3    .015   262.8     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         213.3   262.8           218.78  219.31  219.63             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
   49.92   74.91 5383.65       F
  110.85  160.95 5383.65       F
Blocked Obstructions     num=       3
   Sta L   Sta R    Elev   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0    5.53    5374   18.33   49.92    5373   160.8  175.83    5373

CROSS SECTION


RIVER: AlpineSplit
REACH: Reach1             RS: 789

INPUT
Description:
Station Elevation Data    num=      56
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5363.16     .06 5363.16     .55 5363.15     .95 5363.15    1.27 5363.14
    1.82 5363.14    2.48 5363.13   17.51    5363   18.09 5362.96   19.22  5362.9
   22.45 5362.74   23.61 5362.67   24.62 5362.68   25.52 5362.63   31.63 5362.57
   36.88 5362.41   38.87 5362.35    51.3 5362.24   52.33 5362.24   53.65 5362.26
   71.52 5362.99   71.55 5362.99   71.77    5363   98.25 5363.04   98.45 5363.04
   98.73 5363.05   99.21 5363.05  101.54 5363.11  101.83 5363.12  122.77 5363.36
  123.79 5363.37  126.63 5363.32   155.9    5363   155.9 5362.99   156.7    5362
  156.72 5361.98  156.77 5361.97  157.88 5361.53   158.3 5361.35  159.62 5361.32
  159.98 5361.23  160.18 5361.17  163.57 5361.15  170.69    5361  173.19 5360.21
  174.39 5360.21  179.23    5360  180.21 5359.13  180.36    5359  180.49  5358.9
  181.63    5358  186.88  5357.9  192.88 5357.35   212.5  5358.2  227.36 5357.68
  242.27  5358.4

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04  186.88    .015  242.27     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         186.88  242.27           192.94  193.63  194.27             .1       .3
Ineffective Flow     num=       1
```

```
   Sta L   Sta R    Elev  Permanent
     .43  157.05 5372.98       F

CROSS SECTION


RIVER: AlpineSplit
REACH: Reach1             RS: 596

INPUT
Description:
Station Elevation Data    num=      69
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0    5362   13.75    5361   14.25 5360.93   14.82  5360.9   17.69  5360.6
   39.48    5360   42.16 5359.89   42.53 5359.87   44.71 5359.77   45.22 5359.76
   45.77 5359.72   47.61 5359.61   47.83 5359.59   54.84    5359   56.62 5358.82
   65.26 5358.34   66.59 5358.33   70.26 5358.33    72.3 5358.31   75.52 5358.31
   76.57  5358.3   77.23  5358.3   78.49 5358.29   83.16 5358.24   85.33 5358.21
   87.54 5358.19   89.37 5358.16   90.71 5358.14   91.79 5358.13   94.79  5358.1
   99.68 5358.08  100.18 5358.07  107.07 5358.04  107.45 5358.04  112.06    5358
  115.61 5357.98  115.75 5357.98  124.96 5357.91  127.01 5357.87  127.39 5357.86
  127.96 5357.84  143.87 5357.91  143.96  5357.9  144.39 5357.92  144.51 5357.91
   144.7  5357.9  145.36 5357.85  146.01  5357.8  146.99 5357.73     148 5357.67
  149.79 5357.53  156.09    5357  158.35 5356.74  164.63    5356  165.92 5355.86
  168.18  5355.6  169.36 5355.47  170.74 5355.36   173.3 5355.09  178.25 5355.27
  180.34 5355.32  191.53 5355.78  197.97 5355.54     207 5355.28  216.85 5355.74
  221.03 5355.92  221.17 5355.92  222.88    5356  233.28  5356.2

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04  169.36    .015  216.85     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        169.36  216.85           209.45  209.49   209.9             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
   68.24   121.15368.328

CROSS SECTION


RIVER: AlpineSplit
REACH: Reach1             RS: 386

INPUT
Description:
Station Elevation Data    num=      40
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0    5362    3.75 5361.57    8.78    5361   17.44 5360.09   18.23    5360
    19.4 5359.88   28.58    5359   29.51 5358.91   30.25 5358.84   30.98 5358.76
   33.49 5358.53   38.81    5358   42.88  5357.6   49.19    5357   51.52 5356.77
   59.95    5356   60.18 5355.98   60.51 5355.95   71.04    5355   71.08 5354.99
   75.13 5354.67   85.36    5354   89.26 5353.73   90.87 5353.65  102.88    5353
   103.6 5352.95  123.53    5352     155 5351.18  169.87 5351.18   186.9 5351.57
  199.05 5351.37  201.25 5351.79  201.96  5351.8   205.8 5351.91  208.81    5352
  210.98 5352.17  213.28 5352.33  219.08 5352.76   223.2    5353  237.35  5353.2

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .015     155    .015   205.8     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           155   205.8           149.99  163.33  177.03             .1       .3

CROSS SECTION


RIVER: AlpineSplit
REACH: Reach1             RS: 223

INPUT
Description:
Station Elevation Data    num=      57
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5360.68    3.27 5360.48    7.75 5360.23   11.58    5360    14.7 5359.82
   27.47    5359   28.84 5358.85   29.16 5358.86   32.67 5358.59   38.03 5358.57
   38.19 5358.57   38.78 5358.56    41.4 5358.46   57.66    5358   60.64    5358
   61.57 5357.03    61.6    5357   61.62 5356.98   82.17    5356   82.99 5355.85
   83.38 5355.82   84.97 5355.66   86.37 5355.45   87.27 5355.32   89.66    5355
   92.11 5354.62   92.62 5354.61   98.24    5354   99.69    5354  101.25 5353.62
  101.39 5353.62  102.13  5353.6   107.6    5353  109.29    5353   115.2 5352.29
  117.23    5352  117.56    5352  117.69 5351.92  119.48  5351.7  123.99    5351
  125.95 5350.71  130.77    5350  131.05    5350  131.88 5349.91  133.03 5349.83
  133.85 5349.77  137.73 5349.71  142.31  5349.1   160.4    5349  176.56  5348.6
  188.27    5349  189.28 5349.09  190.05 5349.17  193.39  5349.5  197.48 5349.91
  198.35    5350  219.35    5350

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04  131.05    .015  188.27     .04

Bank Sta: Left   Right    Coeff Contr.   Expan.
        131.05  188.27            .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
   60.01   95.08 5367.98       F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
  209.61  219.35

CROSS SECTION


RIVER: BroadwaySplit
REACH: Reach1             RS: 871

INPUT
Description:
Station Elevation Data    num=      17
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0    5373    5.91    5373    6.74 5372.95   24.34    5372      26  5371.9
   28.29    5372   31.02 5372.48   34.03    5373   38.01    5373   47.29 5373.74
   50.73    5374   51.21 5374.27   53.07    5375   53.16 5375.03   55.31 5375.86
   55.68    5376   76.66    5376

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .015   24.34     .04   34.03     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         24.34   34.03           174.32  252.37  370.77             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
   55.68   76.66    5396

CROSS SECTION


RIVER: BroadwaySplit
REACH: Reach1             RS: 619
```

```
INPUT
Description:
Station Elevation Data    num=      37
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  5373.1   19.61    5373   20.34 5372.96  113.36    5372  114.23 5371.95
  132.31    5371  238.71  5370.5  326.38    5371  349.15 5371.67  352.04 5371.69
  354.65 5371.69  355.29  5371.7  358.74 5371.78  361.07  5371.8   364.5 5371.84
  364.92 5371.85   370.8 5371.94  374.11    5372  427.97 5372.68  428.62  5372.7
  431.03 5372.77  438.87 5372.87  441.08    5373  483.62 5373.87  484.33 5373.89
  484.49 5373.89  484.93  5373.9  485.12 5373.91  485.29 5373.91  485.57 5373.92
  488.42    5374   524.3 5374.73   525.1 5374.75  525.96 5374.76   526.4 5374.77
  527.12 5374.79   529.5 5374.83

Manning's n Values        num=       1
     Sta   n Val
       0    .015

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        113.36  374.11          132.33  118.97  106.32             .1       .3
Ineffective Flow     num=        1
   Sta L   Sta R    Elev  Permanent
  379.61  528.85 5384.98       F

CROSS SECTION


RIVER: BroadwaySplit
REACH: Reach1             RS: 500

INPUT
Description:
Station Elevation Data    num=     103
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5372.88    4.83 5372.64   18.35    5372   18.82    5372   19.25 5371.98
   22.59 5371.81    22.9 5371.79   24.18 5371.74   25.08  5371.7   29.75 5371.45
   30.86  5371.4   34.34 5371.28   34.87 5371.28   36.01 5371.24   37.15 5371.23
   38.28 5371.19   39.56 5371.16    39.9 5371.16   41.15 5371.12   42.54 5371.07
   42.69 5371.07   44.67    5371   46.96 5370.94    47.5 5370.93   50.02 5370.87
   51.59 5370.85    52.7 5370.81   53.31  5370.8   55.64 5370.74   60.54 5370.58
   61.41 5370.56   64.31 5370.46   65.55 5370.43   67.62 5370.37   68.24 5370.34
   71.16 5370.26   74.17 5370.15   76.49 5370.07   78.16    5370    78.3    5370
   82.89 5369.87   87.26 5369.77   88.79 5369.72      89 5369.72   91.44 5369.65
   97.32  5369.5   99.63 5369.43  101.02  5369.4  102.34 5369.35  103.56 5369.31
  106.56 5369.24  107.17 5369.23  113.37  5369.1  116.39 5369.02  116.95    5369
  119.22    5369  124.67 5368.92  126.35  5368.9  127.61 5368.87  128.08 5368.87
  132.75  5368.8  135.91 5368.73  144.89 5368.56  146.83 5368.52   156.5 5368.36
  157.35 5368.36  158.73 5368.35   159.7 5368.33  160.61 5368.32  161.88 5368.32
  167.68 5368.28  167.93 5368.29  177.26 5368.29  181.84 5368.32  187.21 5368.32
  188.56 5368.33  193.08 5368.32  198.71 5368.36  200.17 5368.36  200.76 5368.37
  202.05 5368.38  204.53 5368.37   209.7 5368.38   212.3 5368.41  225.41  5368.5
  261.05 5368.98  262.06    5369   266.8  5369.1   277.7 5368.84     296 5369.47
   310.8 5368.95  313.16    5369  332.46    5370  384.51    5372  394.46 5372.64
  400.39    5373  400.79    5373   416.7 5373.54  420.17 5373.65  421.18 5373.69
  426.66 5373.82   427.2 5373.83  428.54 5373.89

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04   18.82    .015  313.16     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         18.82  313.16          142.72  131.42   130.4             .1       .3
Blocked Obstructions      num=       3
   Sta L   Sta R    Elev   Sta L   Sta R    Elev   Sta L   Sta R    Elev
   422.1  428.54    5393  321.28  365.86    5390       0    6.43    5393

CROSS SECTION


RIVER: BroadwaySplit
REACH: Reach1             RS: 369

INPUT
Description:
Station Elevation Data    num=      90
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5367.7119.65002 5367.4125.54004 5367.3134.18005 5367.1936.10004 5367.17
41.23004 5367.1843.45001  5367.257.96002 5367.4878.16003 5367.7584.70001 5367.87
90.55005 5367.8891.24005 5367.8492.51001 5367.8893.10004 5367.8596.45001 5367.86
97.57001 5367.7899.45001 5367.75  102.86 5367.48  104.86 5367.37  109.14    5367
  119.92    5367  130.64 5367.33  132.46 5367.32  144.05 5367.42  145.77 5367.47
  156.34 5367.65  168.44 5367.76  175.75 5367.88  182.28 5367.94  187.22    5368
  247.13    5368  255.03 5367.76  260.14 5367.62  265.92 5367.48  279.22    5367
  298.85    5367   303.5 5366.67  322.45 5367.16  336.31 5366.84  341.27    5367
352.8101 5367.49  368.65    5368  369.79    5368  391.08 5368.87  395.59 5369.06
  410.38 5369.55  425.89    5370  436.66 5370.28  443.98 5370.45446.1801 5370.48
  449.48 5370.55  453.39 5370.59  456.64  5370.6  460.92 5370.65464.9901 5370.67
472.7401 5370.74  476.64 5370.79  478.72  5370.8483.6801 5370.87  490.94    5371
  494.09 5371.09  495.97    5371509.6201    5371   512.5    5370  515.88    5370
544.4601 5369.51  559.26 5369.56564.6801  5369.6  575.49 5369.66  597.62 5369.83
  618.67    5370  629.97 5371.27  635.74 5371.85637.5801    5372  641.61 5372.21
  644.23  5372.3  649.53 5372.46652.4601 5372.62  654.91 5372.71  658.28    5373
   661.5 5373.14670.5801 5373.56  674.53 5373.73681.9401 5373.92  684.11 5373.94
  689.55 5374.07  693.79 5374.22  697.25 5374.41   699.8  5374.6  704.32    5375

Manning's n Values        num=       1
     Sta   n Val
       0     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         298.85  369.79          111.83  133.97  190.87             .1       .3
Blocked Obstructions      num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0  298.85    5387  371.45  665.15    5388

CROSS SECTION


RIVER: BroadwaySplit
REACH: Reach1             RS: 235

INPUT
Description:
Station Elevation Data    num=      38
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  5367.4   35.15    5367   36.25 5366.94    36.5 5366.93   62.62    5366
   63.66 5365.86   64.32 5365.83   65.72 5365.67   75.96    5365   76.46 5364.97
   76.64 5364.96   80.78 5364.71    82.2 5364.62   84.38 5364.51   93.01  5364.3
   94.14 5364.31   95.57 5364.33   98.02 5364.35   99.38  5364.4  113.15 5364.55
  114.19 5364.58  116.57 5364.63  116.85 5364.63  117.67 5364.64  137.16    5365
  213.02 5365.79  214.19  5365.8  223.81 5365.91  225.01    5366  296.56 5366.63
  302.43 5366.84  303.35 5366.87  305.28    5367  341.42 5367.81  342.36 5367.84
  348.19    5368  356.28 5368.39  368.91 5368.92

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04   62.62    .015  137.16     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          62.62  137.16              235     235     235             .1       .3
```

```
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
  323.63  368.91    5384       F
Blocked Obstructions       num=       1
   Sta L   Sta R    Elev
       0   47.89    5386

CROSS SECTION


RIVER: HospitalSplit
REACH: Reach1             RS: 270

INPUT
Description:
Station Elevation Data    num=      40
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  5379.5    9.62    5379    14.2  5378.5   30.62    5379   44.47    5380
   44.65 5380.01   45.27 5380.06   56.68    5381   56.93    5381   73.89  5381.9
   75.95    5382   77.05    5382   89.64 5382.44   91.73 5382.51   92.94 5382.53
   97.22 5382.56  104.57 5382.64  109.97 5382.67  110.66 5382.68  111.16 5382.69
  117.04 5382.72  121.04 5382.63  126.53 5382.64  133.96 5382.52  159.41 5382.27
  167.31 5382.24   188.5  5382.3  306.65    5383  315.56 5383.07  318.12 5383.08
  333.14  5383.2  334.73 5383.21  335.11 5383.22  338.04 5383.24  356.14 5383.39
  358.84  5383.4  378.79 5383.56  380.81 5383.55  426.08    5384  443.54    5384

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04       0     .04   44.47     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
              0   44.47             38.82   44.44    56.9             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
  108.41  428.99    5402

CROSS SECTION


RIVER: HospitalSplit
REACH: Reach1             RS: 226

INPUT
Description:
Station Elevation Data    num=      99
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0    5379    1.49    5379    4.27 5378.77    5.01 5378.79    5.92 5378.72
    6.89 5378.71    7.13  5378.7    8.87 5378.57    9.99 5378.51   11.73 5378.45
    12.7 5378.37    14.7 5378.28   17.47 5378.13   19.46    5378   20.67 5377.89
    21.2 5377.83   23.03 5377.61   26.79 5377.19   28.44    5377   29.74 5376.92
   32.04  5376.8   39.18 5376.49   42.37 5376.44   43.09 5376.45   46.52 5376.23
   47.02 5376.23   48.15 5376.16   48.22 5376.15   49.77 5376.08    49.9 5376.07
   51.68    5376    58.4 5375.86   61.26    5376   62.82 5376.14   63.55 5376.18
   67.52 5376.49   68.95 5376.59   70.23 5376.66   71.05 5376.69   72.59 5376.73
   73.76 5376.72   75.24 5376.74   75.78 5376.73   77.42 5376.73    81.4  5376.7
   81.86  5376.7    82.3 5376.72   83.26  5376.7   88.45 5376.61   88.74 5376.59
   92.79 5376.47   96.55 5376.64   96.92  5376.6   97.38 5376.59   100.6    5377
  104.85 5377.55  108.83    5378  116.18 5378.47   119.2 5378.65  124.29    5379
  129.88 5379.36  131.22 5379.38  135.86 5379.43  145.02 5379.57  149.73 5379.57
  156.43 5379.68  158.03 5379.71   158.7 5379.74  162.56 5379.75  163.83 5379.76
   165.4 5379.79  166.17 5379.81  170.65    5380  173.57 5380.13  174.17 5380.15
  178.89 5380.36  180.41 5380.41  225.61 5380.94  226.87 5380.96  230.59    5381
   254.9  5381.1  258.09 5381.13  282.51 5381.25  292.37 5381.36  295.07  5381.4
  303.46 5381.57  308.29  5381.6  312.92 5381.65  315.93 5381.65  322.35 5381.73
  325.19 5381.76  345.33    5382  361.12 5382.08  362.75  5382.1  399.38 5382.29
  404.88 5382.39   405.6  5382.4  413.98 5382.46  416.78 5382.44

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04   23.03     .04  104.85     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         23.03  104.85             74.08   94.65  108.06             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
     105   406.1    5397

CROSS SECTION


RIVER: HospitalSplit
REACH: Reach1             RS: 131

INPUT
Description:
Station Elevation Data    num=     100
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  5378.4   13.82    5378   29.79 5377.06   30.04 5377.05   30.21 5377.04
   31.06    5377   39.62 5376.41   44.51 5376.01   44.59    5376   44.65 5375.99
   45.26 5375.95   55.67 5375.14    57.7    5375   61.66 5374.68   63.28 5374.58
   65.83 5374.39   69.02 5374.18   69.66 5374.13   71.56    5374   74.16 5373.85
   74.44 5373.84   77.85 5373.66   79.91 5373.57   81.44 5373.51   82.69 5373.48
   83.45 5373.47   84.72 5373.45   92.99 5373.31   93.34 5373.32   94.46  5373.3
   94.73 5373.31   99.26 5373.07   99.32 5373.07   100.4    5373  160.78    5373
   162.2 5373.14   164.3 5373.34  164.99  5373.4  166.04  5373.5  167.35 5373.61
  168.14 5373.66  168.34 5373.67     169 5373.72  169.77 5373.76  170.97 5373.83
  171.24 5373.85  173.25 5373.92  173.43 5373.93  175.53 5373.96  175.66 5373.97
  177.16    5374  177.76 5374.01  179.54 5374.06  180.72  5374.1  183.17  5374.2
  185.21  5374.3  186.05 5374.35  188.05 5374.46  197.24 5374.67  198.37 5374.71
  199.09 5374.73  199.37 5374.75  199.98 5374.77  206.55    5375  209.38    5375
  214.35 5375.36  223.68    5376  228.29 5376.39  236.32    5377   247.5 5377.89
  249.88    5378  251.28    5378  255.88 5378.21  257.14 5378.26   270.6 5378.61
  281.49 5378.86  285.69 5378.93  286.36 5378.94  286.74 5378.95  297.68 5378.96
  298.06 5378.97  315.83 5379.07  316.99 5379.07  317.95 5379.08  341.69 5379.22
  343.32 5379.22  345.34 5379.21  348.21 5379.23  363.13 5379.28  368.76 5379.35
  376.33 5379.33  379.11 5379.22  382.21 5379.14  384.07 5379.19  386.34 5379.16
  388.51 5379.22  390.46 5379.33  395.13    5380  400.08    5380  400.24 5380.01

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04   13.82     .04  183.17     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         13.82  183.17             90.94   96.97  106.71             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
       0  177.16    5374       T
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
  183.47  394.08    5399

CROSS SECTION


RIVER: HospitalSplit
REACH: Reach1             RS: 34

INPUT
Description:
Station Elevation Data    num=      55
```

```
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0    5378    2.51    5378    2.84 5377.97    2.98 5377.97    5.51 5377.73
    5.88 5377.71    6.21 5377.71    7.58 5377.56   10.37 5377.47   11.54 5377.37
   12.27 5377.36   13.37 5377.33   24.25    5377   25.79 5376.91   25.93  5376.9
   27.03 5376.83   27.59 5376.81   28.78 5376.73   36.29 5376.45    38.3 5376.45
   38.91 5376.44   44.94 5376.29   45.19 5376.28   48.36 5376.14   48.58 5376.14
   52.06    5376    53.4 5375.99   60.11 5375.83   60.82 5375.83   62.52 5375.82
   62.84 5375.82   63.45 5375.81   64.42 5375.79   65.86 5375.75   67.92 5375.73
   69.11 5375.69  104.25    5375  105.86 5374.95   106.6 5374.95   109.4 5374.88
  128.01    5374  159.29    5374  177.25 5374.63  182.63 5374.79  184.53 5374.85
  184.83 5374.85  187.35 5374.92  189.98    5375  198.55 5375.73  199.28  5375.8
  201.33    5376  251.03 5376.78  251.45 5376.79  252.91    5377  256.12    5377

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04  104.25     .04  189.98     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        104.25  189.98                34      34      34             .1       .3

CROSS SECTION


RIVER: Upper Goose
REACH: Reach 7            RS: 7239

INPUT
Description:
Station Elevation Data    num=     153
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5387.98   22.96 5387.08   25.15    5387   44.95 5386.37   55.74    5386
   69.41 5385.44   79.33    5385    85.6 5384.82    96.2 5384.54   97.42 5384.51
  108.12  5384.3  114.11 5384.17  125.39 5384.02  125.64 5384.01  127.48    5384
  150.59 5383.88  151.22 5383.86  157.78 5383.79  163.06  5383.7  166.46 5383.64
  171.18 5383.54  175.82 5383.45   179.4 5383.37   184.8 5383.25  191.33 5383.09
  192.15 5383.07   195.4    5383  223.11 5382.71  223.27 5382.71  229.47 5382.62
  231.04  5382.6  233.18 5382.58  238.66 5382.49  253.26 5382.34  257.14 5382.28
   273.1    5382  274.52    5382  278.82    5382  279.99    5382  280.41    5382
   280.9    5382  344.45 5381.21  346.41 5381.17  346.88 5381.17  353.86 5381.03
  355.62    5381  355.63    5381  356.32    5381  356.52    5381  356.97    5381
  357.91    5381  360.46    5381  361.66    5381  362.14    5381  363.68    5381
  375.51    5381  375.87    5381  376.97    5381  380.37    5381  381.04    5381
  382.52    5381   387.8    5381  388.25    5381  388.43    5381  388.79    5381
  389.36    5381  398.68    5381  398.88    5381  400.28    5381  400.35    5381
  414.65 5380.64  430.77 5380.78  441.54 5380.72  494.31  5380.7  494.78  5380.7
  495.25  5380.7   504.6    5381  520.62    5381  521.44    5381  539.46    5381
  539.78    5381  542.59    5381  542.94    5381  544.03    5381  544.65    5381
  544.95    5381  545.85    5381  547.08    5381  549.19    5381  549.67    5381
  550.15    5381  550.69    5381  551.83    5381  554.93    5381  555.83    5381
  556.36    5381  556.69    5381  558.55    5381  562.06    5381  563.06    5381
  563.09    5381  564.15  5381.1   564.4  5381.1  566.19 5381.25  566.89 5381.26
  567.57 5381.27  568.47 5381.34  569.31 5381.35  569.87 5381.39  570.75 5381.39
  571.56 5381.39  572.22 5381.44  598.09 5381.63  599.37 5381.66  600.41 5381.67
  600.81 5381.67  601.16 5381.66  602.04 5381.66   602.2 5381.65  603.72 5381.64
  604.66 5381.64  605.75 5381.64  606.87 5381.63     609 5381.62     610 5381.58
  618.65 5381.13  620.83    5381  623.83    5381  626.13    5381  626.19    5381
   626.9 5381.02  629.95 5381.11  631.81 5381.16  632.79 5381.19   633.6  5381.2
  635.98 5381.26  637.57 5381.28  638.43  5381.3  640.35 5381.32  641.49 5381.35
  645.05 5381.38  646.94 5381.43   680.5    5382  693.75 5382.15  699.19 5382.61
   703.8    5383  709.71 5383.56  713.94    5384  716.47 5384.13   728.9 5384.74
   731.4 5384.86   734.1    5385  750.78 5385.65

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .03  278.82     .03   680.5     .03

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        278.82   680.5                82.69   78.68   80.22             .1       .3
Blocked Obstructions      num=       1
   Sta L   Sta R    Elev
  719.85  750.785389.298

CROSS SECTION


RIVER: Upper Goose
REACH: Reach 7            RS: 7160

INPUT
Description:
Station Elevation Data    num=     143
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5387.96   39.95 5386.94   40.56 5386.92   83.54    5386   86.02 5385.95
   86.24 5385.94   86.55 5385.93   86.86 5385.93   86.96 5385.92   135.6    5385
  136.06 5384.99  136.09 5384.99  137.64 5384.96  137.91 5384.95  138.69 5384.91
  139.51  5384.9  182.44    5384  185.23 5383.84   187.4 5383.81  244.31    5383
  245.01 5382.96  246.31 5382.94  246.95 5382.93  247.24 5382.92   247.6 5382.91
  306.21    5382  306.71 5381.99  306.74 5381.99  334.98 5381.25  335.13 5381.25
  335.23 5381.25  335.31 5381.24  335.51 5381.24  335.61 5381.24  335.71 5381.24
  336.08 5381.24  336.33 5381.24  336.53 5381.24  350.79    5381  358.07    5381
  359.29    5381  360.32    5381  376.19 5381.09  376.63 5381.09  377.27 5381.09
  378.31 5381.09  378.67 5381.09  391.24    5381  393.01    5381  393.93    5381
  395.47    5381  396.17    5381  397.03    5381  397.59    5381  398.56    5381
  400.98    5381  403.39    5381  404.45    5381  405.67    5381  406.17    5381
  407.15    5381  407.92    5381  408.84    5381  411.59    5381  412.17    5381
  433.47    5381  434.17    5381  438.09    5381   439.1    5381  440.08    5381
  445.51    5381  446.06    5381  446.52    5381  446.92    5381  448.74    5381
  449.04    5381  453.31    5381   453.6    5381  455.46    5381  455.62    5381
  459.53    5381  459.85    5381  460.81    5381  462.98    5381  466.64    5381
  467.91    5381  468.01    5381  469.49    5381   472.8    5381  474.99    5381
   476.6    5381  480.64    5381  480.86    5381  483.04    5381  483.25    5381
  485.29    5381  488.57    5381  488.89    5381  489.64    5381  489.79    5381
  491.42    5381  492.93    5381  500.34    5381  501.05    5381  516.08    5381
  570.04 5381.95  572.25    5382  683.15 5382.95  683.24 5382.95  683.39 5382.95
  683.53 5382.95  683.68 5382.95  684.84    5383   722.3 5383.82  723.62 5383.85
  726.26 5383.99  726.28 5383.99  726.31 5383.99  726.32 5383.99  726.58    5384
   728.6    5384  729.79    5384  731.95    5384  733.36    5384  733.96    5384
  735.01    5384  749.61 5384.71  751.05 5384.77  751.98 5384.81  752.99 5384.85
  757.17    5385  757.23    5385  757.55    5385  757.83    5385  758.04    5385
  760.48    5385  776.06 5385.66  780.34 5385.81  784.71    5386  794.19 5386.45
  800.04  5386.7  805.32    5387  823.43 5387.87

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .015  306.21    .015  570.04    .015

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        306.21  570.04                38.4   38.47   38.56             .1       .3

CROSS SECTION


RIVER: Upper Goose
REACH: Reach 7            RS: 7122

INPUT
Description:
Station Elevation Data    num=     101
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5388.57    1.53 5388.49    6.17 5388.36    9.91 5388.17   16.53  5387.9
```

```
   39.67    5387   53.37 5386.44   63.17    5386   63.74    5386   77.27 5385.43
   84.15 5385.31   87.45 5385.29   96.18 5385.18  106.95 5385.13  123.92    5385
  124.75 5384.96  130.27 5384.86   145.5 5384.61  158.14 5384.43  166.59 5384.11
  174.18    5384  177.45 5383.98  205.59 5383.72  211.78  5383.8  215.63 5383.78
  217.66 5383.69  222.71 5383.56   227.8 5383.51  232.65  5383.5  237.14 5383.44
  243.62 5383.44  251.66 5383.33  259.75 5383.31  264.88    5383  267.39    5383
  274.44 5382.53  285.67    5382  295.65    5382  330.59 5381.43     337 5381.36
  358.91 5380.53     367 5380.25     383 5380.95    398 5380.14     402 5380.64
     418  5381.8  419.33  5381.8   425.7    5382  612.17    5382  619.06 5382.91
  621.58    5383  624.53    5383  628.45 5382.75  630.81 5382.54  633.13 5382.42
  637.84    5382  642.06    5382  645.39 5382.34  647.26 5382.43  653.02    5383
  656.22    5383  665.17 5383.28  673.44 5383.31  677.31 5383.19  680.17 5383.42
  682.49 5383.46  684.51 5383.63  692.12 5384.08  698.35 5384.25   704.3    5385
  705.11 5385.06  711.68 5385.23  717.56    5386  718.14 5386.04  727.53 5386.32
   730.8    5387  731.15 5387.03  739.61 5387.32  743.87 5387.98   750.6 5388.14
  751.68 5388.31  754.11 5388.42  756.86 5388.93  757.87    5389  760.03    5389
   764.1 5389.14  767.29 5389.69  768.76 5389.83  771.56    5390  773.77    5390
  775.56  5390.2  779.98 5390.51  781.72 5390.77  784.96    5391  786.47  5390.9
   794.3    5389   799.2    5388   805.3 5387.29  811.01 5387.24  815.75 5387.39
  829.74 5387.77

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13  358.91    .015     402     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        358.91     402           188.15  187.91  187.57              .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0  254.98 5394.01       F
     540  662.41    5390       F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
  662.41  784.71    5403

CROSS SECTION


RIVER: Upper Goose
REACH: Reach 7            RS: 6934

INPUT
Description:
Station Elevation Data    num=      77
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5387.08    2.73    5387   15.81 5386.74    18.9 5386.66   23.98 5386.52
   29.67 5386.39      37 5386.18   37.54 5386.17   43.35    5386   46.85 5385.91
   79.16    5385   89.96 5384.67    99.1 5384.41  102.17 5384.31  114.17 5384.04
  114.81 5384.02   132.5 5383.64   142.1 5383.39  149.54 5383.22  156.26    5383
  156.38    5383   156.5 5382.99   172.9    5382   185.3    5382  206.44 5381.83
  206.57 5381.83  208.36 5381.84  208.59 5381.84     219 5381.14     234 5381.59
     250 5380.67     255  5381.5  387.58    5381  405.57    5381  416.45 5380.75
  417.87 5380.67  419.06  5380.6  419.77 5380.59  420.92 5380.52  421.83  5380.5
  423.48  5380.4  429.74    5380  510.23    5380  512.61 5380.11  525.97 5380.69
  528.01 5380.77  528.24 5380.79  529.23 5380.84  532.52    5381  536.16 5381.21
  549.42 5381.92  550.81    5382  550.85 5382.07  550.93 5382.21  551.38    5383
  551.71 5383.63   551.9    5384   552.2 5384.58  552.41    5385  552.65 5385.46
  553.38 5386.92  553.43    5387   553.9    5388  553.93 5388.07  554.36    5389
  554.63 5389.29  555.15    5390  582.95    5390  584.43 5389.97  590.81 5389.88
  592.56 5389.86  612.39 5389.55  627.89 5389.25  631.89 5389.18   641.4    5389
  670.63    5389  677.19  5389.2

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13  208.59    .015     255     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        208.59     255           198.11  198.15  198.22              .1       .3
Ineffective Flow     num=       4
   Sta L   Sta R    Elev  Permanent
     .02   79.97 5393.98       F
  100.02  134.195393.995       F
  159.93  175.13 5393.98       F
     310  522.78    5390       F
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
   42.79   65.78    5395  522.78  572.76    5401

CROSS SECTION


RIVER: Upper Goose
REACH: Reach 7            RS: 6736

INPUT
Description:
Station Elevation Data    num=     103
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0    5387   25.14    5387   29.42 5386.68   31.53  5386.6   32.67  5386.6
   34.62 5386.56   35.51 5386.52   39.54  5386.4   40.09 5386.37   51.18    5386
   55.99 5385.78   60.35 5385.64   63.71 5385.47   74.65    5385   81.66    5385
   82.69    5384  112.32    5383  113.89 5382.87  123.79 5380.71     157  5381.3
     170  5381.5     188  5380.7  196.46 5380.71  203.96 5382.88  205.16    5383
  218.92    5383  239.19 5382.29  246.48 5382.08     250    5382  252.55    5382
  255.84 5382.22  260.82  5382.6   265.8    5383  271.08 5383.74  272.84    5384
  300.28    5384  302.24 5383.86  313.78 5383.28  315.46 5383.26  316.21 5383.29
  317.57 5383.27  320.65 5383.28  322.06 5383.27   326.8  5383.3  327.58 5383.27
  329.67  5383.3  330.38 5383.28  331.46  5383.3  336.46 5383.22  340.69 5383.06
  342.92 5383.01  345.04 5382.98  349.03 5382.88  354.03 5382.88  356.59 5382.94
   359.2 5383.03  362.89 5383.14  364.71 5383.17  366.17 5383.14  368.27  5383.2
  372.35 5383.26  375.49 5383.27  376.03  5383.3  377.59 5383.32  382.08 5383.45
  383.61 5383.51  385.69 5383.51  387.08 5383.56  389.37 5383.56  390.74  5383.6
  393.61 5383.65  398.13 5383.66  400.95 5383.69  406.56 5383.69  409.06  5383.7
  422.24  5383.7   422.9 5383.69  428.02 5383.69  428.64  5383.7   434.4 5383.72
  435.85  5383.7  437.64 5383.71   438.8 5383.67  460.56 5383.64  464.16 5383.73
  472.61    5384   476.6 5384.25  490.54    5385  495.09  5385.2  500.99 5385.48
  506.24 5385.71  509.81 5385.83  510.54 5385.84  513.06    5386  520.24 5386.24
  522.75 5386.29     525 5386.39  528.94 5386.47  538.27 5386.89  540.84    5387
  544.26 5387.12  567.55    5388  613.66    5388

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13  112.32    .015  205.16     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        112.32  205.16           271.76  271.78  271.82              .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
  311.92  551.19 5403.37       F
Blocked Obstructions     num=       3
   Sta L   Sta R    Elev   Sta L   Sta R    Elev   Sta L   Sta R    Elev
    36.1   60.46    5396   87.13   111.7    5393  279.45  311.92    5404

CROSS SECTION


RIVER: Upper Goose
REACH: Reach 7            RS: 6464

INPUT
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Description:
Station Elevation Data    num=      90
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5384.28   12.96    5384   13.76    5384    15.2 5383.14   15.44    5383
   31.61 5382.42   37.35  5382.3   48.95 5382.08   52.84    5382   53.42    5382
   56.93 5381.94   57.25 5381.94   60.29 5381.88      61 5381.87   61.79 5381.85
   62.12 5381.85   69.63 5381.68   70.96 5381.66    75.3 5381.57   79.78  5381.5
   84.42 5381.39  101.64 5381.04  103.38    5381  106.27    5381  112.83 5380.83
  114.62  5380.8  115.54 5380.81  116.43 5380.81  118.07 5380.78  118.59 5380.78
   133.4 5380.61  135.31 5380.58  138.88 5380.51  153.29 5380.25  156.11 5380.21
  158.76 5380.16  164.09 5380.07  167.76    5380  167.84    5380  171.53 5379.94
     189 5379.22     204 5379.68     220 5378.75  227.89    5380   229.1 5380.14
  229.22 5380.15  231.48 5380.41  233.13 5380.61  236.22 5380.77  236.94 5380.82
  237.87 5380.89  239.06    5381  245.04    5381  248.07  5381.2  251.43 5381.29
  256.66 5381.59  258.61 5381.74  262.19    5382  268.51 5382.34  275.53  5382.7
  280.78    5383   341.6    5383  361.39 5383.23  369.84 5383.37  398.43 5383.63
  422.76    5384  470.51    5384  550.35 5384.76   569.3    5385  583.33    5385
   611.3 5385.52  612.15 5385.54  613.25 5385.55  640.94 5385.99  641.33    5386
  641.52 5386.05  644.81    5387  652.38 5387.31   654.8 5387.52  661.39    5388
  706.21    5388  707.28 5387.91  709.12 5387.81  716.25 5387.32  717.58 5387.29
  719.06  5387.2  720.27 5387.16  727.69 5387.22  727.95 5387.23   744.1 5387.46

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13  164.09    .015   229.1     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        164.09   229.1             80.59   80.59   80.59              .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
    -.01  148.075399.999       F
  620.01  676.125403.001       F
Blocked Obstructions     num=       3
   Sta L   Sta R    Elev   Sta L   Sta R    Elev   Sta L   Sta R    Elev
  148.55  160.55    5403  318.26   342.4    5403  405.35   601.3    5403

CROSS SECTION


RIVER: Upper Goose
REACH: Reach 6            RS: 6383

INPUT
Description:
Station Elevation Data    num=      28
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5383.72     .07 5383.71    8.46 5383.51   10.89 5383.46   13.05 5383.42
   16.19 5383.35   19.56 5383.33   26.48 5383.05   27.65    5383   31.02 5382.81
   35.49 5382.57   43.72    5382    44.8    5382      46 5381.96    79.4    5381
  113.74 5380.09  116.16 5380.04  117.15    5380  124.69    5380  133.25 5379.75
  138.75 5379.62  161.72    5379   191.3    5379     197  5378.7     218  5379.4
     237  5378.6   247.4    5379  253.33  5379.5

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   191.3    .015  253.33     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        191.3  253.33             85.79   85.81   85.81              .1       .3
Blocked Obstructions     num=       3
   Sta L   Sta R    Elev   Sta L   Sta R    Elev   Sta L   Sta R    Elev
   33.88   49.02    5394   84.05   98.91    5392  158.72  170.43    5391

CROSS SECTION


RIVER: Upper Goose
REACH: Reach 6            RS: 6298

INPUT
Description:
Station Elevation Data    num=      35
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5383.89   13.58    5383   22.02 5382.62   24.64 5382.51   34.18 5382.27
   38.14 5382.14   44.79    5382   47.89 5381.92   53.63 5381.74   57.04 5381.61
   69.54 5381.29   73.96 5381.15   80.64    5381    89.4 5380.76  111.43    5380
  133.38    5379  137.42 5378.76  139.06  5378.7   146.3 5378.35   146.6 5378.34
  147.53  5378.3  148.86 5378.24  149.11 5378.22     150 5378.18     153  5378.1
     173  5378.6     191  5377.9  192.43    5378  194.67 5378.17   195.4  5378.2
  198.45 5378.44  199.49 5378.51  201.81 5378.65   202.4 5378.68  205.57 5378.62

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1  139.06    .015   202.4     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        139.06   202.4             66.23   66.04   70.64              .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
   18.43   97.74    5390

CROSS SECTION


RIVER: Upper Goose
REACH: Reach 6            RS: 6232

INPUT
Description:
Station Elevation Data    num=      37
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0    5381   34.75    5380   36.71 5379.74   36.82 5379.73   38.63 5379.61
   39.44 5379.56   42.88 5379.18   43.81 5379.07   44.81    5379   46.54 5378.89
   48.11 5378.78   50.48  5378.6   52.11 5378.46   57.15    5378      62  5377.4
      86  5377.8   89.32 5377.76   97.19 5377.52     103  5377.3  109.28 5377.33
  110.04 5377.35  110.89 5377.36  111.44 5377.36  114.32 5377.43  116.12 5377.46
  117.94 5377.53  118.71 5377.54  121.06 5377.59   123.6 5377.54  124.62 5377.58
  125.28 5377.55  126.42 5377.62  127.99 5377.75  130.12 5377.94  130.35 5377.94
  131.13    5378   134.4    5378

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05   57.15    .015  131.13     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         57.15  131.13             57.13  117.54   90.61              .1       .3

CROSS SECTION


RIVER: Upper Goose
REACH: Reach 6            RS: 6114

INPUT
Description:
Station Elevation Data    num=      24
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0    5381   30.24    5380   31.54 5379.85   39.06 5379.68   43.74 5379.51
   60.68    5379   60.85 5378.99   63.65 5378.81   66.07 5378.78  102.26    5378
  106.19 5377.91  106.35  5377.9  106.68 5377.89  109.36  5377.8  110.19 5377.79
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  147.68    5377  147.83 5376.99  212.99    5376  213.32 5375.98     221  5375.8
  221.57 5375.52  234.16    5375     247  5374.5  270.98 5375.33

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05       0    .015  270.98     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             0  270.98             86.36   86.36   86.36             .1       .3

CROSS SECTION


RIVER: Upper Goose
REACH: Reach 5            RS: 6028

INPUT
Description:
Station Elevation Data    num=      35
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5375.22       7    5376   13.72    5376   17.21 5375.65   18.47 5375.54
   24.28    5375   33.97 5374.05   34.16 5374.03   34.51    5374   44.84 5373.52
      48  5373.4      75  5374.7      96  5373.8   99.82    5374   99.92 5374.01
  105.35 5374.26  105.85 5374.26  107.12 5374.32  107.42 5374.31  109.38 5374.32
  116.19 5374.55  118.26 5374.63  120.44 5374.68  125.76 5374.88   127.4 5374.93
  127.65 5374.93  127.85 5374.94  128.57 5374.94   129.4    5375  142.02 5375.58
  144.66 5375.75  145.69  5375.8   146.4 5375.83  149.09    5376  198.28    5377

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04   44.84    .015   99.92     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         44.84   99.92             3.05       3     8.3             .1       .3
Blocked Obstructions      num=       1
   Sta L   Sta R    Elev
       0     7.5    5395

CROSS SECTION


RIVER: Upper Goose
REACH: Reach 5            RS: 6025

INPUT
Description:
Station Elevation Data    num=      63
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5375.21     1.2 5375.34    3.42 5375.56    5.17 5375.75     6.2 5375.86
    7.99    5376   11.51    5376   12.96 5375.94   13.09 5375.94   13.33 5375.93
   15.28 5375.81   17.11 5375.68   25.91    5375   29.56 5374.63   33.53 5374.28
   34.73 5374.16    36.1    5374   45.35 5373.48      48  5373.3      75  5374.7
      96  5373.8     100    5374  101.11 5374.07   102.9 5374.17  107.39 5374.38
  115.94 5374.61  117.27 5374.64  118.36 5374.66  122.17  5374.7  122.86 5374.74
   123.4 5374.75  124.69 5374.86  125.03 5374.87  125.56 5374.88   126.3 5374.91
  129.57    5375  133.57 5375.26   138.7  5375.5  141.15 5375.65  141.44 5375.67
  142.36 5375.71  143.24 5375.76  143.64 5375.78  144.24 5375.82  146.16  5375.9
  146.26  5375.9  146.44 5375.91  146.65 5375.92  146.74 5375.92  148.78 5375.96
  148.89 5375.97  149.53 5375.97  149.63 5375.98  153.06 5375.99  153.27    5376
  190.78 5376.71  191.24 5376.72  191.49 5376.73   192.1 5376.73  192.82 5376.74
  193.21 5376.74   194.2 5376.81   194.3 5376.81

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04   45.35    .015     100     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         45.35     100              165     165     165             .1       .3
Blocked Obstructions      num=       1
   Sta L   Sta R    Elev
       0    7.85    5395

CROSS SECTION


RIVER: Upper Goose
REACH: Reach 4            RS: 5863

INPUT
Description:
Station Elevation Data    num=     101
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0    5379     2.39 5378.71    8.03    5378    13.1    5377      19  5376.5
      38  5376.8      59    5376   60.28 5376.19   64.37 5376.51   69.45 5376.93
   70.17 5376.93   71.14    5377   72.27 5376.99   77.16 5376.35   79.73    5376
    80.8 5375.88   86.34 5375.22   87.13 5375.12   88.55    5375  104.47    5375
  107.64 5375.14  113.94 5375.45  126.08 5375.89  126.14 5375.88  127.32    5376
  139.98    5376  141.34 5375.86  141.61 5375.88  155.94    5375  179.26    5375
   180.8 5374.93  197.76    5374  199.83 5373.86  205.28 5373.48  206.83 5373.39
  209.32 5373.21  210.05 5373.18  211.48 5373.09  215.17 5372.92  216.64 5372.88
  218.48 5372.84  218.74 5372.82  221.67 5372.78  222.01 5372.77  223.87 5372.77
  224.25 5372.75  225.59 5372.77  226.01 5372.76  227.78 5372.81  228.56  5372.8
  232.61    5373  235.86 5373.23  238.61 5373.43  241.79 5373.67  246.45    5374
  247.76 5374.08  248.08 5374.08  250.82 5374.21  251.38 5374.22  253.42 5374.29
  254.04 5374.29  255.76 5374.34   257.2 5374.37  259.91 5374.38  261.25 5374.39
  261.65 5374.38  265.35 5374.38  266.99 5374.35  268.85 5374.28  270.22 5374.19
  271.85 5374.05  273.64 5373.86  274.19 5373.82  275.11 5373.72  276.89  5373.6
  277.85 5373.51   283.8    5373  337.47    5373   347.3 5372.73  350.55 5372.66
  378.89 5372.46  379.67 5372.46  381.56  5372.5  384.57 5372.54  385.53 5372.57
  387.58 5372.59   392.3 5372.67   393.3 5372.66  399.73 5372.71  402.69 5372.72
  403.87 5372.73  406.81  5372.8  408.44 5372.83  410.36 5372.88   416.1    5373
  428.91    5373  438.62  5372.3   452.7 5372.86  456.84 5372.81  462.34    5373
  484.62  5373.5

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04  350.55    .015  484.62    .015

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        350.55  484.62            113.85  120.28  126.89             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
  123.21  154.11 5395.11       F
Blocked Obstructions      num=       1
   Sta L   Sta R    Elev
  154.11  350.49    5394

CROSS SECTION


RIVER: Upper Goose
REACH: Reach 4            RS: 5742

INPUT
Description:
Station Elevation Data    num=     100
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0    5376    1.05    5376    2.17 5375.93    17.9    5375   34.72 5374.25
   40.91    5374   45.08 5373.81   45.59  5373.8   48.09 5373.68    53.3 5373.47
   64.75 5373.47   65.34 5373.45   66.35 5373.52   67.85 5373.46   68.47 5373.48
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    72.2 5373.27   72.46 5373.27   74.28 5373.18   76.52  5373.1   78.95 5373.03
   81.14 5372.94   82.94 5372.79   84.51 5372.61   86.16 5372.44   87.63 5372.26
   89.85    5372   92.24 5371.83   94.72 5371.69     110    5371  120.07 5370.54
  125.91 5370.28  141.97 5369.55  154.15    5369  156.89 5368.88  161.57 5368.66
  176.25    5368  180.75  5367.8  184.27 5367.62  191.64 5367.29  193.49  5367.2
     198    5367   202.4 5366.81  204.11 5366.72   206.2 5366.62  211.42 5366.35
  215.59 5366.15   218.4    5366  240.37    5366  244.78 5366.31  246.52 5366.44
  256.64 5367.15  257.81 5367.24  261.47  5367.5  265.29 5367.76  266.42 5367.85
  268.65    5368  270.22 5368.12  272.13 5368.25  276.02 5368.54  280.14 5368.82
  282.71    5369  284.93 5369.17   287.1 5369.32  290.04 5369.54  295.39 5369.92
  300.63 5370.27  302.78 5370.44  303.45  5370.5   303.9 5370.48  310.65 5370.65
  313.58 5370.72  314.36  5370.7  322.14 5370.61   327.1 5370.58  328.24 5370.59
  334.66 5370.54  344.75 5370.58  346.13 5370.58  356.95 5370.68  364.38 5370.72
  372.36 5370.71  389.29  5370.6   390.1  5370.6  408.84 5370.58  410.15 5370.56
  429.61 5370.55  430.86 5370.54     448  5370.5     471  5371.2     487  5370.7
  493.33    5371     497 5371.35  500.44 5371.67  504.22    5372   507.5 5372.28
  508.72 5372.37  510.88 5372.56  512.71  5372.7  516.24    5373  551.34    5373

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04     448    .015  504.22     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          310.65  516.24           170.59  194.98  209.74             .1       .3
Ineffective Flow     num=        1
   Sta L   Sta R    Elev  Permanent
  530.89  551.34    5393       T
Blocked Obstructions      num=       1
   Sta L   Sta R    Elev
    68.2  310.65    5391

CROSS SECTION


RIVER: Upper Goose
REACH: Reach 4            RS: 5547

INPUT
Description:
Station Elevation Data    num=      65
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0    5375    2.04    5375     7.1 5374.72   18.68    5374      20  5373.9
   41.14 5373.59   52.74  5373.1   55.24    5373   74.64    5372   75.44 5371.94
   89.79 5370.98    98.2 5370.52  107.26    5370  113.94 5369.53  120.57    5369
  134.94    5368  147.88    5368  150.74 5367.87  152.82 5367.85  153.89 5367.79
  156.53  5367.7  160.11 5367.55  163.33 5367.36  168.86    5367  204.09    5367
  224.48 5366.61  226.82  5366.7  227.52  5366.7  238.02    5367  248.34 5367.35
  249.57 5367.41  289.77 5368.83  295.48    5369   302.5    5369  308.26 5368.74
  311.36 5368.63  313.23 5368.53  317.39  5368.4  319.49 5368.38  327.19 5368.42
  329.25 5368.39  337.61  5368.3  342.19  5368.2   349.7    5368  375.99    5368
  379.36 5367.99  383.06    5368  392.05 5367.94  406.53 5367.96  409.83 5367.93
   412.5 5367.87  420.86 5367.78  421.86 5367.73  423.15 5367.73  428.55 5367.48
  430.15 5367.44  434.35 5367.28  440.02 5367.32  447.07 5367.52  457.83 5367.61
  462.44  5367.8     472  5367.6  478.41    5368  495.39    5368  513.14 5367.72

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04  383.06    .015  478.41     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         383.06  478.41            91.47   91.47   91.47             .1       .3
Ineffective Flow     num=        1
   Sta L   Sta R    Elev  Permanent
       0  302.745389.004       F
Blocked Obstructions      num=       3
   Sta L   Sta R    Elev   Sta L   Sta R    Elev   Sta L   Sta R    Elev
  151.17  183.03    5387  230.46  302.74    5387  488.17  513.14    5388

CROSS SECTION


RIVER: Upper Goose
REACH: Reach 3            RS: 5456

INPUT
Description:
Station Elevation Data    num=      52
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  5365.5    9.31    5365   10.61 5364.87   10.74 5364.86   11.31 5364.81
   11.55 5364.78   13.78 5364.53   16.09 5364.34      26  5364.1    28.5 5364.17
   30.46 5364.29    33.9 5364.48   35.07 5364.54   37.01 5364.61      43  5364.8
   50.99 5364.58      63  5364.4    65.6 5364.63   66.38  5364.7    67.4 5364.79
   68.83  5364.9   69.55 5364.95   69.65 5364.95   70.36    5365   72.45 5365.16
   73.03 5365.21   74.72 5365.34   75.53  5365.4   76.09 5365.45   77.11 5365.54
   77.51 5365.57   79.92 5365.78   80.43 5365.82   82.58    5366   82.66    5366
   83.41 5366.03   85.53  5366.1   85.69  5366.1   86.65 5366.11   89.05 5366.17
   89.73 5366.19   90.52  5366.2   90.99 5366.22    92.4 5366.26   93.64 5366.29
   95.64 5366.35    97.3 5366.39  101.91 5366.54  102.95 5366.57  105.18  5366.6
   109.3 5366.71  110.18 5366.72

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04    9.31    .015    65.6     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          9.31    65.6            40.01   50.91   55.85             .1       .3
Blocked Obstructions      num=       1
   Sta L   Sta R    Elev
   90.71  110.18    5386

CROSS SECTION


RIVER: Upper Goose
REACH: Reach 3            RS: 5405

INPUT
Description:
Station Elevation Data    num=      32
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0    5364   10.15    5364   12.51 5364.01   12.94    5364   44.67    5364
      48  5363.5   62.84  5363.6   64.99 5363.65      73  5363.8   97.81    5363
      99  5362.9  101.35  5363.2  101.85 5363.28  103.13 5363.45  103.84 5363.53
  105.05 5363.72  105.59 5363.79  106.82    5364  106.99 5364.05  108.75 5364.54
  110.34    5365   110.6 5365.06  110.84 5365.12   112.7 5365.52  114.24 5365.84
  114.51  5365.9     115    5366  115.62    5366  127.12 5366.46  131.83 5366.64
  139.19    5367  144.13    5367

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04   44.67    .015  106.82     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          44.67  106.82            85.17   85.17   85.17             .1       .3
Blocked Obstructions      num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0     6.1    5374  139.72  144.13    5387

CROSS SECTION
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RIVER: Upper Goose
REACH: Reach 2            RS: 5320

INPUT
Description:
Station Elevation Data    num=      86
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
        0 5363.676.580017 5363.577.550018  5363.618.51001    536422.42999    5364
31.52002 5363.7135.60001 5363.6535.89001 5363.6537.17999 5363.6353.32001 5363.35
55.27002 5363.3258.98999 5363.25   61.38  5363.272.01001    536372.92999    5363
   81.53  5362.383.29001 5362.1986.10001    5362   87.77    5362   91.25 5361.88
93.07001 5361.84   93.22 5361.8495.04001  5361.8   95.53  5361.897.07001 5361.76
  101.73 5361.75  111.38  5361.6  131.92 5361.76  132.63 5361.76  134.04 5361.78
   134.5 5361.78  147.95    5362   160.9    5362  162.79 5362.07  164.07  5362.1
  185.99    5363  186.47    5363  188.31 5363.07  192.63 5363.19  193.27 5363.21
  196.49 5363.29   211.3  5363.6   212.9 5363.63  213.36 5363.64  217.17 5363.64
  217.69 5363.63  219.03 5363.67  219.85  5363.7  224.26 5363.83  226.02 5363.89
  226.57 5363.91  229.39    5364  250.95    5364  253.07 5363.93  253.21 5363.92
  254.88 5363.92  256.55 5363.89   261.6 5363.89  263.17 5363.91  265.05 5363.97
  265.11 5363.97   265.9    5364    316  5363.9    330    5364  343.28 5364.34
  345.88 5364.39     355  5364.4  367.78 5364.76  368.67 5364.75  369.57 5364.77
  369.95 5364.77  371.47  5364.8   372.1 5364.82  372.41 5364.82  372.67 5364.81
  373.01 5364.81  377.54 5364.91  377.73 5364.91  379.01 5364.94  379.15 5364.94
     387    5365     448    5366  529.93 5366.92     534    5367     574    5368
  595.59    5369

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .1383.29001     .06   160.9     .13     316    .015

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        101.73  131.92           225.04  228.86  233.23             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
   26.63   75.76    5373  186.57   240.7    5373

CROSS SECTION


RIVER: Upper Goose
REACH: Reach 2            RS: 5091

INPUT
Description:
Station Elevation Data    num=      98
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
        0    53637.669983    536315.89999 5362.8   16.72 5362.8318.68997  5362.8
43.82999    5362   52.47    536254.98999 5361.2355.70999    536156.03998 5360.93
       59 5360.2560.03998    536075.47998 5359.0275.91998    5359   81.78    5359
  106.94 5358.38  108.83 5358.35  120.33    5358  122.58    5358  126.62 5357.72
  128.36 5357.61  132.31 5357.34  136.24 5357.13  138.47    5357  148.87    5357
  152.15 5356.86  153.72 5356.89  154.08 5356.87  155.91 5356.85  157.61 5356.76
  158.41 5356.73  160.19 5356.61     163 5356.43  164.81 5356.32  165.91 5356.24
  168.59  5356.1  169.15 5356.06  170.18 5356.06  171.55 5356.04  173.99 5356.11
   176.1 5356.19  177.11 5356.22  177.46 5356.22  178.38 5356.26  179.68 5356.29
  180.26 5356.29  185.47 5356.37  188.71 5356.33  190.69 5356.33  192.08 5356.35
   192.8 5356.35  193.24 5356.37  193.99 5356.37  194.64  5356.4  195.41 5356.39
  196.38 5356.39  211.19 5356.82   215.8    5357   216.4    5357  222.59 5357.36
  224.99 5357.51  227.67 5357.65   232.3 5357.92  232.67 5357.95  233.66    5358
     238    5358  244.52 5358.23  245.88 5358.25  246.82 5358.25  248.19  5358.3
  250.19 5358.28  257.75 5358.35   259.1 5358.37  260.84 5358.42  281.23 5358.71
  281.32 5358.71   289.1 5358.55  290.18 5358.56  291.21 5358.53  300.31 5358.34
  300.89 5358.33  305.34  5358.2  307.48 5358.15  312.55 5358.04     314    5358
     329  5358.6     345  5358.4  345.66 5358.87  347.72 5358.93  349.49 5358.97
  349.73    5359  350.36  5359.2  352.95    5360  355.97    5361  359.02    5362
  359.67 5362.22  362.06    5363   362.3 5363.01

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0     .13     314    .015

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        164.81  180.26           185.41  188.25  192.78             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
   59.29   66.81 5382.77       F
  266.38  274.48 5378.48       F
Blocked Obstructions     num=       3
   Sta L   Sta R    Elev   Sta L   Sta R    Elev   Sta L   Sta R    Elev
   18.77   59.02    5370   92.48  125.13    5368  238.09   266.6    5368

CROSS SECTION


RIVER: Upper Goose
REACH: Reach 2            RS: 4903

INPUT
Description:
Station Elevation Data    num=     103
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
        0 5360.291.170013  5360.32.850006 5360.226.170013 5360.126.529999 5360.13
8.220001 5360.0911.01001 5360.0311.92999    536012.92999 5359.9214.26001 5359.77
   14.81 5359.7315.48001 5359.6618.01999 5359.37   21.47 5358.96   25.12 5358.49
29.04001 5358.02   29.16    5358      33 5357.52   34.53 5357.3435.60001  5357.2
   36.34 5357.1237.32999    535738.54001 5356.9540.29999 5356.86   40.59 5356.86
43.07999 5356.7443.60001 5356.7344.29999 5356.69   45.56 5356.6346.35999 5356.61
47.70001 5356.5448.70001 5356.5350.17999 5356.4651.07999 5356.4452.10001  5356.4
   61.03    5356   74.38    535685.17001 5355.66   86.88 5355.61   87.47  5355.6
90.95999  5355.592.45999 5355.45   94.28  5355.4   96.19 5355.3398.89001 5355.24
  102.75 5355.13  103.22 5355.11  105.51 5355.08  105.72 5355.07  109.89 5355.07
   112.3    5355  121.99    5355  124.45 5354.95  125.95 5354.91  126.18 5354.91
  127.71 5354.86  130.15 5354.77  130.86 5354.75  134.19 5354.64  166.94 5354.56
  167.25 5354.56  168.62  5354.6  172.11 5354.71  172.78 5354.74  177.93    5355
  204.82 5355.69  206.93 5355.75  216.88    5356  219.72 5356.25  223.36 5356.55
  227.56 5356.94  228.23    5357     311  5356.3     325  5356.5     339  5356.9
  343.67    5357  348.19 5357.71  349.93    5358  358.53    5358  361.11 5358.31
  361.44 5358.39  361.99 5358.42  362.45 5358.48  363.11 5358.59  365.96 5358.84
  366.11 5358.87   367.9    5359  368.86 5359.11  368.91 5359.13  371.45 5359.36
  371.75  5359.4  373.33 5359.52  375.48 5359.72  379.02    5360  386.68    5360
  391.44  5360.7  392.18 5360.76  392.47 5360.81  393.28 5360.88   393.8 5360.91
  395.72 5360.98  396.07    5361  405.07    5361

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13     311    .015  349.93     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        126.18  172.78           214.67  212.75  211.67             .1       .3
Ineffective Flow     num=       3
   Sta L   Sta R    Elev  Permanent
   45.34   49.96 5379.98       F
  229.28  240.27    5364       F
  381.42  404.56 5369.98       F
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
   12.29    44.3    5367  240.41  269.59    5367

CROSS SECTION
```

```
RIVER: Upper Goose
REACH: Reach 2            RS: 4690

INPUT
Description:
Station Elevation Data    num=      65
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
        0    5358      15    535825.37999    535834.99001  5357.636.83998 5357.54
     47.8 5357.1351.43999    5357   59.42 5356.6362.81999  5356.565.09999  5356.4
67.58998  5356.371.46999 5356.1973.37001  5356.173.74998  5356.1   75.48    5356
    78.42  5355.778.74998 5355.6779.24998 5355.6280.40999  5355.580.74001 5355.48
     81.2 5355.44   81.98 5355.3682.74998 5355.3183.49998 5355.2483.93999  5355.2
    84.36 5355.1785.12001 5355.15   86.55 5355.0886.65001 5355.0786.71001 5355.07
88.15001 5355.0888.24998 5355.0789.53999    5355   96.37    5355  100.69 5354.63
   107.77    5354  108.69 5353.93  118.46  5353.2  120.75    5353  161.94    5353
   170.38 5353.18  217.93    5354  235.77    5355  247.13  5355.6  254.36    5356
   257.13 5356.18  258.17 5356.23  270.69    5357  274.62 5357.25  275.21 5357.26
    276.9 5357.36  277.76 5357.42  284.16 5357.53  285.81  5357.6  288.34  5357.7
   290.93 5357.75  291.88 5357.78  292.63  5357.8  293.28 5357.82  296.15 5357.85
   303.21    5358  310.43    5358  313.63 5357.36     315  5357.2  330.89 5357.45

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .015      15     .13  310.43    .015

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        118.46  170.38           196.21  196.82  197.48             .1       .3
Ineffective Flow      num=       2
   Sta L   Sta R    Elev  Permanent
   84.67  107.45 5365.15       F
  137.82  145.91 5363.98       F
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
   22.01   85.36    5366  242.13  275.85    5366

CROSS SECTION


RIVER: Upper Goose
REACH: Reach 2            RS: 4493

INPUT
Description:
Station Elevation Data    num=      61
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
        0    53567.759995    535627.89001 5355.4430.10001 5355.4248.14001    5355
52.98001    535555.61002 5354.52   57.97    535461.51001 5353.7662.14001 5353.73
     62.5 5353.7164.92999  5353.6   76.87    535379.36002    535396.29999 5352.73
    96.94  5352.797.73999 5352.67   99.56 5352.59  103.14 5352.42  111.15 5352.06
   111.32 5352.06  112.55    5352  118.31 5351.15  119.35    5351   125.5    5350
   139.22    5350  148.76 5350.32  158.75 5350.63   160.6 5350.69  161.47 5350.72
   171.23    5351  172.82 5351.07  175.67 5351.19  176.91 5351.25  177.79  5351.3
   183.59 5351.57  191.52    5352  191.63    5352   197.1 5352.32  209.15    5353
   209.59 5353.03   209.7 5353.04  212.09  5353.2   212.6 5353.24  220.26 5353.77
   223.94    5354  227.84 5354.54   229.1 5354.72  229.46 5354.77  231.07    5355
    236.1 5355.68  238.29    5356  242.58 5356.65  249.44 5357.72  251.12    5358
    255.7  5358.9   256.2    5359  256.88 5359.12  259.83 5359.61  262.47    5360
   287.89    5360

Manning's n Values        num=       1
     Sta   n Val
       0     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        119.35  148.76           219.41  224.02  229.51             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
    8.16   45.75    5365  227.03  262.63    5365

CROSS SECTION


RIVER: Upper Goose
REACH: Reach 2            RS: 4269

INPUT
Description:
Station Elevation Data    num=      57
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
        0    53537.549988    535320.10001 5353.14   27.25    535345.14999    5353
45.67999 5352.9645.79999 5352.9645.91998 5352.9545.98999 5352.94   46.22 5352.93
49.69998 5352.6950.16998 5352.65   53.28  5352.453.76999 5352.3657.14999 5352.07
57.35001 5352.05   57.97    535259.67999 5351.8560.16998 5351.8161.54999  5351.7
    65.62 5351.35      70    535170.22998 5350.97   78.48    5350   86.45 5349.22
88.42999    5349  120.14    5349   123.3 5349.15  123.82 5349.17  126.75 5349.29
   129.77 5349.42  141.76    5350  146.25 5350.19  162.96    5351  165.41    5351
   166.61 5351.07  166.72 5351.07  167.15  5351.1  172.39 5351.42  182.25    5352
   188.21  5352.9  188.96    5353  190.33 5353.22   195.4    5354  196.49 5354.43
   198.23    5355  200.44 5355.54  202.54    5356  203.99 5356.37  204.34 5356.47
   206.41    5357     212    5357  224.88 5357.57  240.11    5358  256.71    5358
      259  5357.9   276.5    5358

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0     .13  256.71    .015

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         86.45  123.82           189.76  194.68  200.82             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
     .26   40.24    5363  162.75  218.99    5361

CROSS SECTION


RIVER: Upper Goose
REACH: Reach 2            RS: 4074

INPUT
Description:
Station Elevation Data    num=      40
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
        0    5350   18.89    535019.50999 5349.98   22.45 5349.9122.76999  5349.9
25.82999 5349.81   26.48 5349.79   28.23 5349.7429.14999 5349.71   30.31 5349.68
37.04001 5349.47   40.25 5349.38   42.31 5349.3152.38998    534954.10999    5349
    62.38 5348.65   62.72 5348.6266.00998 5348.3967.41998 5348.33   71.28    5348
92.47998    534896.88998 5348.22  110.36 5348.95  110.74 5348.98   111.2    5349
   111.34 5349.01   130.8    5350  141.23    5350  143.31 5350.38  146.65    5351
   152.23 5352.02  157.49    5353  159.34 5353.34  162.81    5354  163.71 5354.17
   173.51    5356  179.86 5356.52  181.04 5356.62  185.63    5357  190.36    5357

Manning's n Values        num=       1
     Sta   n Val
       0     .13

Bank Sta: Left   Right    Coeff Contr.   Expan.
      67.4199896.88998             .1       .3
Blocked Obstructions     num=       2
```

```
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0   26.49    5360  148.61   177.4    5361

CROSS SECTION


RIVER: Upper Goose
REACH: Reach 1            RS: 3849

INPUT
Description:
Station Elevation Data    num=      84
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0    5362    3.31 5361.82    4.77 5361.52      18    5361   19.39 5360.79
      23    5360   33.45 5359.88   36.07 5359.69   37.25 5359.71   38.39 5359.65
      55    5359   56.38 5358.56   67.56    5358   69.89 5357.87   78.41 5357.49
   80.09 5357.45   82.49 5357.46   83.56 5357.48   85.43 5357.45   86.32 5357.47
   88.28 5357.48   89.29 5357.45   92.38 5357.17      94    5357   96.36 5356.19
      97    5356    97.3 5355.95  101.21 5355.47   101.9 5355.36     108    5355
  120.56 5354.16  122.93    5354  123.31 5353.98  130.36 5353.57  136.56  5353.3
  139.06 5353.22     143    5353  146.49 5352.69  152.27    5352  152.87 5351.92
  158.94    5351  160.88 5350.65  165.57    5350  168.31 5349.64  173.58    5349
  175.03 5348.85   178.3 5348.52  182.79    5348     186 5347.75     204  5348.1
     221 5347.35   233.9    5348  239.53 5348.56  241.16 5348.69  242.53 5348.82
  245.09    5349  256.45    5349  284.35    5349  284.42 5349.01   286.8 5349.04
  286.92 5349.05  289.83 5349.18  292.18  5349.4   295.1 5349.61  296.22  5349.7
  296.98 5349.75  299.52    5350  302.93 5350.26  310.57    5351  312.92 5351.45
   315.6    5352  321.71 5352.64  325.38    5353  326.53 5353.06  331.55 5353.27
  336.21  5353.4  341.25 5353.59  343.24 5353.63  351.14 5353.81  352.25 5353.83
  357.76 5353.95  358.36 5353.95  360.21    5354  361.24    5354

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04  182.79    .015   233.9     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        173.58  256.45           133.16  121.85  136.12             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
  256.45  284.61    5359  314.88     339    5361

CROSS SECTION


RIVER: Upper Goose
REACH: Reach 1            RS: 3727

INPUT
Description:
Station Elevation Data    num=      83
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0    5359      47    5358   47.72 5357.97   48.06 5357.95   50.21 5357.87
      70    5357      92    5356     115    5355  115.15 5354.92  115.42  5354.9
  118.58 5354.72  121.88 5354.52  122.09  5354.5     131    5354  132.69 5353.84
  140.48 5353.32     147    5353   151.2 5352.62  153.55 5352.48   161.8    5352
  163.62 5351.89  164.27 5351.86  168.38  5351.6  174.11  5351.3  179.67    5351
  182.28 5350.86  182.75 5350.84   186.2 5350.64  191.07 5350.42  200.34    5350
  205.62 5349.74  208.36 5349.58  216.01 5349.25  220.46    5349  223.55 5348.92
  227.95  5348.7  234.02 5348.43  235.37 5348.36     246    5348  260.89 5347.64
  281.48    5347     322  5347.7  351.21    5347  370.24 5347.74     383    5348
  391.12 5348.81  391.67 5348.86  393.85    5349  394.75    5349  408.27  5349.8
  413.65    5350  423.48    5350  427.61 5350.14  429.44 5350.17  429.92 5350.17
   433.1  5350.2  434.44 5350.23  436.07 5350.24  468.63    5351  472.09    5351
   474.3 5351.57  475.76    5352  476.98 5352.37  477.73 5352.44  480.09 5352.63
  481.36  5352.8  482.36  5352.9  484.85    5353  491.09 5353.61  491.91    5354
  492.24 5354.69  492.71 5355.66  492.92    5356  493.29 5356.27   494.4    5357
   495.6 5357.75  495.99    5358  497.08 5358.63   497.7    5359  502.81    5359
  505.65 5359.21  507.09 5359.36  510.45    5360

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .015     246    .015     383     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
            246     383           168.91  176.48   151.9             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
  425.09  453.67    5360

CROSS SECTION


RIVER: Upper Goose
REACH: Reach 1            RS: 3551

INPUT
Description:
Station Elevation Data    num=     104
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0    5359   21.33    5359      30  5358.5   30.39 5358.25   31.22 5358.19
   34.76    5358   42.46 5357.75   68.21    5357   69.98    5357   73.86 5356.32
   75.51    5356   76.27    5356   80.43 5355.65   89.62 5355.03   93.77 5354.71
   95.78 5354.54   101.8    5354  114.72 5353.07   115.8    5353  126.54    5353
  142.19 5352.09  143.69    5352  143.79    5352  146.08 5351.78  147.47 5351.67
  150.75 5351.38  152.18 5351.27  153.42 5351.18  155.47    5351   155.6    5351
  168.65 5350.36  173.13 5350.15  175.78    5350  175.85    5350  179.26 5349.76
  181.73  5349.6  185.07  5349.4  186.23 5349.34  188.46 5349.22  189.12 5349.19
  191.82 5349.04  192.43    5349  196.67 5348.85  200.47 5348.75  200.91 5348.74
  201.96 5348.73  203.83 5348.69  205.37 5348.65   207.1 5348.61  208.12  5348.6
  209.58 5348.56  210.53 5348.54  211.67  5348.5  213.12 5348.49  215.28  5348.5
  215.66 5348.48   216.5 5348.48  217.66 5348.49   218.4 5348.46  224.23 5348.26
  250.11    5348  278.25    5348  307.93    5347  325.86    5346     329  5345.8
     347  5346.2     363  5345.8  365.29    5346   368.3  5346.4  373.07    5347
  380.83  5347.8  381.94 5347.91  382.89    5348  393.34 5348.82  395.77    5349
  406.33    5349   414.3 5349.31   416.8 5349.31  425.53 5349.33  426.03 5349.33
  429.01 5349.31  433.17  5349.3  434.47 5349.31  435.94 5349.33  439.06 5349.33
  442.32 5349.39  445.69 5349.48  448.29 5349.57  449.47 5349.58  451.62 5349.67
  452.75 5349.72  458.86    5350  459.26 5350.05  461.58 5350.36  466.25    5351
  466.84 5351.78  467.73    5353  467.88 5353.22  468.44    5354  469.17    5355
  470.13    5356  471.41    5357  471.56 5357.11   472.7    5358

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   34.76    .015   68.21     .13  325.86    .015  373.07     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        307.93  373.07           194.53  273.84  224.61             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
     135     193    5361       F
Blocked Obstructions     num=       3
   Sta L   Sta R    Elev   Sta L   Sta R    Elev   Sta L   Sta R    Elev
   64.46  123.97    5363  216.24  267.83    5358  396.78  464.76    5359

CROSS SECTION


RIVER: Upper Goose
REACH: Reach 1            RS: 3277
```

```
INPUT
Description:
Station Elevation Data    num=      93
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5358.93    3.23 5358.85    7.46 5358.72   28.39    5358    32.8    5358
   35.46 5357.83      38  5357.8   49.02    5357   53.19 5356.76      67  5356.3
   72.01    5356   76.36    5356   79.87 5355.81   80.31 5355.79   86.67 5355.55
   92.06  5355.3   94.48 5355.22   97.25 5355.12  100.02    5355  100.89    5355
  101.44  5354.5     102    5354  102.72 5353.37  103.13    5353  103.79 5352.42
  104.01 5352.22  104.26    5352  130.98    5352  153.82 5351.45  155.79 5351.41
   159.3 5351.36  160.64 5351.33  161.26 5351.33  164.94 5351.27  174.62    5351
  192.38 5350.25  197.92    5350  199.31 5349.85  200.99 5349.66  205.33 5349.16
  206.75    5349  207.43 5348.86  211.69    5348  214.44 5347.51  217.17    5347
  242.95    5347  264.94 5346.88  277.51    5347   321.6    5347  327.15  5346.8
  327.42  5346.8  327.65 5346.79  330.32 5346.79  332.49 5346.77  333.11 5346.77
  333.37 5346.76  333.61 5346.76  352.31 5346.71  371.23    5347  391.95    5347
  407.38    5347  437.46 5347.67  443.22 5347.71  443.85 5347.71  445.39 5347.72
  445.98 5347.73  476.24 5347.94   476.9 5347.94  481.19    5348  483.78    5348
  485.33 5348.08  486.82 5348.17  492.17 5348.39  496.23  5348.6  500.47 5348.78
  501.44 5348.83  503.35 5348.92   505.7    5349  506.17 5349.03   506.3 5349.03
  519.36 5349.68  523.89    5350  527.37    5350   536.4  5350.4  541.12 5350.58
     544  5350.7   548.5    5351  552.16    5351  559.58 5351.32  562.28 5351.45
  574.99    5352  588.24    5352  588.36 5352.01

Manning's n Values        num=       7
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   35.46    .015   86.67      .1  217.17    .015  242.95      .1
  371.23    .015  391.95      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        371.23  391.95           217.82  198.29  148.03             .1       .3
Blocked Obstructions     num=       3
   Sta L   Sta R    Elev   Sta L   Sta R    Elev   Sta L   Sta R    Elev
  129.46  195.77    5370  255.78  371.15    5367  391.96  453.01    5367

CROSS SECTION


RIVER: Upper Goose
REACH: Reach 1            RS: 3078

INPUT
Description:
Station Elevation Data    num=      99
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5352.37    9.43 5352.14   11.72    5352      26  5351.6      39    5352
   72.89  5351.3   74.12    5351   79.78 5350.02   79.89    5350   79.97 5349.99
   80.47 5349.92   86.08 5349.14   87.21    5349   88.01 5348.88    93.5    5348
    99.5 5347.38  100.74 5347.19  102.09    5347  103.43    5347   117.3 5346.48
   118.6 5346.48  119.61 5346.42  122.91 5346.45  123.45 5346.44  124.44 5346.41
  127.15 5346.42  130.19 5346.42  130.91 5346.41   131.8  5346.4  132.49  5346.4
     134 5346.38  134.88 5346.37  136.64 5346.33   137.3  5346.3  138.47 5346.24
  139.08 5346.23  142.62 5346.02     143    5346   145.5 5345.96  147.99 5345.83
   157.3 5345.56   160.6 5345.45  161.93 5345.36  162.51 5345.33  163.97 5345.28
  165.31 5345.22   166.4 5345.16   166.6 5345.15  168.94 5345.02  169.39    5345
     183  5344.3     192  5344.7     210  5345.1  230.55 5345.68  233.43 5345.76
  241.62    5346   267.6    5346  282.11 5346.23  287.42  5346.3   291.4 5346.36
  292.99  5346.4  318.43  5346.5  318.68 5346.52  319.28 5346.51  319.61 5346.51
  320.07 5346.53  320.66 5346.57  321.76 5346.59  322.87 5346.63  323.37 5346.65
  326.28 5346.72  328.56 5346.79  333.62    5347  334.03    5347  338.09 5347.15
  338.82 5347.18  352.02 5347.71  358.89    5348  359.22    5348  370.37 5348.32
  378.24 5348.56   383.4  5348.7   385.8 5348.77   387.3 5348.82  390.82  5348.9
  393.15 5348.95  394.86    5349  456.55    5349  458.12 5349.44  460.09    5350
  463.12 5350.69  464.15    5351  472.77 5351.79  478.12    5352  483.38    5352
  483.61 5352.01  491.34 5352.43  493.87 5352.51  498.95 5352.59

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13     183    .015     210      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        287.42  390.82           237.34  239.37  212.62             .1       .3
Ineffective Flow     num=       3
   Sta L   Sta R    Elev  Permanent
   98.57  138.11 5358.02       F
  287.42  300.43 5358.02       F
   344.9  390.82 5357.97       F
Blocked Obstructions     num=       3
   Sta L   Sta R    Elev   Sta L   Sta R    Elev   Sta L   Sta R    Elev
   59.83   98.57    5358  240.77  287.42    5367  390.82  433.68    5369

CROSS SECTION


RIVER: Upper Goose
REACH: Reach 1            RS: 2839

INPUT
Description:
Station Elevation Data    num=     178
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0    5347     .84    5347    4.86    5347    13.2 5346.74   14.09 5346.73
   20.03 5346.63    20.8 5346.62   21.93 5346.61   25.21 5346.56   27.08 5346.51
   28.71 5346.46   30.11 5346.42   38.27    5346   39.29    5346   42.62    5346
   42.78    5346   44.13 5345.93   45.18 5345.88   58.28 5345.21   62.46    5345
   62.86    5345   87.02    5345    92.2    5345  105.54    5345  106.81    5345
  115.29    5345  117.51    5345  118.97    5345   119.8    5345  120.54    5345
  121.22    5345  122.69    5345  123.38    5345  124.48    5345  130.96    5345
  134.14    5345  136.23    5345  139.79    5345  140.89    5345  141.88    5345
  142.75    5345  144.27    5345  145.12    5345  146.78    5345  147.62    5345
  147.96    5345  148.57 5344.96   148.9 5344.96  149.06 5344.96  166.15  5344.4
  166.98 5344.39  167.34 5344.39  173.67 5344.37  177.52 5344.36  177.88 5344.36
  185.96    5344  189.22    5344  192.28    5344  193.51    5344  194.09    5344
  195.12    5344  198.26    5344  199.89    5344  201.61    5344   205.8    5344
  209.34    5344  212.92    5344  218.91    5344  227.46    5344  228.96    5344
  231.03    5344  237.04    5344  247.97    5344   255.4    5344  256.96    5344
  258.02    5344  258.51    5344  262.85    5344  262.95    5344  265.11    5344
  265.42    5344  266.65    5344  268.47    5344  269.04    5344  269.91    5344
  270.64    5344  274.16    5344  275.15    5344  276.27    5344   277.2    5344
  278.22    5344  283.75 5343.32  284.46 5343.28  286.11  5343.2  287.79 5343.14
  290.41    5343  290.44    5343  290.46 5342.99  290.83 5342.84  291.86 5342.46
  292.74 5342.12     293    5342  293.41 5341.78  294.07 5341.51  294.88 5341.16
  294.96 5341.14  295.36    5341   296.2 5340.71  296.65 5340.55  297.01  5340.4
  297.46 5340.21  297.63 5340.16  298.11    5340  299.92    5340   305.1    5340
  305.61 5340.33  306.63    5341  307.49 5341.55  308.21    5342   308.6 5342.26
  309.02 5342.52  309.51 5342.85  309.73    5343  310.02 5343.19  310.35 5343.43
  311.24    5344   313.5 5344.38  314.44 5344.54  316.85    5345  316.94    5345
  320.56 5345.33  323.94 5345.63  327.94  5345.9  328.43 5345.94  328.51 5345.95
  328.95 5345.97  329.43    5346  331.96 5346.19  332.42 5346.23  334.66  5346.4
  336.24 5346.53  338.51 5346.69  340.46 5346.81  340.92 5346.84  341.23 5346.86
  341.52 5346.87  343.48 5346.92  343.65 5346.92  343.84 5346.92  346.16  5346.9
  346.52  5346.9  346.62 5346.89  349.45 5346.81  349.66 5346.81  350.18  5346.8
  352.43 5346.75  352.99 5346.76  354.96 5346.71  355.43 5346.73  358.32 5346.62
  368.22    5347  368.71    5347  369.31    5347  370.48 5347.08  371.12 5347.11
  380.43 5347.59  383.82 5347.54  387.38 5347.42  389.43 5347.43  392.01 5347.35
  393.19 5347.36  397.81 5347.28  401.65    5348  407.85 5348.86  408.81    5349
  409.61 5349.08  410.22 5349.14  418.96    5350

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
```

```
       0     .13   62.86    .015  314.44     .13  352.43    .015  401.65     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        277.2  311.24             78.48   77.65   77.28             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
       0   15.31    5352

CROSS SECTION


RIVER: Upper Goose
REACH: Reach 1            RS: 2761

INPUT
Description:
Station Elevation Data    num=     143
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0    5347     2.3    5347    4.84 5346.89    5.39 5346.87    9.84 5346.68
   11.26 5346.65   12.57 5346.61   16.28 5346.49    23.2 5346.24   26.21 5346.18
    27.8 5346.14   27.99 5346.14   30.81  5346.1   35.32    5346   36.01    5346
   36.02    5346   36.04    5346   36.17 5345.99   36.19 5345.99   38.22 5345.88
   39.19 5345.82   40.38 5345.75   41.72 5345.67   43.35 5345.55   44.61 5345.46
   53.85    5345   57.77 5344.74    58.9 5344.66    59.7 5344.58    60.3 5344.53
   60.49 5344.54    60.9 5344.54   69.92 5344.25   70.43 5344.25   71.94 5344.29
  102.25 5344.76  108.66 5344.88  109.62  5344.9  113.77 5344.96  115.14    5345
  116.41    5345  118.49    5345  118.99    5345  119.52    5345  128.26 5345.55
  128.86 5345.61  129.77 5345.65  130.93 5345.78  131.29  5345.8  132.74 5345.95
  133.19    5346  133.59    5346  134.39    5346  134.91    5346  135.65    5346
  137.24    5346  137.79    5346   138.8    5346  139.44    5346  140.16    5346
  145.66    5346  146.58    5346  155.98    5346  165.21    5346  187.16    5346
  187.44    5346  189.73    5346  189.84    5346  190.01    5346  190.76 5346.04
   190.8 5346.05  190.83 5346.05  190.91 5346.05  192.03    5346  192.06    5346
  192.25    5346  192.44    5346  193.32    5346  193.42    5346  193.55    5346
  194.27    5346  200.55 5345.87  203.75  5345.8  211.12 5345.67  211.59 5345.65
  213.58 5345.62  214.31 5345.61  219.46 5345.48  222.89 5345.38   224.4 5345.35
  225.03 5345.34  235.36 5345.04  236.55    5345  236.62    5345  237.35 5344.81
   240.5    5344  241.25  5343.6  242.37    5343  243.63 5342.32  244.19    5342
  245.26 5341.39  245.92    5341  246.53 5340.65   247.7    5340  249.32  5339.1
  249.51    5339  249.65    5339  250.64    5339  251.53 5339.54  252.35    5340
  253.65 5340.76  254.05    5341  254.64 5341.35  255.72    5342  257.11 5342.87
  257.31    5343   258.2 5343.58  258.85    5344  258.97 5344.04  261.52    5345
  263.94 5345.76  264.69    5346  267.37 5346.99   267.4    5347  267.44 5347.02
  269.82    5348   270.4 5348.13  270.64 5348.17  271.42 5348.35  275.34    5349
  276.05    5349  278.47  5349.4  278.68 5349.44  279.35 5349.53  282.28    5350
  286.74 5350.79   288.2    5351  288.79 5351.09  290.94 5351.38   295.6    5352
  296.15 5352.09  297.24    5352  299.74    5352

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13    60.3    .015  113.77     .13  242.37    .015  261.52     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        236.62  261.52            259.17  259.38  259.41             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
  161.13  189.02    5351       0   10.83    5352

CROSS SECTION


RIVER: Upper Goose
REACH: Reach 1            RS: 2502

INPUT
Description:
Station Elevation Data    num=     102
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  5346.3    3.37    5346    4.87 5345.47    5.95    5345   10.37 5344.22
   11.67    5344   16.06 5343.75   16.63 5343.74   17.48 5343.69   18.54 5343.67
   21.09 5343.55    21.3 5343.55   23.38 5343.44   31.94    5343     114    5343
  116.01 5342.94  116.41 5342.93  116.67 5342.91  117.11 5342.86  119.06 5342.79
  120.35 5342.64  122.07 5342.52  123.21 5342.38  123.41 5342.36  126.26    5342
  127.72 5341.83  129.66  5341.6     131    5341     156  5341.6     174  5340.9
  175.22    5341  181.96 5341.63  184.28 5341.82  185.36 5341.91  185.78 5341.95
  186.62    5342  187.69    5342  194.49 5342.35  195.57 5342.41  196.86 5342.49
  199.22 5342.61   200.6 5342.69  204.61 5342.89  207.52    5343  240.11    5343
  241.92 5342.92  243.02 5342.86  244.34  5342.8  245.01 5342.76  245.71 5342.73
  247.07 5342.66   249.1 5342.55  250.23  5342.5  250.36 5342.49   251.9 5342.42
  252.73 5342.37  253.17 5342.34  257.55 5342.16  257.85 5342.14  260.04 5342.05
   261.2    5342  264.14 5341.89  267.61 5341.74  269.09 5341.68  270.66 5341.59
  271.11 5341.57  271.99 5341.56  288.07    5341  291.88    5341  298.67 5340.42
     304  5340.2   305.4 5339.53     307  5336.3   310.5 5338.11     314 5336.23
  314.13    5339  314.27  5339.1  315.39    5340  315.93 5340.46  316.55    5341
  317.84    5342  319.01 5342.47  320.34    5343  322.08 5343.71  322.83    5344
  325.38    5345     327 5345.51  327.97    5346  329.09 5346.43  330.54    5347
  334.56 5347.78  335.74    5348  337.01 5348.43  338.79    5349  339.99 5349.42
  341.69    5350   343.1 5350.49  344.59    5351  347.24 5351.92  347.49    5352
  350.27 5352.97  350.35    5353

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13     131    .015  187.69     .13     304    .015  315.93     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             304  315.93            194.1  194.28  194.48             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
     211     243    5353       F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
   73.61  102.83

CROSS SECTION


RIVER: Upper Goose
REACH: Reach 1            RS: 2307

INPUT
Description:
Station Elevation Data    num=      72
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5343.57    5.19 5343.25    7.19 5343.14      11    5343   20.41 5342.82
      61    5342   64.99 5341.88   71.16 5341.58   73.41 5341.46   75.44 5341.37
   76.37 5341.32   77.15  5341.3   77.67 5341.27    79.4 5341.21   80.92 5341.17
   81.87 5341.13   86.29    5341  123.88    5341  134.51 5340.15  135.24 5340.15
  135.54 5340.13  137.29 5340.08  142.11    5340     227  5338.5     259  5338.7
     281  5337.9  284.26    5338  289.64 5338.36  290.96 5338.45  291.93 5338.53
  298.49    5339  299.48 5339.04  304.24 5339.25  306.63 5339.35  308.49 5339.41
  311.89 5339.55  318.62 5339.79  320.95 5339.88  321.35 5339.89  324.66    5340
  361.42    5340  386.92 5339.74  368.29 5339.67  369.39 5339.64  375.09 5339.44
  386.25    5339  386.72    5339  408.19 5338.62  420.47 5338.37  421.82 5338.34
  428.06 5338.21     435 5337.84     440 5337.62     441 5335.08     445 5334.79
     447 5335.37     449 5336.94  452.14 5336.95  452.87 5337.22  454.85    5338
  457.93 5338.98  458.29 5339.05   463.2 5339.86  467.73 5340.58  470.33    5341
  471.35 5341.17  476.53    5342  479.35 5342.53  481.76    5343  484.23    5344
  484.88 5344.27  486.71    5345

Manning's n Values        num=       5
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     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04   20.41    .015  291.93     .13     440     .05     449     .09

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        440     449          132.13  159.84  168.01             .1       .3
Ineffective Flow     num=        1
   Sta L   Sta R    Elev  Permanent
     104     198    5351        F
Blocked Obstructions      num=        1
   Sta L   Sta R    Elev
  317.45  359.62    5360

CROSS SECTION


RIVER: Upper Goose
REACH: Reach 1            RS: 2148

INPUT
Description:
Station Elevation Data    num=      97
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0    5343    8.12    5343    9.92 5342.97   76.66    5342    80.3    5342
   84.26  5341.7   86.29 5341.67   87.79 5341.66  120.06    5341  128.24    5341
  136.38 5340.51  138.04 5340.43  141.07 5340.27  145.12    5340  148.19    5340
  159.25 5339.47  162.31 5339.47  162.47 5339.46  177.35 5339.78  178.25 5339.78
  180.62 5339.91  180.83 5339.91  182.32    5340  187.09    5340  189.89 5339.77
  195.06 5339.36  195.71 5339.32  200.28    5339  206.43 5338.16  207.26    5338
  212.22 5337.28  214.21    5337  216.28 5336.75  222.58    5336     225  5335.9
     244  5337.1     261  5336.2  267.93 5336.74  268.82 5336.83  270.72    5337
  271.56 5337.02  275.29 5337.15  275.78 5337.16  298.15    5338  323.79    5338
  338.74 5337.61   339.8 5337.59  341.83 5337.57  352.79 5337.36     354 5337.35
  356.79 5337.31  361.15 5337.26  363.43 5337.26  364.97 5337.24  366.45 5337.24
  376.48    5337   379.6    5337   384.2 5336.83  386.42 5336.73  387.49 5336.71
  389.37 5336.64  403.73 5336.24  404.83  5336.2  411.56    5336  413.15 5335.78
  413.82 5335.66  417.94    5335     419 5334.73  421.78 5333.09  425.85 5333.09
  426.14    5334  429.36    5335  430.19 5335.16   430.7 5335.22     433 5335.58
  435.99    5336   436.7 5336.06  443.54  5336.3  443.87 5336.32  444.45 5336.29
   445.7 5336.38  447.02 5336.39  449.48 5336.64   450.3  5336.7  452.91    5337
  458.19 5337.72  460.31    5338  460.47 5338.04  465.95    5339  469.08    5340
  470.53 5340.48  472.01    5341  473.39 5341.52   474.7    5342     478 5343.24
  480.13    5344  483.33    5345

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13  222.58    .015  270.72     .13  417.94     .05  429.36     .09

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       417.94  429.36          225.99   209.2  181.77             .1       .3
Ineffective Flow     num=        2
   Sta L   Sta R    Elev  Permanent
   61.95     191 5352.21        F
     392   399.4 5356.36        F
Blocked Obstructions     num=        3
   Sta L   Sta R    Elev   Sta L   Sta R    Elev   Sta L   Sta R    Elev
   399.4  409.215356.359  298.11   347.25357.999    7.89   61.95    5363

CROSS SECTION


RIVER: Upper Goose
REACH: Reach 1            RS: 1938

INPUT
Description:
Station Elevation Data    num=      96
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0    5339     .31    5339    1.27 5338.95    3.32 5338.82    6.18 5338.65
   17.39    5338   21.39 5337.71   26.19 5337.41   32.51    5337   33.22 5336.95
    33.8 5336.92   37.79 5336.66   47.34 5336.15   49.68    5336   50.14 5335.99
   59.43 5335.71   60.28  5335.7   63.92  5335.6   67.14  5335.5   68.22  5335.5
   69.35 5335.47   93.47 5335.23   98.16 5335.17  100.84 5335.12  104.53 5335.08
  104.98 5335.07  110.99    5335  112.19 5334.97  113.49 5334.95  122.96 5334.75
  123.61 5334.73   124.9 5334.68  126.46 5334.64   135.8 5334.42  137.02 5334.37
  138.43 5334.33  140.32 5334.28  145.36  5334.1   145.7  5334.1  147.71 5334.02
  148.38    5334  153.06 5333.51  157.24    5333  164.93    5333     166  5332.4
     181  5332.9     202  5331.9  204.37    5332  206.41 5332.24  207.65 5332.37
  209.66 5332.61  212.83 5332.95  213.27    5333   214.4 5333.06  218.84 5333.31
  227.47 5333.83  230.18    5334   268.9    5334  274.86 5333.77  277.03 5333.67
  279.63 5333.56  290.93    5333  292.91 5332.91   293.1  5332.9  310.86    5332
  341.15    5332  342.61 5331.77  347.44    5331  348.44 5330.81  352.73 5330.07
  353.12    5330  354.68 5329.73   358.3    5329  361.29 5328.09  361.57 5328.02
  364.09 5328.02  368.58 5328.88  369.22    5329  372.57    5330   374.3 5330.65
  375.17    5331   376.8 5331.75  377.42    5332  377.78 5332.08  381.99    5333
  383.37 5333.33  386.37    5334  389.37 5334.64  390.98    5335  391.46 5335.11
   395.5    5336  399.63 5336.92  400.45  5337.1   404.5    5338  408.96    5339
  412.26    5340

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13  157.24    .015  206.41     .13  341.15     .05  377.42     .09

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       341.15  377.42          203.85  204.59   204.4             .1       .3
Ineffective Flow     num=        1
   Sta L   Sta R    Elev  Permanent
     240  271.02 5353.92        F
Blocked Obstructions     num=        3
   Sta L   Sta R    Elev   Sta L   Sta R    Elev   Sta L   Sta R    Elev
  271.02  293.475353.916   83.06  141.325355.334     20   62.845357.812

CROSS SECTION


RIVER: Upper Goose
REACH: Reach 1            RS: 1734

INPUT
Description:
Station Elevation Data    num=      74
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0    5337    6.33 5336.44    8.53 5336.33    9.81 5336.24   11.78 5336.09
   12.92    5336   14.48 5335.67   17.35    5335   19.41 5334.39   20.65    5334
   29.07 5333.41   31.79 5333.35    34.3 5333.28   43.73    5333   45.02 5332.97
   45.12 5332.97    50.6 5332.86   51.05 5332.85   53.34 5332.81   53.98  5332.8
   54.62 5332.78   58.66 5332.72    59.4 5332.69   60.25 5332.66   62.13 5332.62
   64.43 5332.52   66.27 5332.46   68.02 5332.39    88.4  5331.4   91.42 5331.14
   93.21    5331   96.18 5330.59  100.56    5330     109  5329.8     124  5330.2
     144  5329.9  147.77    5330     154 5330.31  165.92 5330.85  167.51 5330.93
  169.41    5331  221.95    5331   223.7 5330.95  223.87 5330.95  258.05    5330
  282.63    5330     286 5329.51  287.07 5329.46     290 5328.19     298 5327.12
     315  5327.5  315.47 5328.03     318 5328.33  318.52    5329  320.61 5329.73
  321.32    5330  321.97 5330.25  323.98    5331     324 5331.62  327.76    5332
  328.04 5332.03  336.41    5333  343.57 5333.78  344.62 5333.88   345.5    5334
  351.76    5335  353.85 5335.38  357.45    5336  362.47    5337  365.98 5337.71
  367.43    5338  372.38    5339  373.45 5339.22  377.33    5340

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13  100.56    .015     154     .13  282.63     .05     324     .09
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```
Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        282.63  321.32            206.41  208.65  209.64             .1       .3
Blocked Obstructions        num=        3
   Sta L   Sta R    Elev   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0    8.23    5357   26.13   81.345353.616  181.24  214.47

CROSS SECTION


RIVER: Upper Goose
REACH: Reach 1            RS: 1525

INPUT
Description:
Station Elevation Data    num=      96
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5333.09     .59  5333.1     .85  5333.1     1.1 5333.14    1.46 5333.18
    1.84 5333.26    5.61 5333.07    6.06    5333    7.58 5332.77    8.89 5332.58
    9.89  5332.4   10.37 5332.32   12.46    5332   12.69 5331.96   12.75 5331.96
   12.83 5331.95   12.96 5331.93    13.3 5331.88   19.42    5331   19.66 5330.98
   19.72 5330.97   25.48  5330.5   27.39 5330.45    34.2  5330.5   36.34 5330.56
   37.73 5330.69   38.84 5330.72   39.71 5330.72   40.83  5330.8   41.72 5330.77
   42.97 5330.76   44.38 5330.72   46.32 5330.66   47.71  5330.6   49.49 5330.55
   51.38 5330.46   51.77 5330.43   52.42  5330.4   55.03 5330.35   55.21 5330.34
   55.49 5330.33   55.92 5330.31   57.42 5330.27   58.91  5330.2   61.26    5330
   61.72    5330   64.47 5329.71   70.03    5329   73.12 5328.56   77.36    5328
      98  5328.5  118.53  5327.8  122.48    5328  124.45 5328.11  127.44 5328.25
  128.84 5328.31  133.24 5328.52  139.73 5328.85  141.38 5328.93  142.62    5329
   207.7    5329  238.21 5328.28     251 5328.07   253.4 5327.27  254.45    5327
     256 5324.59     258 5323.79     261 5325.81     277 5326.45     280 5325.24
     282 5324.76     284 5324.96  284.67 5327.61  285.15    5328  285.79 5328.77
  285.99    5329  286.22  5329.2  287.15    5330  287.95  5330.7  288.29    5331
  289.36 5331.82  289.59    5332  290.58 5332.14     294 5333.01  302.07 5333.62
  316.42 5335.36  316.86 5335.41  317.75 5335.53  321.12    5336  324.11 5336.46
  327.29    5337  332.22 5337.86  333.03    5338  333.13 5338.02  344.54    5340
  346.37 5340.31

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   77.36    .015  127.44     .13     251     .05     294     .09

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         251  285.15            190.74  188.23  188.13             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
       0      44 5343.26       F
Blocked Obstructions        num=       1
   Sta L   Sta R    Elev
  155.03  200.59

CROSS SECTION


RIVER: Upper Goose
REACH: Reach 1            RS: 1337

INPUT
Description:
Station Elevation Data    num=      93
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5331.21       1  5331.2     7.8 5331.02     8.4    5331    9.34 5330.65
   11.53    5330   12.84 5329.37   13.58    5329    14.1 5328.78    16.2    5328
   17.22 5327.28   17.71    5327    28.5    5327   45.64 5327.46   46.79 5327.51
   48.04 5327.52   50.56 5327.57   52.13 5327.62   53.72 5327.62   59.23 5327.85
   59.84 5327.85   60.51 5327.89   61.89 5327.97   62.08 5327.97   62.78    5328
   69.81    5328   71.31 5327.94    71.7 5327.93   74.64 5327.78   75.13 5327.77
   77.57 5327.64   78.81 5327.62   79.21  5327.6   80.09 5327.56   80.83 5327.53
   81.87 5327.52   82.99 5327.52   83.84 5327.48   84.61 5327.45   87.58 5327.41
   91.29 5327.32   91.86 5327.29   92.42 5327.27   96.28 5327.17  100.96    5327
   101.8    5327  101.96 5326.99  102.02 5326.99  102.28 5326.97  110.47 5326.38
  115.16    5326     125  5325.8     144  5326.4     160  5325.9  161.67    5326
  169.16 5326.36  170.07  5326.4  174.39 5326.61  175.42 5326.65  177.63 5326.75
   178.6 5326.79  179.62 5326.84  183.48    5327  234.47    5327   246.3 5326.51
  259.56 5326.02   260.3    5326  268.27    5326     281 5324.94     288  5320.4
     294 5320.92     298 5320.37     304 5331.35  312.15  5331.6  312.57    5332
   313.3 5332.94  313.34    5333  313.42 5333.08  314.36    5334     315 5334.54
  315.55    5335  316.56 5335.76  316.88    5336  317.09 5336.15  318.34    5337
  319.68 5337.65  320.24    5338  321.12  5338.4  321.74 5338.66  322.67    5339
  324.92 5339.89   325.2    5340  327.72    5341

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13  115.16    .015  169.16     .13     281     .05     304     .09

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         281     304            197.93  198.57  198.34             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
      57      85    5338       F
Blocked Obstructions        num=       1
   Sta L   Sta R    Elev
  197.91  242.78    5347

CROSS SECTION


RIVER: Upper Goose
REACH: Reach 1            RS: 1138

INPUT
Description:
Station Elevation Data    num=     100
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5333.66     .17 5333.65    21.5 5333.15   25.35 5333.04    26.6    5333
   27.53 5332.83   32.19    5332   34.98 5331.35   36.34    5331   39.24  5330.6
   41.79 5330.32   43.61 5330.11   44.95    5330   46.43    5330   51.29 5329.88
   52.86 5329.83   59.18 5329.68   68.77 5329.39   71.58 5329.32    81.9    5329
   88.13 5328.42   92.54    5328   96.75 5327.61   103.5    5327   108.1 5326.63
  109.76 5326.48   115.2    5326  117.72    5326  137.71 5325.53  139.49  5325.5
  140.44 5325.47     143 5325.41   156.1 5325.21  157.07 5325.22  158.63 5325.22
  161.27 5325.24  163.23 5325.23     170 5325.27  173.71 5325.27  175.02 5325.29
  175.55 5325.28  189.81 5325.35  190.28 5325.35  192.04  5325.3  210.65    5325
  241.89    5325  247.85 5324.39  251.54    5324     258  5323.8     275  5324.3
     293  5323.8  295.15 5324.18  295.84  5324.2     298 5324.35   298.8 5324.37
   300.4 5324.47  313.27    5325  345.71    5325  350.64 5324.83  353.27 5324.79
  361.39 5324.76  361.88 5324.75  363.24 5324.76  364.38 5324.72  367.11 5324.56
  368.59 5324.45  369.41 5324.43  370.21 5324.38  371.34 5324.28  373.26 5324.13
  374.68    5324  375.49    5324   392.1 5323.56  393.35 5323.55  399.13 5323.48
   400.2 5323.48  401.05 5323.47  423.48 5323.02  423.98    5323     430    5322
  446.48  5319.7  447.48  5319.7  448.22    5322  450.82    5324  452.16    5325
  454.75    5327  457.07 5327.92   457.4 5328.04  460.99 5329.22  471.96 5332.78
  472.65    5333  473.17 5333.12  476.48    5334  483.76 5335.39  486.65    5336
  492.36 5337.22  497.33    5338  497.69 5338.04   502.5 5338.51  504.06 5338.62

Manning's n Values        num=       6
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13  251.54    .015   300.4     .13   400.2     .09     430     .05
  448.22     .09
```

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Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          430  448.22            241.65  244.61  244.07              .1       .3
Blocked Obstructions       num=       4
   Sta L   Sta R    Elev   Sta L   Sta R    Elev   Sta L   Sta R    Elev
  330.72   358.9    5345  192.04  219.935345.302   51.74  103.885349.865
       0   23.955353.655

CROSS SECTION


RIVER: Upper Goose
REACH: Reach 1            RS: 894

INPUT
Description:
Station Elevation Data    num=     242
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5325.37     .13 5325.37     .88 5325.35    1.71 5325.33    6.41 5325.33
     6.8 5325.34   17.76 5325.25   19.62  5325.2   21.52 5325.19   24.54  5325.1
   26.05 5325.04   26.95    5325   28.61 5324.79   30.58 5324.52   35.24    5324
   37.99 5323.77   38.52 5323.72   39.45 5323.64   41.41 5323.46   42.32  5323.4
   43.16 5323.32   46.16 5323.16   48.41 5323.03   48.84    5323   51.41 5322.79
   52.73 5322.67   56.27 5322.34   59.28 5322.05   59.87    5322   62.99 5321.78
   64.03   5321.7   66.38 5321.51   70.65 5321.19   71.07 5321.16   72.91    5321
   84.15 5320.57   85.31 5320.54   92.54 5320.42   93.37 5320.39   93.61 5320.39
    94.8 5320.36   95.33 5320.36   96.02 5320.35   96.95 5320.34   97.47 5320.33
   97.66 5320.32   98.93 5320.33   99.24 5320.32  101.91 5320.36  102.15 5320.35
  103.05 5320.36  109.99 5320.38  110.85 5320.34  111.65 5320.34  112.36 5320.34
  124.26 5320.17  124.66 5320.17  125.59 5320.17  133.94    5320  135.82    5320
  136.75    5320  138.76    5320  139.49    5320  141.48    5320  142.24    5320
  144.77    5320  146.27    5320  149.33    5320  150.85    5320  151.74    5320
  153.25    5320  178.54 5320.64  179.99 5320.73   180.3 5320.73   180.5 5320.73
  180.87 5320.73  181.26 5320.75  181.66 5320.75  182.95 5320.83  183.06 5320.83
  185.31 5320.94  185.38 5320.94  186.54    5321  191.54 5321.26  195.52  5321.5
  199.71 5321.74  201.17 5321.82  203.84    5322  206.16    5322  206.74    5322
   210.4    5322  216.74    5322  217.08    5322  217.12    5322  217.16    5322
  217.51 5321.98  218.72 5321.93     221 5321.81  221.41 5321.81  233.69 5321.47
  235.06 5321.43  238.51 5321.32  243.94 5321.14  244.81 5321.11  248.66    5321
  249.69    5321  250.09    5321  250.99    5321  251.39    5321  262.94 5320.45
  265.15 5320.34  267.07 5320.26  270.55 5320.07  271.77    5320  271.98    5320
  279.48 5319.57   279.9 5319.55   280.2 5319.56  280.33 5319.55  281.13  5319.5
  318.75 5319.63   321.9 5319.69  338.85    5320  339.18    5320  339.22    5320
  339.67    5320   340.2    5320  341.27    5320   341.3    5320  341.39    5320
  341.42    5320  344.93 5320.17  346.16 5320.23  348.62 5320.35  349.72 5320.41
  352.66 5320.51  353.93 5320.57  358.46  5320.7  362.71 5320.88  363.12  5320.9
  365.07 5320.95  366.63 5320.97  366.68 5320.97  369.35    5321  373.92    5321
  374.21    5321  375.62    5321  376.68    5321  379.54    5321  380.48    5321
  380.79    5321  381.66    5321  389.04    5321  392.18    5321  392.68    5321
  394.41    5321  395.85    5321  402.92    5321  407.13    5321  407.47    5321
  408.28    5321  408.36    5321  408.84    5321  417.17 5320.51  418.74 5320.42
  426.84    5320  427.06    5320  427.23    5320  427.57    5320  427.91    5320
  428.38    5320  428.45    5320  431.27 5319.89  433.37 5319.83  433.94 5319.81
  434.49  5319.8  436.67 5319.71  437.35  5319.7  438.81 5319.64  439.31 5319.62
  447.57 5319.46  449.72 5319.39  450.39 5319.38  451.34 5319.35  451.93 5319.33
  452.56 5319.31   461.4    5319  465.08    5319  465.83    5319  466.75    5319
  467.22    5319  467.65    5319  468.64    5319  469.88    5319  470.38    5319
  470.43    5319  471.05 5318.87     472 5318.66  472.74 5318.51  473.46 5318.34
  474.91    5318  476.63 5317.45     478    5317  479.44    5317   481.9    5317
  483.47  5317.5  485.13    5318  486.88 5318.49  488.69    5319  491.31 5319.68
  492.55    5320  493.45    5320  503.33    5320  508.02    5320  509.19    5320
  509.72    5320  516.41  5320.8  516.87 5320.86   518.1    5321  520.61 5321.29
  526.61    5322  530.98 5322.51  535.02    5323     537 5323.41  539.39  5323.9
   539.7 5323.96  539.89    5324  540.23 5324.13  540.99 5324.45  542.37    5325
  543.03    5325  545.11    5325  551.23    5325  554.31    5325  555.67  5325.6
  556.58    5326  558.35 5326.77  558.96    5327  563.23 5327.97  563.35    5328
  563.39 5328.01  564.04 5328.15

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13  281.13    .015  338.85     .13   461.4     .05  503.33     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        469.88  488.69            136.54  136.85  136.65              .1       .3
Blocked Obstructions      num=       4
   Sta L   Sta R    Elev   Sta L   Sta R    Elev   Sta L   Sta R    Elev
   368.2  395.935325.986  202.17  253.095326.886  125.22  174.465325.172
       0    6.625330.369

CROSS SECTION


RIVER: Upper Goose
REACH: Reach 1            RS: 757

INPUT
Description:
Station Elevation Data    num=     265
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5324.87   16.75 5324.32   27.25    5324   30.25 5323.32   31.66    5323
    33.3 5322.63   36.04    5322   37.99 5321.52   40.01    5321   42.32 5320.39
   43.79    5320   44.45 5319.91   44.66  5319.9   44.93 5319.89   45.28 5319.87
   50.74  5319.4   55.47 5319.17   55.78 5319.14   58.32    5319   64.41 5318.83
   65.22  5318.8   66.22 5318.77   71.61 5318.61      73 5318.57   74.74 5318.52
   78.47 5318.41   83.26 5318.29   84.12 5318.27   90.67 5318.13   91.08 5318.11
   96.81    5318   99.87    5318  100.59    5318  101.41    5318  102.69    5318
  111.45    5318  112.41    5318  114.65    5318  115.44    5318  118.23    5318
   118.5    5318  118.58    5318  118.82    5318  123.42    5318  123.73    5318
  124.07    5318  125.19    5318  125.89    5318  126.69    5318  127.26    5318
  128.17    5318  129.09    5318  130.71    5318  131.78    5318  132.82    5318
  134.07    5318  138.87    5318  139.06    5318  139.16    5318  139.25    5318
  139.37    5318     141    5318  142.37    5318  144.12    5318  145.94    5318
  149.26    5318  149.35    5318  149.97    5318     150    5318  152.32    5318
  154.64    5318  159.11    5318  162.12    5318  162.19    5318   165.3    5318
  168.44    5318  170.01    5318  172.77    5318  175.97 5318.12  177.38 5318.16
  180.18 5318.23  187.69 5318.44  207.92    5319   210.1    5319  210.63    5319
  211.24    5319     212    5319  215.95    5319  218.71    5319  221.23    5319
  221.27    5319  221.31    5319  221.32    5319  223.08    5319  225.59    5319
  226.17    5319   229.8    5319  249.63 5318.71  255.19 5318.57  256.42 5318.58
  257.87 5318.55   260.1  5318.5  261.06 5318.47  261.77 5318.45  262.63 5318.45
  263.69 5318.42  265.15 5318.37  265.89 5318.34  266.73 5318.34  267.26 5318.34
   269.2 5318.27  269.74 5318.27  269.95 5318.27   270.3 5318.27   271.3 5318.23
  271.48 5318.23  273.58 5318.27  276.05  5318.1  276.14  5318.1  276.28 5318.11
  277.77    5318  279.17 5317.91  280.75 5317.83  282.44 5317.73  283.32 5317.68
  285.75 5317.56  286.92  5317.5  288.65 5317.42  290.04 5317.36  291.17  5317.3
  292.85 5317.24  292.96 5317.24  294.56 5317.19  294.98 5317.17  295.13 5317.17
  295.44 5317.16  297.17 5317.12  297.33 5317.11  297.49 5317.11  297.56 5317.11
   301.4 5317.03  301.42 5317.03  301.47 5317.03  302.65    5317  303.64 5316.99
  303.89 5316.98  303.93 5316.97  306.77 5316.89  306.82 5316.89  307.27 5316.87
  310.21 5316.76  311.71 5316.69  312.62 5316.67  318.68  5316.4  320.02 5316.38
  321.31 5316.37  322.83 5316.32  324.12 5316.28  324.76 5316.26  325.41 5316.24
  325.71 5316.24  341.91  5316.3  342.52 5316.29  342.96 5316.29  344.62 5316.27
   354.8 5316.32   356.1 5316.31   357.5 5316.31  358.37 5316.33  360.11 5316.34
  361.05 5316.36  361.24 5316.36  362.19 5316.38  363.49  5316.4  364.44 5316.42
  364.91 5316.43  366.24 5316.45  367.08 5316.47  370.51 5316.51  371.45 5316.51
  372.58 5316.51  373.79 5316.53  375.05 5316.53  375.54 5316.54  376.61 5316.53
  377.98 5316.55  378.38 5316.55  380.58 5316.56  381.68 5316.56  384.29 5316.54
  398.76  5316.1  398.78  5316.1  398.81  5316.1  398.85  5316.1  398.89 5316.09
  398.92 5316.09  398.95 5316.09  398.97 5316.09  398.98 5316.09  399.63 5316.08
  399.99 5316.08  403.24 5316.06  414.17    5316  415.28  5315.9   416.5 5315.78
  419.05 5315.49  422.82  5315.1  424.37 5314.96  424.64    5315  426.62 5313.85
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  426.97 5313.75  428.44 5313.45  428.47  5313.4  428.53 5313.41  430.67 5313.96
  431.29    5314  432.94 5314.81  433.31 5315.05  433.31    5315  433.57 5315.13
  435.26    5316  436.44 5315.86  436.79 5315.81  437.91 5315.68  438.08 5315.66
  442.95 5315.91  447.26 5316.64  449.34    5317  450.26 5317.22  453.05    5318
  458.68 5318.42  460.49 5318.55  464.08  5318.8  467.05    5319  470.95 5319.28
  475.08 5319.58  477.04 5319.72  480.65    5320  486.78 5320.51  488.37 5320.62
     491  5320.8  493.89    5321  496.22 5321.61  497.51    5322  499.44 5322.74
   500.1    5323   500.7 5323.23  502.59    5324  503.44 5324.06  510.77  5324.6
   517.1 5324.83  521.01    5325  523.35 5325.23  526.82 5325.52  528.88  5325.7
  529.97 5325.79  532.33    5326  532.62  5326.1  533.05 5326.24  534.19 5326.65
  534.97    5327  535.98 5327.44  537.02    5328  537.44 5328.23  537.46 5328.25

Manning's n Values        num=       7
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   58.32    .015  111.45     .06  187.69     .13   354.8     .09
  415.28     .05  453.05     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        414.17  435.26           155.75  156.66  155.33             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
  208.53  265.48    5324       0      245329.869

CROSS SECTION


RIVER: Upper Goose
REACH: Reach 1            RS: 600

INPUT
Description:
Station Elevation Data    num=     103
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0    5322    1.75    5322    4.43 5321.87   28.56    5321   44.65 5320.38
   45.88 5320.31    52.8    5320   57.97 5319.72    70.3    5319   75.06    5318
   77.64 5317.33   79.19    5317      80  5317.8   86.41    5317   89.88 5317.11
      98  5317.7     112  5317.5  127.46    5318  146.08    5318  157.17  5317.3
  161.66    5317  170.18 5316.57  182.25    5316  189.64  5315.6  199.48 5315.22
   203.1    5315  207.18    5315  211.99 5314.74  214.15  5314.6   215.1  5314.6
  216.52 5314.48  219.54  5314.5  220.56 5314.43  222.52 5314.43   231.1    5314
  246.09    5314  253.52 5313.63   256.9 5313.51  261.08 5313.31  265.52 5313.15
  272.26    5313  273.78  5312.9   279.1 5312.69  281.38 5312.64  283.03 5312.56
  288.85 5312.54  290.57  5312.6  293.25 5312.64  295.54 5312.64  302.56 5312.55
  305.61 5312.43  310.82 5312.39  313.58 5312.33   316.6 5312.31  319.76 5312.26
  321.92 5312.27  325.29 5312.22  331.42 5312.19   334.2 5312.23  337.29 5312.24
  341.36  5312.2  349.27 5312.07  352.55    5312  355.53 5311.86  361.21 5311.71
  370.18 5311.68  372.16 5311.64  374.52 5311.64  375.75 5311.58  377.99 5311.57
  393.12 5309.04  413.24 5309.04  418.94    5312  423.85    5313  427.19    5314
  429.18    5315  432.29    5316  445.37    5320  449.36    5321  456.48 5322.68
  459.86 5323.52  461.92    5324  465.41 5324.73  466.85    5325  470.35 5325.34
  479.85    5326  482.57    5326  501.24    5327  506.59  5327.4   515.4    5328
  517.28 5328.27   526.9    5329  529.58 5329.25  537.72 5329.97  566.44    5332
  572.16 5332.44  573.68 5332.51  578.79    5333  582.05 5333.65  588.37    5335
  593.05 5335.95  593.89    5336  610.07    5336

Manning's n Values        num=       7
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   77.64    .015  127.46     .06  349.27     .08  393.12     .05
  413.24     .09  461.92     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        352.55  418.94           73.99      75   78.46             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
       0      48    5350       F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
  509.62  587.785354.872

CROSS SECTION


RIVER: Upper Goose
REACH: Reach 1            RS: 525

INPUT
Description:
Station Elevation Data    num=     101
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  5321.3      11    5321    12.7 5320.87   15.89  5320.7   26.76    5320
   27.98    5320   29.37 5319.92   43.48    5319   44.15    5319   47.87 5318.77
   52.04  5318.5   59.98    5318   62.15 5317.89   79.14    5317     114  5317.2
  131.28    5317  146.66    5318  167.65    5318  177.23 5317.76  201.93 5317.27
  202.11 5317.27  209.82    5317  228.01 5316.42  235.94 5316.19  240.75 5316.04
  242.76    5316  254.57    5316  269.28 5315.82  277.03 5315.79  289.09 5315.77
  291.53 5315.77   307.1 5315.45  319.43    5315  324.07    5315  324.86    5314
  325.61    5313  332.19 5312.65   402.7 5312.63     403 5312.53  405.38 5310.55
  406.41  5310.4  407.17 5310.25     409  5310.1     411 5309.09     413 5308.68
     416 5309.54   421.6 5311.49     422 5312.47     423  5312.6  423.95 5313.33
   425.6  5313.6  426.75 5313.82  428.06    5314   429.8 5314.15  430.63 5314.25
   435.2 5314.69  437.25    5315  439.92 5315.64  441.56    5316  446.27 5317.77
  450.49 5319.31  454.79    5321  459.08    5322  464.03    5323  470.02 5323.79
  471.55    5324  482.83    5325  495.77    5326  507.81 5326.84  510.79    5327
  512.47 5327.07   522.5 5327.43   525.2 5327.55  528.55 5327.65  530.34 5327.73
   534.9 5327.84  537.61 5327.89  538.16 5327.88  541.76    5328  546.29 5328.12
  549.74  5328.2  553.02 5328.26  557.75 5328.37  561.18 5328.49  564.99 5328.58
  568.88 5328.74  571.09  5328.8  575.36    5329  584.59 5329.74  586.03    5330
  588.43 5330.37  592.83    5331  596.75 5331.58  597.99  5331.7  600.88 5331.89
  606.29 5332.19  607.66 5332.32  609.33 5332.44  611.85 5332.73  615.45 5333.56
  617.46    5334

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0    .015  131.28     .04  332.19     .06   402.7     .05  423.95     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        402.7  423.95           30.66   29.97   28.57             .3       .5
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
       0      44    5331       F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
  528.28  596.985351.598

BRIDGE


RIVER: Upper Goose
REACH: Reach 1            RS: 511

INPUT
Description: Multi-Use Trail (R)
Multi-Use Trail (R)
Distance from Upstream XS =       7
Deck/Roadway Width        =      16
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=       3
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
   402.7 5312.63 5310.83     412  5312.6  5310.8     423  5312.6  5310.8
```

```
Upstream Bridge Cross Section Data
Station Elevation Data    num=      101
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  5321.3      11    5321    12.7 5320.87   15.89  5320.7   26.76    5320
   27.98    5320   29.37 5319.92   43.48    5319   44.15    5319   47.87 5318.77
   52.04  5318.5   59.98    5318   62.15 5317.89   79.14    5317     114  5317.2
  131.28    5317  146.66    5318  167.65    5318  177.23 5317.76  201.93 5317.27
  202.11 5317.27  209.82    5317  228.01 5316.42  235.94 5316.19  240.75 5316.04
  242.76    5316  254.57    5316  269.28 5315.82  277.03 5315.79  289.09 5315.77
  291.53 5315.77   307.1 5315.45  319.43    5315  324.07    5315  324.86    5314
  325.61    5313  332.19 5312.65   402.7 5312.63     403 5312.53  405.38 5310.55
  406.41  5310.4  407.17 5310.25     409  5310.1     411 5309.09     413 5308.68
     416 5309.54   421.6 5311.49     422 5312.47     423  5312.6  423.95 5313.33
   425.6  5313.6  426.75 5313.82  428.06    5314   429.8 5314.15  430.63 5314.25
   435.2 5314.69  437.25    5315  439.92 5315.64  441.56    5316  446.27 5317.77
  450.49 5319.31  454.79    5321  459.08    5322  464.03    5323  470.02 5323.79
  471.55    5324  482.83    5325  495.77    5326  507.81 5326.84  510.79    5327
  512.47 5327.07   522.5 5327.43   525.2 5327.55  528.55 5327.65  530.34 5327.73
   534.9 5327.84  537.61 5327.89  538.16 5327.88  541.76    5328  546.29 5328.12
  549.74  5328.2  553.02 5328.26  557.75 5328.37  561.18 5328.49  564.99 5328.58
  568.88 5328.74  571.09  5328.8  575.36    5329  584.59 5329.74  586.03    5330
  588.43 5330.37  592.83    5331  596.75 5331.58  597.99  5331.7  600.88 5331.89
  606.29 5332.19  607.66 5332.32  609.33 5332.44  611.85 5332.73  615.45 5333.56
  617.46    5334

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0    .015  131.28     .04  332.19     .06   402.7     .05  423.95     .06

Bank Sta: Left   Right    Coeff Contr.   Expan.
         402.7  423.95             .3       .5
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
       0      44    5331       F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
  528.28  596.985351.598

Downstream  Deck/Roadway Coordinates
    num=       3
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
     401 5312.63 5311.23     412  5312.6  5311.2     421 5312.59 5311.19

Downstream Bridge Cross Section Data
Station Elevation Data    num=      102
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5321.42   12.41    5321   13.87    5321   18.22 5320.71   21.18 5320.59
   24.22 5320.42   26.54 5320.35   27.85 5320.27   29.65 5320.24   31.64 5320.14
   32.65 5320.11   36.82  5320.1   37.07 5320.09   41.29 5320.06   43.73    5320
   57.22    5320   60.64 5319.93   70.03 5319.44   73.22 5319.23   75.11 5319.14
   77.46 5318.97    79.4  5318.9    83.6  5318.6    85.3  5318.5   87.05 5318.49
   91.75 5317.92   98.43    5317     100  5316.8     123  5317.2     136  5316.8
  143.89    5317  152.49 5317.51  160.33    5318  176.68    5318  182.56 5317.85
  218.34    5317  224.68 5316.81     250    5316  273.21 5315.63  300.69  5315.3
  308.85 5315.28  322.48    5315  337.83 5314.38  345.34 5314.27  348.64 5314.21
  362.45    5314  362.64    5314  363.46    5313     401 5312.63  402.74 5310.92
     407 5308.75     409 5308.55     413    5309     417 5311.05     420 5312.44
     421 5312.59  437.91 5312.82  440.35    5313  444.97 5313.76  446.36    5314
  450.43    5315  452.77    5316  457.74    5318   463.1 5320.18  465.31    5321
  472.19 5322.22  474.58 5322.53  476.37 5322.78  478.12    5323  480.94 5323.24
  487.58 5323.83  494.61 5324.43  498.47 5324.73  501.38    5325  507.08 5325.46
  512.83    5326  514.96    5326  521.54  5326.3  529.57 5326.04  529.74 5326.06
  534.68 5325.73  538.92 5325.36  542.34 5324.97  549.72 5325.13  563.59 5325.92
  564.82    5326  579.06    5327  586.69 5327.26  591.29 5327.38  598.59 5327.61
  601.29 5327.67  603.86 5327.74  606.42  5327.9   607.7    5328  610.25 5328.47
   615.8 5329.51  621.16  5330.5  625.36 5331.29  627.29 5331.64  629.49 5332.06
  631.95 5332.49  634.96    5333

Manning's n Values        num=       7
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   98.43    .015  143.89     .04  348.64     .05     421     .06
  437.91    .015  446.36     .06

Bank Sta: Left   Right    Coeff Contr.   Expan.
           401     421             .3       .5
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
       0      65 5331.42       F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
  538.58  612.475348.886

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .98
Elevation at which weir flow begins         =  5312.6
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
Selected Low Flow Methods = Highest Energy Answer

High Flow Method
       Pressure and Weir flow
           Submerged Inlet Cd          =
           Submerged Inlet + Outlet Cd =      .8
           Max Low Cord                =

Additional Bridge Parameters
       Add Friction component to Momentum
       Do not add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION


RIVER: Upper Goose
REACH: Reach 1            RS: 495

INPUT
Description:
Station Elevation Data    num=     102
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5321.42   12.41    5321   13.87    5321   18.22 5320.71   21.18 5320.59
   24.22 5320.42   26.54 5320.35   27.85 5320.27   29.65 5320.24   31.64 5320.14
   32.65 5320.11   36.82  5320.1   37.07 5320.09   41.29 5320.06   43.73    5320
   57.22    5320   60.64 5319.93   70.03 5319.44   73.22 5319.23   75.11 5319.14
   77.46 5318.97    79.4  5318.9    83.6  5318.6    85.3  5318.5   87.05 5318.49
   91.75 5317.92   98.43    5317     100  5316.8     123  5317.2     136  5316.8
  143.89    5317  152.49 5317.51  160.33    5318  176.68    5318  182.56 5317.85
  218.34    5317  224.68 5316.81     250    5316  273.21 5315.63  300.69  5315.3
  308.85 5315.28  322.48    5315  337.83 5314.38  345.34 5314.27  348.64 5314.21
  362.45    5314  362.64    5314  363.46    5313     401 5312.63  402.74 5310.92
```

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     407 5308.75     409 5308.55     413    5309     417 5311.05     420 5312.44
     421 5312.59  437.91 5312.82  440.35    5313  444.97 5313.76  446.36    5314
  450.43    5315  452.77    5316  457.74    5318   463.1 5320.18  465.31    5321
  472.19 5322.22  474.58 5322.53  476.37 5322.78  478.12    5323  480.94 5323.24
  487.58 5323.83  494.61 5324.43  498.47 5324.73  501.38    5325  507.08 5325.46
  512.83    5326  514.96    5326  521.54  5326.3  529.57 5326.04  529.74 5326.06
  534.68 5325.73  538.92 5325.36  542.34 5324.97  549.72 5325.13  563.59 5325.92
  564.82    5326  579.06    5327  586.69 5327.26  591.29 5327.38  598.59 5327.61
  601.29 5327.67  603.86 5327.74  606.42  5327.9   607.7    5328  610.25 5328.47
   615.8 5329.51  621.16  5330.5  625.36 5331.29  627.29 5331.64  629.49 5332.06
  631.95 5332.49  634.96    5333

Manning's n Values        num=       7
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   98.43    .015  143.89     .04  348.64     .05     421     .06
  437.91    .015  446.36     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           401     421            74.48   69.12   52.56             .3       .5
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
       0      65 5331.42       F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
  538.58  612.475348.886

CROSS SECTION


RIVER: Upper Goose
REACH: Reach 1            RS: 426

INPUT
Description:
Station Elevation Data    num=     240
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5319.48    2.32 5319.48    6.17 5319.49   12.93    5319   36.26 5318.23
   41.17 5318.11    45.9    5318   49.64    5318   52.88    5318   59.41    5318
   62.24    5318   66.24    5318   68.22    5318   69.65    5318   71.91    5318
   74.12    5318   74.93    5318   88.68 5317.23   89.04 5317.21   92.94    5317
   94.57 5316.82   96.58 5316.59  101.39    5316  106.99    5316  109.24    5316
  125.24    5316   149.1    5316  160.71 5316.74  162.31 5316.84  162.66 5316.83
  163.18 5316.86  163.43 5316.86   166.3    5317  167.66    5317  167.78    5317
   174.3    5317  176.01    5317  177.77    5317  187.83    5317  192.57    5317
     201    5317  201.74    5317  202.76    5317  203.63    5317   204.4    5317
  204.79    5317  212.84    5317  212.95    5317  213.08    5317  218.47 5316.81
  218.63 5316.81  218.77 5316.81  219.07  5316.8  219.52 5316.79  221.07 5316.76
  239.76 5316.28  242.04 5316.23  249.54    5316  249.79    5316  250.14    5316
  250.19    5316  250.36    5316  250.86    5316  256.76    5316  296.46 5315.13
  299.57    5315     300    5315  309.65    5315  312.93    5315   313.6    5315
  314.05    5315  315.35    5315  326.67    5315  329.04    5315  329.18    5315
  329.63    5315   339.3 5314.69  341.19 5314.61  344.45 5314.51   346.3 5314.43
  351.08 5314.18  352.52 5314.13  353.15 5314.11  354.64    5314  354.83 5313.14
  354.86    5313  354.92 5312.72  355.07    5312  355.14  5311.7  355.29    5311
  356.39    5311  362.29    5311  369.77    5311   372.3    5311  372.47    5311
  372.85    5311  373.54    5311  376.02 5310.96  379.08 5310.92   379.2 5310.92
  381.94 5310.84  382.58 5310.82  384.55 5310.78  387.34 5310.73  388.38 5310.69
  391.61 5310.61  394.97 5310.48   398.1 5310.36  399.83  5310.3  402.06 5310.21
  404.26 5310.12  407.12    5310   409.6 5309.56  412.85 5307.36  415.27 5307.28
  420.15 5309.39  422.56    5310  427.14 5310.62  427.56 5310.68  430.07    5311
  432.76 5310.94  434.81 5310.91  436.72  5311.3   437.1 5311.46   437.5 5311.64
  438.26    5312  440.47 5312.54   441.1 5312.69  441.51  5312.8  441.55 5312.81
  442.28    5313  442.67 5313.11  445.79    5314  446.44 5314.12  450.57    5315
  452.68    5315  459.06 5315.62  464.24    5316  465.51 5316.56  466.55    5317
  469.32 5317.58   471.2    5318   471.8  5318.1  478.67    5319  479.77  5319.1
  481.28 5319.21  486.96 5319.67  491.83    5320  491.95 5320.01  491.98 5320.02
  496.02 5320.33  496.36 5320.35  496.83 5320.38  497.43  5320.4  499.94 5320.45
  501.65 5320.41  502.72  5320.4  503.17 5320.38  504.31 5320.37  507.91 5320.31
  508.94 5320.28  510.37 5320.27   511.3 5320.23  512.31 5320.17  513.46 5320.12
  513.87 5320.12  514.96 5320.08  515.07 5320.08  518.66 5320.08  518.77 5320.08
  519.69 5320.05  519.75 5320.05   520.6    5320  520.94 5319.98  521.02 5319.98
  523.63 5319.83  524.58 5319.81  525.22 5319.79  525.54  5319.8  528.46 5319.69
  529.18 5319.73  530.46  5319.7   531.3 5319.75  534.12 5319.68  534.92  5319.7
  535.86 5319.71  541.01 5319.79  541.32  5319.8  541.62 5319.81  545.91    5320
  552.24 5320.57  556.94    5321  557.61 5321.06   557.8 5321.07  557.85 5321.08
  558.04  5321.1  561.75 5321.44  567.05 5321.92  567.92    5322  576.45 5322.77
   578.9    5323  583.36 5323.39  584.95 5323.55  589.83    5324  591.52 5324.15
  592.12 5324.21  594.57 5324.44   598.8 5324.82  600.75    5325  603.73 5325.26
  604.33 5325.33  606.98 5325.57   608.9 5325.75   610.6 5325.98  610.64 5325.99
  610.74    5326  615.18 5326.63  617.76    5327  618.04 5327.04  618.23 5327.06
  620.28 5327.35  621.02 5327.47  624.74    5328  625.97  5328.2  631.69    5329
   633.6  5329.3  634.65 5329.48  637.34    5330  639.09 5330.33  642.04    5331
  645.15 5331.64  647.06 5331.92  647.52    5332  647.57    5332  647.67    5332
  648.87    5332  649.25    5332  649.62    5332     650    5332  650.36    5332

Manning's n Values        num=       6
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   92.94    .015  160.71     .04  355.07     .05  452.68    .015
  464.24     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        407.12  422.56           108.58  109.89  114.07             .1       .3
Ineffective Flow     num=       3
   Sta L   Sta R    Elev  Permanent
       0      63    5335       T
     230     330    5335       T
      63     230    5317       T
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
  539.33  611.475326.103

CROSS SECTION


RIVER: Upper Goose
REACH: Reach 1            RS: 316

INPUT
Description:
Station Elevation Data    num=     157
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5318.39     .46 5318.41    1.95 5318.41    3.79 5318.41    8.47    5318
    9.17    5318    9.81 5317.89   10.04 5317.89    11.5 5317.69   12.95 5317.71
   14.57 5317.57   19.78  5317.4   20.67 5317.41   22.08 5317.42   27.78 5317.36
   29.25 5317.31   31.59 5317.29   33.71 5317.28   35.31 5317.22   37.28 5317.22
   39.22 5317.21   41.12  5317.2   43.04 5317.18   45.26 5317.17   48.49  5317.1
   50.96  5317.1   51.22  5317.1   54.04  5317.1   58.54    5317   59.62    5317
   61.47    5317   63.63    5317   64.55    5317   65.16    5317    66.1    5317
   67.99    5317   69.84    5317    70.9    5317    72.5    5317   73.36    5317
    74.2    5317   74.89    5317   75.61    5317   76.03    5317   77.67    5317
   77.73    5317   80.47 5316.8   91.33    5316  103.62    5316  118.22    5316
     120    5316  120.36    5316  133.47    5316  156.36    5316  158.75    5316
  160.04    5316     161    5316  161.17    5316  165.44  5316.1  166.39 5316.13
  167.57 5316.16  183.44    5317  184.65    5317  187.16    5317  203.61    5317
  204.42    5317  204.94    5317  205.31    5317  205.59    5317  208.89    5317
  208.99    5317  211.54 5316.97  212.03 5316.97  213.95 5316.96  225.57 5316.86
  227.89 5316.84  234.27 5316.78  253.73  5316.6  263.93  5316.5  291.96 5316.24
  295.99  5316.2  298.12 5316.18  310.19    5316  316.96    5316  348.06 5315.13
  353.87    5315  355.29 5314.21  355.59    5314   355.8 5313.42     356    5313
  356.04 5312.76  356.15    5312  366.51    5312  374.73    5312  375.66 5312.93
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  375.74    5313  378.88    5313  380.55    5313  380.81    5313  380.89 5312.96
   383.1    5312   384.5 5311.76  388.92    5311  390.22  5310.9  393.36 5310.65
  401.07 5310.01  401.18    5310  401.39 5309.99  412.05 5309.26  415.99    5309
  418.21  5308.6   421.6    5308  423.37 5307.39  424.13 5307.05  424.25    5307
  424.39 5306.95  427.04    5306   427.6  5305.7  429.73    5306  430.53 5306.54
  431.14    5307  432.12 5307.69  432.54    5308  433.27 5308.51  433.97    5309
  434.84  5309.5  435.68    5310  437.63 5310.93  437.77    5311  437.86 5311.04
  440.36    5312  442.05  5312.5  443.69    5313  446.77 5313.78  447.59    5314
  448.48 5314.21  451.89    5315  462.15 5315.56  467.53  5315.8  471.77    5316
   472.2    5316  507.69 5316.95  509.67    5317  515.51 5317.19  520.13 5317.34
  523.17 5317.43  530.53 5317.62  533.65 5317.72  535.97 5317.79  545.54    5318
  554.55 5318.38  556.81 5318.53  566.05    5319  567.58    5319  572.54 5319.31
  581.36 5319.77  582.95 5319.85

Manning's n Values        num=       6
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13  103.62    .015  156.36     .04  374.73     .05  451.89    .015
  467.53     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        415.99  433.97          105.38  103.72  101.46              .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0      63    5322        T
  358.11  375.74    5315        T
Blocked Obstructions      num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
   199.1  358.11    5322  553.68  582.955323.347

CROSS SECTION


RIVER: Upper Goose
REACH: Reach 1            RS: 212

INPUT
Description:
Station Elevation Data    num=      16
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    1000 5315.94    1001  5312.3    1008  5311.3    1020  5310.3    1031  5309.3
    1038  5308.3    1043  5307.3    1046  5306.3    1052  5305.3    1053  5305.3
    1057  5306.3    1060  5307.3    1065  5308.3    1080  5313.3    1093  5315.3
    1165  5317.3

Manning's n Values        num=       1
     Sta   n Val
    1000   .0359

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          1000    1165            195.8  212.48   213.4              .1       .3


SUMMARY OF MANNING'S N VALUES

River:AlpineSplit

      Reach          River Sta.       n1        n2        n3

 Reach1               1435              .015      .015       .04
 Reach1               1177               .04      .015       .04
 Reach1               1009               .04      .015       .04
 Reach1               789                .04      .015       .04
 Reach1               596                .04      .015       .04
 Reach1               386               .015      .015       .04
 Reach1               223                .04      .015       .04


River:BroadwaySplit

      Reach          River Sta.       n1        n2        n3

 Reach1               871               .015       .04       .04
 Reach1               619               .015
 Reach1               500                .04      .015       .04
 Reach1               369                .04
 Reach1               235                .04      .015       .04


River:HospitalSplit

      Reach          River Sta.       n1        n2        n3

 Reach1               270                .04       .04       .04
 Reach1               226                .04       .04       .04
 Reach1               131                .04       .04       .04
 Reach1               34                 .04       .04       .04


River:Upper Goose

      Reach          River Sta.       n1        n2        n3        n4        n5        n6        n7

 Reach 7              7239               .03       .03       .03
 Reach 7              7160              .015      .015      .015
 Reach 7              7122               .13      .015       .04
 Reach 7              6934               .13      .015       .04
 Reach 7              6736               .13      .015       .04
 Reach 7              6464               .13      .015       .04
 Reach 6              6383               .13      .015       .04
 Reach 6              6298                .1      .015       .04
 Reach 6              6232               .05      .015       .05
 Reach 6              6114               .05      .015       .05
 Reach 5              6028               .04      .015       .04
 Reach 5              6025               .04      .015       .04
 Reach 4              5863               .04      .015      .015
 Reach 4              5742               .04      .015       .04
 Reach 4              5547               .04      .015       .04
 Reach 3              5456               .04      .015       .04
 Reach 3              5405               .04      .015       .04
 Reach 2              5320               .13       .06       .13      .015
 Reach 2              5091               .13      .015
 Reach 2              4903               .13      .015       .13
 Reach 2              4690              .015       .13      .015
 Reach 2              4493               .13
 Reach 2              4269               .13      .015
 Reach 2              4074               .13
 Reach 1              3849               .04      .015       .13
 Reach 1              3727              .015      .015       .13
 Reach 1              3551               .13      .015       .13      .015       .13
 Reach 1              3277               .13      .015        .1      .015        .1      .015        .1
 Reach 1              3078               .13      .015        .1
 Reach 1              2839               .13      .015       .13      .015       .13
 Reach 1              2761               .13      .015       .13      .015       .13
 Reach 1              2502               .13      .015       .13      .015       .06
 Reach 1              2307               .04      .015       .13       .05       .09
 Reach 1              2148               .13      .015       .13       .05       .09
 Reach 1              1938               .13      .015       .13       .05       .09
 Reach 1              1734               .13      .015       .13       .05       .09
 Reach 1              1525               .13      .015       .13       .05       .09
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Reach 1	1337	.13	.015	.13	.05	.09		
Reach 1	1138	.13	.015	.13	.09	.05	.09	
Reach 1	894	.13	.015	.13	.05	.13		
Reach 1	757	.13	.015	.06	.13	.09	.05	.06
Reach 1	600	.13	.015	.06	.08	.05	.09	.06
Reach 1	525	.015	.04	.06	.05	.06		
Reach 1	511	Bridge						
Reach 1	495	.13	.015	.04	.05	.06	.015	.06
Reach 1	426	.13	.015	.04	.05	.015	.06	
Reach 1	316	.13	.015	.04	.05	.015	.06	
Reach 1	212	.0359						

SUMMARY OF REACH LENGTHS

River: AlpineSplit

Reach	River Sta.	Left	Channel	Right
Reach1	1435	241.21	258.09	264.97
Reach1	1177	166.13	168.38	169.03
Reach1	1009	218.78	219.31	219.63
Reach1	789	192.94	193.63	194.27
Reach1	596	209.45	209.49	209.9
Reach1	386	149.99	163.33	177.03
Reach1	223			

River: BroadwaySplit

Reach	River Sta.	Left	Channel	Right
Reach1	871	174.32	252.37	370.77
Reach1	619	132.33	118.97	106.32
Reach1	500	142.72	131.42	130.4
Reach1	369	111.83	133.97	190.87
Reach1	235	235	235	235

River: HospitalSplit

Reach	River Sta.	Left	Channel	Right
Reach1	270	38.82	44.44	56.9
Reach1	226	74.08	94.65	108.06
Reach1	131	90.94	96.97	106.71
Reach1	34	34	34	34

River: Upper Goose

Reach	River Sta.	Left	Channel	Right
Reach 7	7239	82.69	78.68	80.22
Reach 7	7160	38.4	38.47	38.56
Reach 7	7122	188.15	187.91	187.57
Reach 7	6934	198.11	198.15	198.22
Reach 7	6736	271.76	271.78	271.82
Reach 7	6464	80.59	80.59	80.59
Reach 6	6383	85.79	85.81	85.81
Reach 6	6298	66.23	66.04	70.64
Reach 6	6232	57.13	117.54	90.61
Reach 6	6114	86.36	86.36	86.36
Reach 5	6028	3.05	3	8.3
Reach 5	6025	165	165	165
Reach 4	5863	113.85	120.28	126.89
Reach 4	5742	170.59	194.98	209.74
Reach 4	5547	91.47	91.47	91.47
Reach 3	5456	40.01	50.91	55.85
Reach 3	5405	85.17	85.17	85.17
Reach 2	5320	225.04	228.86	233.23
Reach 2	5091	185.41	188.25	192.78
Reach 2	4903	214.67	212.75	211.67
Reach 2	4690	196.21	196.82	197.48
Reach 2	4493	219.41	224.02	229.51
Reach 2	4269	189.76	194.68	200.82
Reach 2	4074			
Reach 1	3849	133.16	121.85	136.12
Reach 1	3727	168.91	176.48	151.9
Reach 1	3551	194.53	273.84	224.61
Reach 1	3277	217.82	198.59	148.03
Reach 1	3078	237.34	239.37	212.62
Reach 1	2839	78.48	77.65	77.28
Reach 1	2761	259.17	259.38	259.41
Reach 1	2502	194.1	194.28	194.48
Reach 1	2307	132.13	159.84	168.01
Reach 1	2148	225.99	209.2	181.77
Reach 1	1938	203.85	204.59	204.4
Reach 1	1734	206.41	208.65	209.64
Reach 1	1525	190.74	188.23	188.13
Reach 1	1337	197.93	198.57	198.34
Reach 1	1138	241.65	244.61	244.07
Reach 1	894	136.54	136.85	136.65
Reach 1	757	155.75	156.66	155.33
Reach 1	600	73.99	75	78.46
Reach 1	525	30.66	29.97	28.57
Reach 1	511	Bridge		
Reach 1	495	74.48	69.12	52.56
Reach 1	426	108.58	109.89	114.07
Reach 1	316	105.38	103.72	101.46
Reach 1	212	195.8	212.48	213.4

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: AlpineSplit

Reach	River Sta.	Contr.	Expan.
Reach1	1435	.1	.3
Reach1	1177	.1	.3
Reach1	1009	.1	.3
Reach1	789	.1	.3
Reach1	596	.1	.3
Reach1	386	.1	.3
Reach1	223	.1	.3

River: BroadwaySplit

Reach	River Sta.	Contr.	Expan.
Reach1	871	.1	.3
Reach1	619	.1	.3
Reach1	500	.1	.3
Reach1	369	.1	.3

Reach1	235	.1	.3

River: HospitalSplit

Reach	River Sta.	Contr.	Expan.
Reach1	270	.1	.3
Reach1	226	.1	.3
Reach1	131	.1	.3
Reach1	34	.1	.3

River: Upper Goose

Reach	River Sta.	Contr.	Expan.
Reach 7	7239	.1	.3
Reach 7	7160	.1	.3
Reach 7	7122	.1	.3
Reach 7	6934	.1	.3
Reach 7	6736	.1	.3
Reach 7	6464	.1	.3
Reach 6	6383	.1	.3
Reach 6	6298	.1	.3
Reach 6	6232	.1	.3
Reach 6	6114	.1	.3
Reach 5	6028	.1	.3
Reach 5	6025	.1	.3
Reach 4	5863	.1	.3
Reach 4	5742	.1	.3
Reach 4	5547	.1	.3
Reach 3	5456	.1	.3
Reach 3	5405	.1	.3
Reach 2	5320	.1	.3
Reach 2	5091	.1	.3
Reach 2	4903	.1	.3
Reach 2	4690	.1	.3
Reach 2	4493	.1	.3
Reach 2	4269	.1	.3
Reach 2	4074	.1	.3
Reach 1	3849	.1	.3
Reach 1	3727	.1	.3
Reach 1	3551	.1	.3
Reach 1	3277	.1	.3
Reach 1	3078	.1	.3
Reach 1	2839	.1	.3
Reach 1	2761	.1	.3
Reach 1	2502	.1	.3
Reach 1	2307	.1	.3
Reach 1	2148	.1	.3
Reach 1	1938	.1	.3
Reach 1	1734	.1	.3
Reach 1	1525	.1	.3
Reach 1	1337	.1	.3
Reach 1	1138	.1	.3
Reach 1	894	.1	.3
Reach 1	757	.1	.3
Reach 1	600	.1	.3
Reach 1	525	.3	.5
Reach 1	511	Bridge	
Reach 1	495	.3	.5
Reach 1	426	.1	.3
Reach 1	316	.1	.3
Reach 1	212	.1	.3

Profile Output Table - Standard Table 1

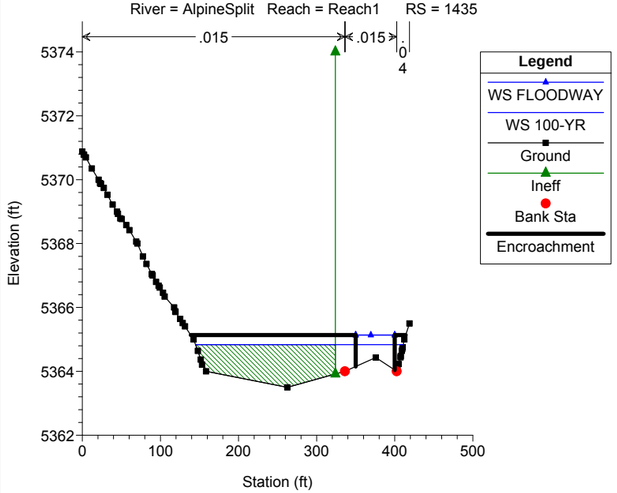
River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
AlpineSplit	Reach1	223	100-YR	203.00	5348.60	5349.88	5349.76	5350.14	0.002155	4.15	51.96	64.90	0.79
AlpineSplit	Reach1	223	FLOODWAY	203.00	5348.64	5349.99	5349.99	5350.49	0.003444	5.68	35.72	35.00	0.99
AlpineSplit	Reach1	386	100-YR	203.00	5351.18	5352.05	5352.05	5352.34	0.003736	4.57	48.01	86.88	0.99
AlpineSplit	Reach1	386	FLOODWAY	203.00	5351.18	5352.35	5352.35	5352.83	0.003681	5.52	36.74	40.00	1.02
AlpineSplit	Reach1	596	100-YR	203.00	5355.09	5356.29	5356.29	5356.66	0.003269	4.98	46.63	71.07	0.97
AlpineSplit	Reach1	596	FLOODWAY	203.00	5355.15	5356.44	5356.44	5356.94	0.003691	5.66	35.83	37.00	1.01
AlpineSplit	Reach1	789	100-YR	203.00	5357.35	5358.60	5358.60	5358.96	0.003854	4.93	43.59	61.40	1.02
AlpineSplit	Reach1	789	FLOODWAY	203.00	5357.44	5358.89	5358.89	5359.39	0.003514	5.68	35.73	35.00	0.99
AlpineSplit	Reach1	1009	100-YR	232.00	5359.97	5361.18	5361.18	5361.57	0.003675	5.23	51.33	63.61	1.02
AlpineSplit	Reach1	1009	FLOODWAY	232.00	5359.97	5361.43	5361.43	5361.93	0.003456	5.69	40.80	40.00	0.99
AlpineSplit	Reach1	1177	100-YR	232.00	5361.50	5363.06	5363.06	5363.46	0.003498	5.08	45.66	56.30	0.99
AlpineSplit	Reach1	1177	FLOODWAY	232.00	5361.50	5363.08	5363.08	5363.59	0.003591	5.77	40.24	40.00	1.01
AlpineSplit	Reach1	1435	100-YR	232.00	5364.00	5364.84	5364.84	5365.14	0.003346	4.17	55.41	265.85	0.93
AlpineSplit	Reach1	1435	FLOODWAY	232.00	5364.04	5365.13	5365.13	5365.58	0.003684	5.33	43.50	50.00	1.01
BroadwaySplit	Reach1	235	100-YR	117.00	5364.30	5365.11	5365.08	5365.33	0.003713	3.77	31.63	73.75	0.95
BroadwaySplit	Reach1	235	FLOODWAY	1.00	5364.30	5365.03	5364.41	5365.03	0.000000	0.04	25.95	64.62	0.01
BroadwaySplit	Reach1	369	100-YR	117.00	5366.67	5367.53	5367.53	5367.79	0.029928	4.11	28.48	55.14	1.01
BroadwaySplit	Reach1	369	FLOODWAY	1.00	5366.67	5366.83	5366.83	5366.86	0.051543	1.54	0.65	8.27	0.97

BroadwaySplit	Reach1	500	100-YR	117.00	5368.28	5368.79	5368.77	5368.93	0.004056	3.06	38.29	113.58
0.93												
BroadwaySplit	Reach1	500	FLOODWAY	1.00	5368.28	5368.37		5368.37	0.001103	0.45	2.23	44.53
0.35												
BroadwaySplit	Reach1	619	100-YR	117.00	5370.50	5370.97	5370.97	5371.09	0.005428	2.77	42.29	181.18
1.01												
BroadwaySplit	Reach1	619	FLOODWAY	1.00	5370.50	5370.57	5370.57	5370.59	0.009976	1.06	0.95	27.10
1.00												
BroadwaySplit	Reach1	871	100-YR	117.00	5371.90	5373.29	5373.29	5373.67	0.005339	2.71	27.65	41.60
0.48												
BroadwaySplit	Reach1	871	FLOODWAY	1.00	5371.90	5372.16	5372.07	5372.17	0.004616	0.81	1.11	7.74
0.33												
HospitalSplit	Reach1	34	100-YR	173.00	5374.00	5375.87		5375.89	0.000618	1.23	154.80	141.49
0.17												
HospitalSplit	Reach1	34	FLOODWAY	1.00	5374.00	5376.20		5376.20	0.000000	0.01	205.42	167.05
0.00												
HospitalSplit	Reach1	131	100-YR	173.00	5373.00	5375.91		5375.92	0.000183	0.73	238.92	137.74
0.10												
HospitalSplit	Reach1	131	FLOODWAY	1.00	5373.00	5376.20		5376.20	0.000000	0.00	278.85	141.28
0.00												
HospitalSplit	Reach1	226	100-YR	173.00	5375.86	5377.03	5377.03	5377.32	0.030290	4.34	39.90	72.57
1.03												
HospitalSplit	Reach1	226	FLOODWAY	1.00	5375.86	5376.20		5376.20	0.000583	0.31	3.26	16.26
0.12												
HospitalSplit	Reach1	270	100-YR	173.00	5378.50	5379.85	5379.85	5380.26	0.026105	5.13	33.76	42.35
1.01												
HospitalSplit	Reach1	270	FLOODWAY	1.00	5378.50	5378.67	5378.67	5378.71	0.059873	1.73	0.58	6.97
1.06												
Upper Goose	Reach 1	212	100-YR	2624.00	5305.30	5312.60	5312.36	5314.06	0.010623	9.70	270.47	76.98
0.91												
Upper Goose	Reach 1	212	FLOODWAY	2624.00	5305.30	5312.60	5312.36	5314.06	0.010623	9.70	270.47	76.98
0.91												
Upper Goose	Reach 1	316	100-YR	2624.00	5305.70	5313.84	5313.84	5315.61	0.016456	12.50	268.27	88.90
0.87												
Upper Goose	Reach 1	316	FLOODWAY	2624.00	5305.70	5313.91	5313.91	5316.01	0.018107	13.19	241.53	55.00
0.91												
Upper Goose	Reach 1	426	100-YR	2624.00	5307.28	5316.03		5316.41	0.003097	5.96	547.78	264.33
0.39												
Upper Goose	Reach 1	426	FLOODWAY	2624.00	5307.28	5316.44		5316.84	0.003002	6.08	527.54	104.31
0.38												
Upper Goose	Reach 1	495	100-YR	2624.00	5308.55	5316.21	5315.66	5316.82	0.006327	7.37	469.35	209.84
0.53												
Upper Goose	Reach 1	495	FLOODWAY	2624.00	5308.55	5316.61	5315.53	5317.18	0.004892	6.76	455.91	123.29
0.47												
Upper Goose	Reach 1	511		Bridge								
Upper Goose	Reach 1	525	100-YR	2624.00	5308.68	5316.41	5315.38	5316.92	0.006786	7.52	517.28	214.43
0.54												
Upper Goose	Reach 1	525	FLOODWAY	2624.00	5308.68	5316.87	5315.38	5317.29	0.004678	6.56	547.19	142.66
0.46												
Upper Goose	Reach 1	600	100-YR	2624.00	5309.04	5317.08	5313.86	5317.17	0.001531	2.78	1116.89	278.80
0.19												
Upper Goose	Reach 1	600	FLOODWAY	2624.00	5309.04	5317.39	5313.84	5317.52	0.001827	2.93	895.03	155.08
0.20												
Upper Goose	Reach 1	757	100-YR	2624.00	5313.40	5318.89	5318.89	5319.51	0.017456	9.46	557.90	341.51
0.83												
Upper Goose	Reach 1	757	FLOODWAY	2624.00	5313.40	5319.01	5319.01	5319.75	0.020682	10.49	528.43	284.05
0.91												
Upper Goose	Reach 1	894	100-YR	2463.00	5317.00	5321.29	5321.29	5321.94	0.013440	7.66	397.73	313.22
0.73												
Upper Goose	Reach 1	894	FLOODWAY	2463.00	5317.00	5321.51	5321.51	5322.43	0.011201	6.73	322.01	180.96
0.62												
Upper Goose	Reach 1	1138	100-YR	2463.00	5319.70	5325.66	5325.66	5326.40	0.012696	9.02	387.87	264.61
0.72												
Upper Goose	Reach 1	1138	FLOODWAY	2463.00	5319.70	5325.72	5325.72	5326.65	0.016629	9.30	330.02	160.04
0.74												
Upper Goose	Reach 1	1337	100-YR	2463.00	5320.37	5327.81	5327.76	5328.56	0.009487	7.97	363.10	225.08
0.58												
Upper Goose	Reach 1	1337	FLOODWAY	2463.00	5320.37	5328.07	5327.80	5328.89	0.008104	7.53	341.04	137.13
0.54												
Upper Goose	Reach 1	1525	100-YR	2463.00	5323.79	5329.83	5329.83	5330.73	0.012544	7.61	323.56	178.03
0.68												
Upper Goose	Reach 1	1525	FLOODWAY	2463.00	5323.79	5329.89	5329.87	5330.84	0.012988	7.59	314.96	159.59
0.67												
Upper Goose	Reach 1	1734	100-YR	2419.00	5327.12	5332.03		5332.52	0.006055	5.74	433.47	213.50
0.50												
Upper Goose	Reach 1	1734	FLOODWAY	2419.00	5327.12	5332.23		5332.73	0.006454	5.90	424.14	178.05
0.51												
Upper Goose	Reach 1	1938	100-YR	2419.00	5328.02	5333.93	5333.93	5334.84	0.013239	8.54	328.52	172.95
0.75												
Upper Goose	Reach 1	1938	FLOODWAY	2419.00	5328.02	5334.00	5334.00	5334.97	0.014478	8.72	311.67	147.71
0.75												
Upper Goose	Reach 1	2148	100-YR	2419.00	5333.09	5338.52	5338.52	5339.40	0.011452	8.25	354.26	200.51
0.67												
Upper Goose	Reach 1	2148	FLOODWAY	2419.00	5333.09	5338.80	5338.80	5339.87	0.012772	7.61	291.26	143.46
0.60												

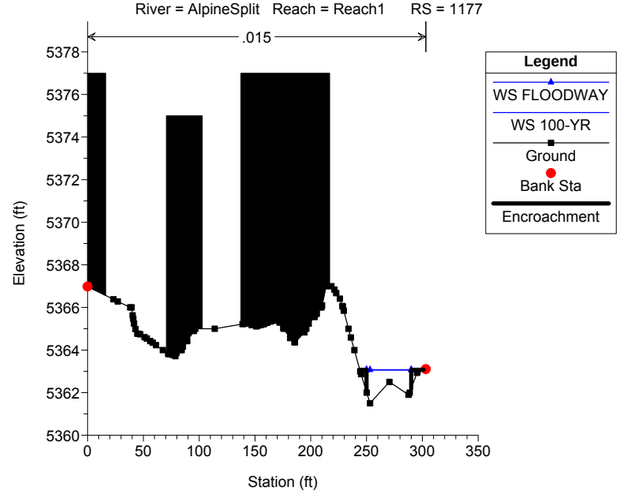
Upper Goose	Reach 1	2307	100-YR	2419.00	5334.79	5340.17	5340.17	5340.95	0.008124	6.50	357.80	288.78
0.52												
Upper Goose	Reach 1	2307	FLOODWAY	2419.00	5334.79	5340.66	5340.47	5341.45	0.010211	6.44	339.18	161.83
0.49												
Upper Goose	Reach 1	2502	100-YR	2419.00	5336.11	5343.99	5343.99	5344.98	0.001944	12.01	511.94	281.78
0.82												
Upper Goose	Reach 1	2502	FLOODWAY	2419.00	5336.11	5344.03	5344.03	5345.10	0.002471	11.99	405.98	180.93
0.82												
Upper Goose	Reach 1	2761	100-YR	2419.00	5339.00	5346.55	5346.55	5347.35	0.008920	6.75	340.32	223.72
0.57												
Upper Goose	Reach 1	2761	FLOODWAY	2419.00	5339.00	5346.79	5346.79	5347.78	0.011491	7.77	302.27	157.11
0.63												
Upper Goose	Reach 1	2839	100-YR	2419.00	5340.00	5347.32		5347.46	0.000186	3.97	915.31	362.57
0.30												
Upper Goose	Reach 1	2839	FLOODWAY	2419.00	5340.00	5347.78		5347.90	0.000133	3.54	884.88	242.00
0.26												
Upper Goose	Reach 1	3078	100-YR	412.00	5346.30	5347.47	5346.02	5347.52	0.000551	0.28	260.42	200.80
0.06												
Upper Goose	Reach 1	3078	FLOODWAY	412.00	5346.30	5347.81	5346.56	5347.95	0.000982	0.53	166.00	93.35
0.08												
Upper Goose	Reach 1	3277	100-YR	412.00	5347.00	5348.17	5348.17	5348.71	0.004285	7.19	82.32	99.49
1.17												
Upper Goose	Reach 1	3277	FLOODWAY	412.00	5347.00	5348.22	5348.22	5348.84	0.004501	7.57	69.23	56.59
1.21												
Upper Goose	Reach 1	3551	100-YR	412.00	5345.80	5348.82	5347.28	5348.91	0.000235	2.33	240.51	144.16
0.25												
Upper Goose	Reach 1	3551	FLOODWAY	412.00	5345.80	5348.98	5347.33	5349.08	0.000303	2.62	157.18	55.00
0.27												
Upper Goose	Reach 1	3727	100-YR	412.00	5347.00	5348.89		5348.95	0.000259	2.03	211.79	167.93
0.30												
Upper Goose	Reach 1	3727	FLOODWAY	412.00	5347.00	5348.93		5349.24	0.001196	4.43	92.98	60.00
0.63												
Upper Goose	Reach 1	3849	100-YR	412.00	5347.35	5349.05	5349.05	5349.51	0.002999	5.48	75.27	85.51
1.01												
Upper Goose	Reach 1	3849	FLOODWAY	412.00	5347.35	5349.05	5349.05	5349.63	0.003373	6.09	67.69	60.00
1.01												
Upper Goose	Reach 2	4074	100-YR	209.00	5348.00	5350.38		5350.41	0.006563	1.63	166.09	116.81
0.19												
Upper Goose	Reach 2	4074	FLOODWAY	209.00	5348.00	5350.64		5350.70	0.009598	2.12	106.43	43.41
0.23												
Upper Goose	Reach 2	4269	100-YR	209.00	5349.00	5351.48		5351.50	0.004852	1.45	171.60	98.60
0.16												
Upper Goose	Reach 2	4269	FLOODWAY	209.00	5349.00	5351.98		5352.02	0.005052	1.68	131.34	45.00
0.17												
Upper Goose	Reach 2	4493	100-YR	209.00	5350.00	5352.68		5352.71	0.005964	1.63	161.24	106.06
0.18												
Upper Goose	Reach 2	4493	FLOODWAY	209.00	5350.00	5353.14		5353.18	0.005289	1.72	129.92	46.00
0.18												
Upper Goose	Reach 2	4690	100-YR	209.00	5353.00	5354.53	5353.86	5354.58	0.017476	1.99	123.57	125.62
0.29												
Upper Goose	Reach 2	4690	FLOODWAY	209.00	5353.00	5354.91	5353.90	5355.00	0.019554	2.44	87.88	55.00
0.31												
Upper Goose	Reach 2	4903	100-YR	209.00	5354.56	5356.49	5355.43	5356.51	0.005492	1.28	208.22	209.05
0.17												
Upper Goose	Reach 2	4903	FLOODWAY	209.00	5354.56	5356.97	5355.42	5357.00	0.005493	1.49	147.85	66.00
0.17												
Upper Goose	Reach 2	5091	100-YR	209.00	5356.04	5358.04	5357.24	5358.09	0.014114	2.07	133.80	115.72
0.27												
Upper Goose	Reach 2	5091	FLOODWAY	209.00	5356.04	5358.50	5357.25	5358.58	0.013789	2.37	97.21	45.00
0.27												
Upper Goose	Reach 2	5320	100-YR	209.00	5361.60	5362.56		5362.75	0.030777	3.98	62.15	96.80
0.75												
Upper Goose	Reach 2	5320	FLOODWAY	209.00	5361.60	5363.00	5362.82	5363.43	0.034285	5.24	39.90	30.19
0.80												
Upper Goose	Reach 3	5405	100-YR	93.00	5362.90	5363.92	5363.92	5364.12	0.004123	3.59	25.93	61.09
0.97												
Upper Goose	Reach 3	5405	FLOODWAY	209.00	5362.90	5364.20	5364.20	5364.56	0.003879	4.85	43.07	61.08
1.02												
Upper Goose	Reach 3	5456	100-YR	93.00	5364.10	5364.91	5364.91	5365.14	0.004604	3.85	24.53	58.86
1.03												
Upper Goose	Reach 3	5456	FLOODWAY	209.00	5364.10	5365.23	5365.23	5365.61	0.003709	4.97	43.24	58.86
1.01												
Upper Goose	Reach 4	5547	100-YR	342.00	5367.28	5368.42	5368.42	5368.74	0.003616	4.72	89.51	240.81
0.99												
Upper Goose	Reach 4	5547	FLOODWAY	458.00	5367.28	5368.70	5368.70	5369.22	0.003183	5.81	83.85	81.64
0.99												
Upper Goose	Reach 4	5742	100-YR	342.00	5370.50	5371.15	5371.15	5371.39	0.021000	3.93	86.92	180.84
1.00												
Upper Goose	Reach 4	5742	FLOODWAY	458.00	5370.50	5371.47	5371.47	5371.85	0.012758	4.98	92.03	120.00
1.00												
Upper Goose	Reach 4	5863	100-YR	342.00	5372.30	5373.36	5373.36	5373.67	0.004019	4.47	76.61	127.69
1.02												
Upper Goose	Reach 4	5863	FLOODWAY	458.00	5372.30	5373.66	5373.66	5374.11	0.003296	5.39	84.91	90.00
0.98												
Upper Goose	Reach 5	6025	100-YR	492.00	5373.30	5375.23	5375.23	5375.79	0.003447	6.46	106.10	110.22
1.05												
Upper Goose	Reach 5	6025	FLOODWAY	492.00	5373.30	5375.41	5375.41	5376.10	0.003300	6.67	73.73	54.65
1.01												

Upper Goose	Reach 5	6028	100-YR	492.00	5373.40	5375.42	5375.23	5375.81	0.002098	5.49	129.27	118.60
0.84												
Upper Goose	Reach 5	6028	FLOODWAY	492.00	5373.40	5375.51	5375.43	5376.12	0.002708	6.26	78.54	55.08
0.92												
Upper Goose	Reach 6	6114	100-YR	320.00	5374.50	5376.10	5376.10	5376.56	0.003537	5.47	58.50	64.51
1.01												
Upper Goose	Reach 6	6114	FLOODWAY	492.00	5374.50	5376.43	5376.43	5376.99	0.003135	6.02	81.77	70.94
0.99												
Upper Goose	Reach 6	6232	100-YR	294.00	5377.30	5378.35	5378.35	5378.75	0.003598	5.05	59.81	81.10
1.00												
Upper Goose	Reach 6	6232	FLOODWAY	466.00	5377.30	5378.76	5378.76	5379.39	0.003316	6.36	73.32	60.00
1.01												
Upper Goose	Reach 6	6298	100-YR	294.00	5377.90	5379.18	5379.18	5379.62	0.003487	5.31	58.86	76.23
1.01												
Upper Goose	Reach 6	6298	FLOODWAY	466.00	5377.90	5379.61	5379.61	5380.29	0.003195	6.59	70.73	53.00
1.01												
Upper Goose	Reach 6	6383	100-YR	294.00	5378.60	5379.84	5379.84	5380.26	0.003610	5.31	81.06	111.53
1.02												
Upper Goose	Reach 6	6383	FLOODWAY	466.00	5378.60	5380.28	5380.28	5380.94	0.003228	6.51	71.60	55.00
1.01												
Upper Goose	Reach 7	6464	100-YR	466.00	5378.75	5380.68	5380.68	5381.24	0.002985	6.04	80.30	94.64
0.98												
Upper Goose	Reach 7	6464	FLOODWAY	466.00	5378.75	5380.73	5380.73	5381.38	0.002956	6.44	72.73	55.00
0.98												
Upper Goose	Reach 7	6736	100-YR	466.00	5380.70	5382.11	5382.11	5382.59	0.003205	5.58	84.13	92.44
0.98												
Upper Goose	Reach 7	6736	FLOODWAY	466.00	5380.70	5382.45	5382.45	5383.10	0.003183	6.45	72.22	55.00
0.99												
Upper Goose	Reach 7	6934	100-YR	502.00	5380.67	5382.74	5382.45	5383.05	0.001702	5.24	168.06	362.08
0.77												
Upper Goose	Reach 7	6934	FLOODWAY	502.00	5380.67	5383.16	5382.58	5383.44	0.000943	4.63	152.63	85.00
0.59												
Upper Goose	Reach 7	7122	100-YR	502.00	5380.14	5383.07	5382.27	5383.19	0.000308	3.24	397.11	394.66
0.36												
Upper Goose	Reach 7	7122	FLOODWAY	502.00	5380.14	5383.41	5382.23	5383.54	0.000253	3.19	271.86	130.00
0.33												
Upper Goose	Reach 7	7160	100-YR	502.00	5381.00	5383.19		5383.20	0.000029	0.85	658.13	462.38
0.11												
Upper Goose	Reach 7	7160	FLOODWAY	502.00	5381.00	5383.51		5383.55	0.000073	1.52	330.30	132.00
0.17												
Upper Goose	Reach 7	7239	100-YR	502.00	5380.64	5383.20		5383.20	0.000056	0.59	890.87	518.91
0.07												
Upper Goose	Reach 7	7239	FLOODWAY	502.00	5380.64	5383.54		5383.56	0.000163	1.20	417.23	154.00
0.13												

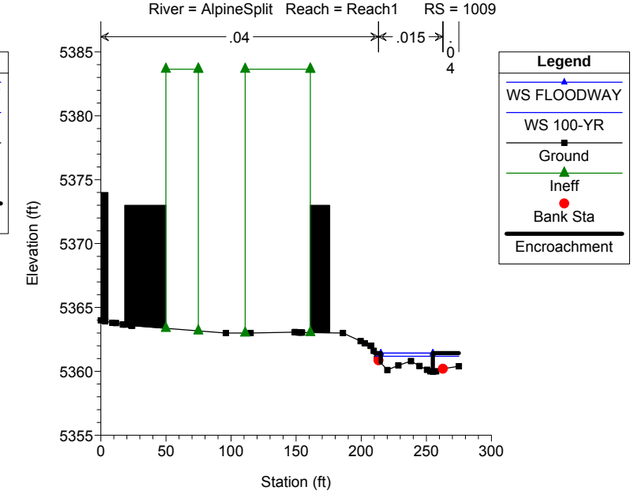
UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = AlpineSplit Reach = Reach1 RS = 1435



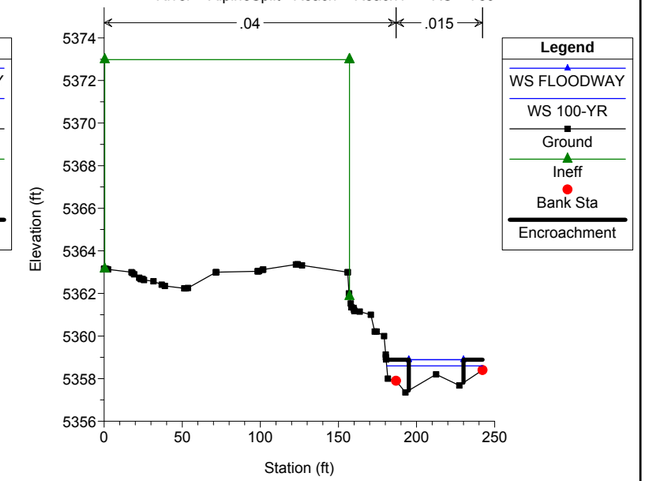
UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = AlpineSplit Reach = Reach1 RS = 1177



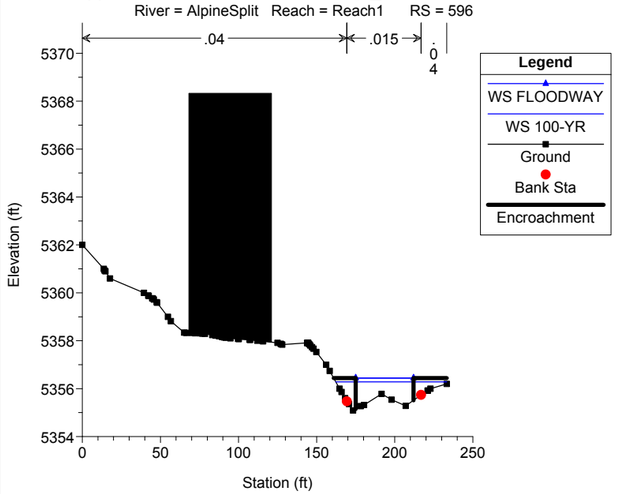
UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = AlpineSplit Reach = Reach1 RS = 1009



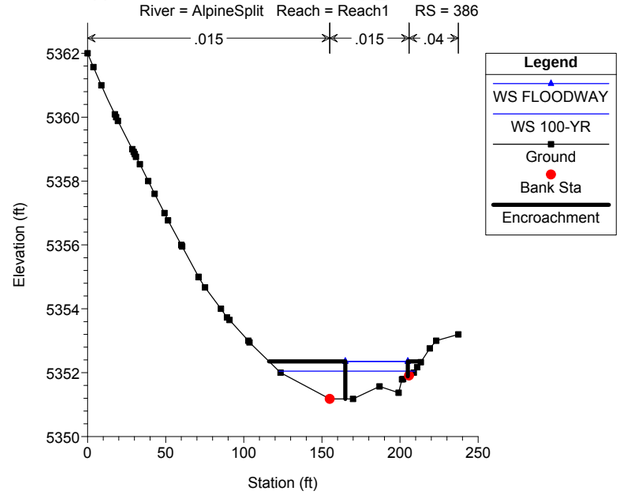
UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = AlpineSplit Reach = Reach1 RS = 789



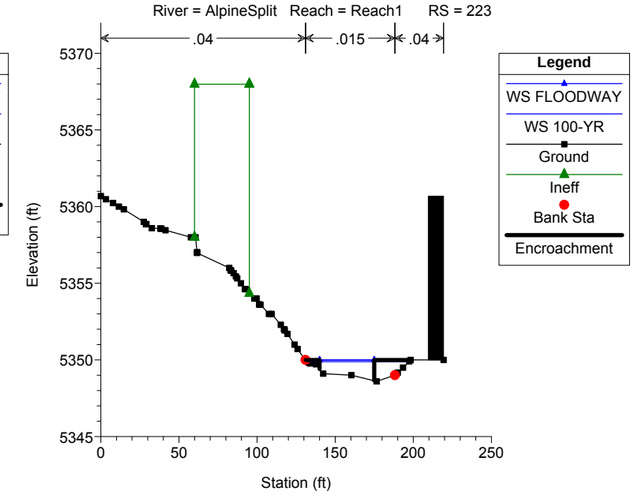
UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = AlpineSplit Reach = Reach1 RS = 596



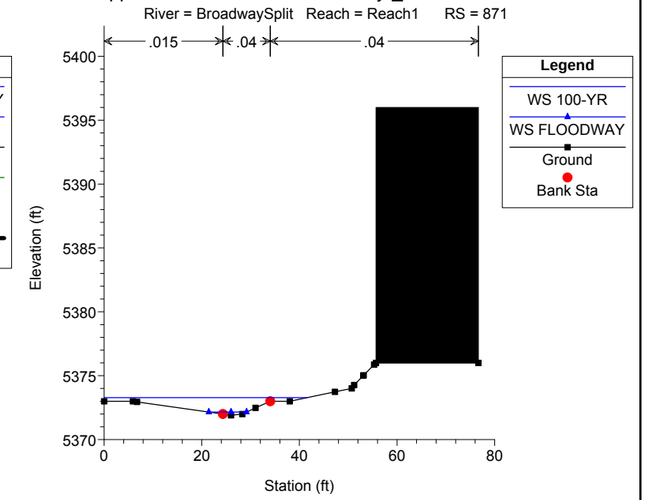
UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = AlpineSplit Reach = Reach1 RS = 386



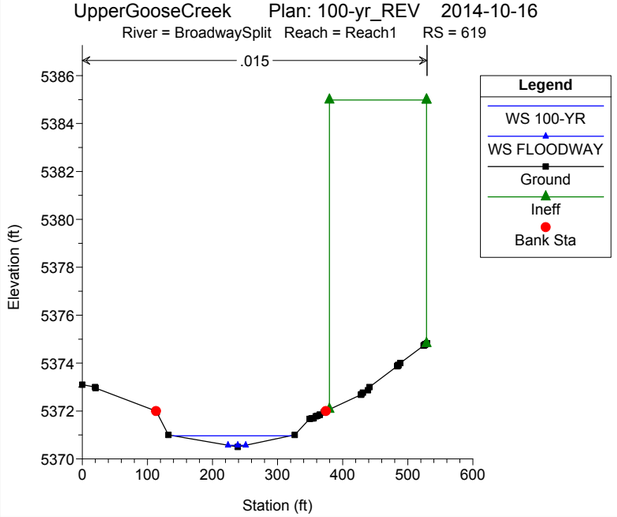
UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = AlpineSplit Reach = Reach1 RS = 223



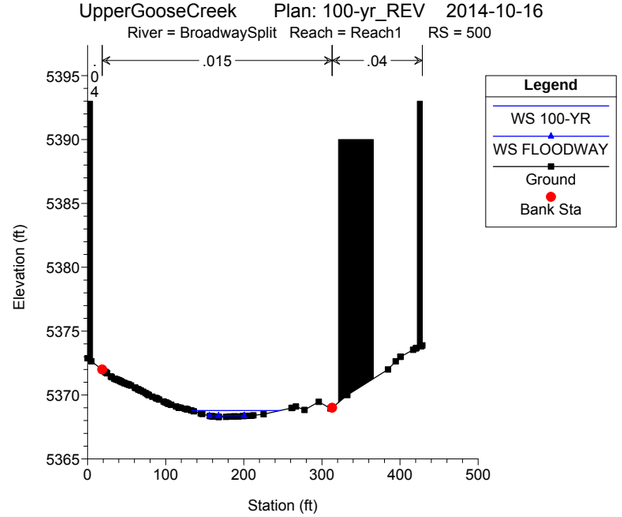
UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = BroadwaySplit Reach = Reach1 RS = 871



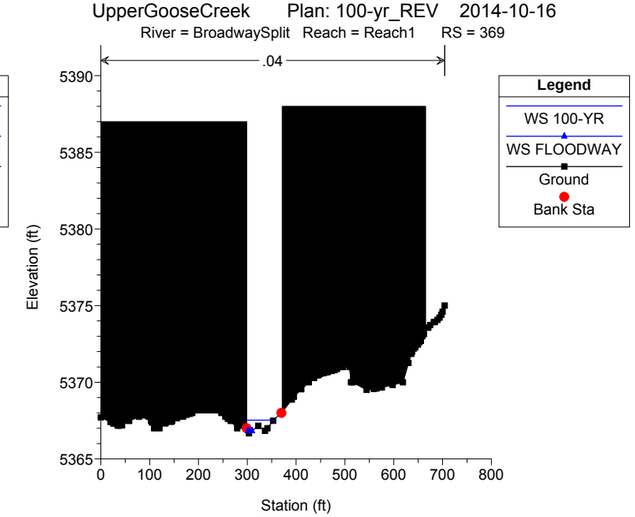
UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = BroadwaySplit Reach = Reach1 RS = 619



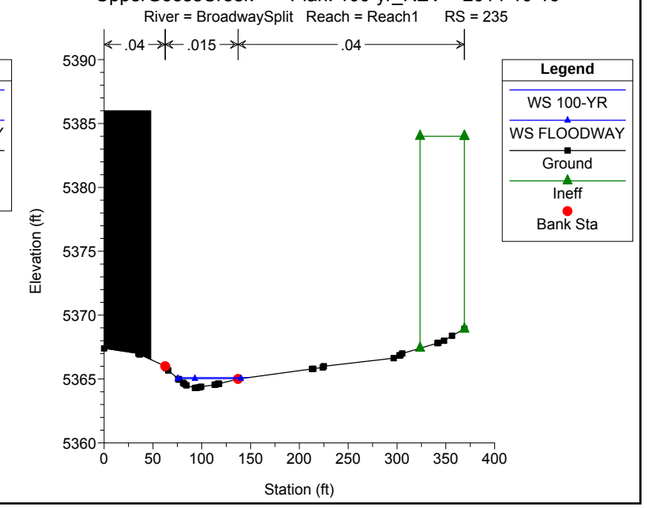
UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = BroadwaySplit Reach = Reach1 RS = 500



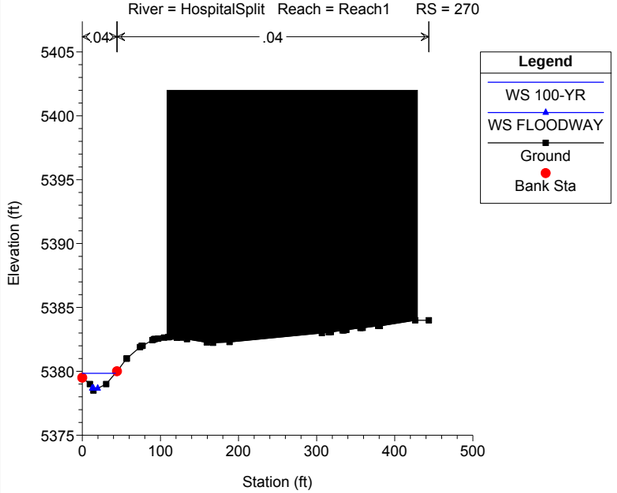
UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = BroadwaySplit Reach = Reach1 RS = 369



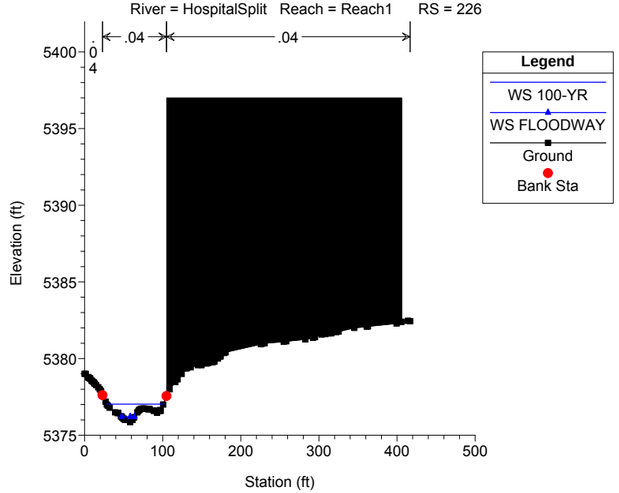
UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = BroadwaySplit Reach = Reach1 RS = 235



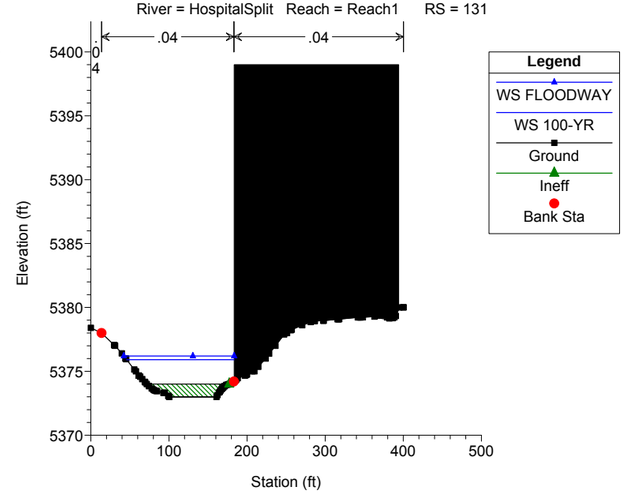
UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = HospitalSplit Reach = Reach1 RS = 270



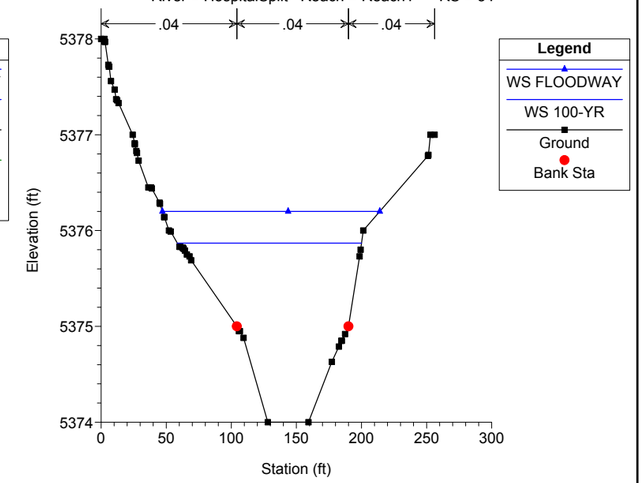
UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = HospitalSplit Reach = Reach1 RS = 226



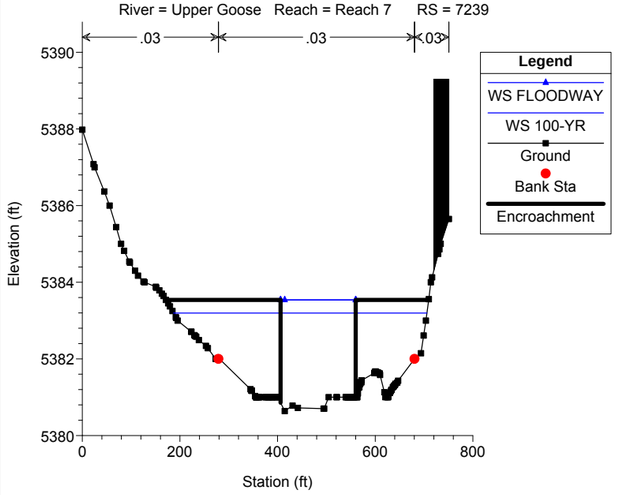
UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = HospitalSplit Reach = Reach1 RS = 131



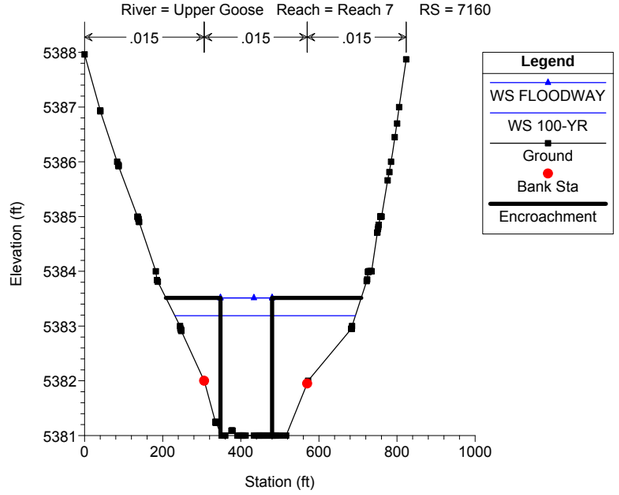
UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = HospitalSplit Reach = Reach1 RS = 34



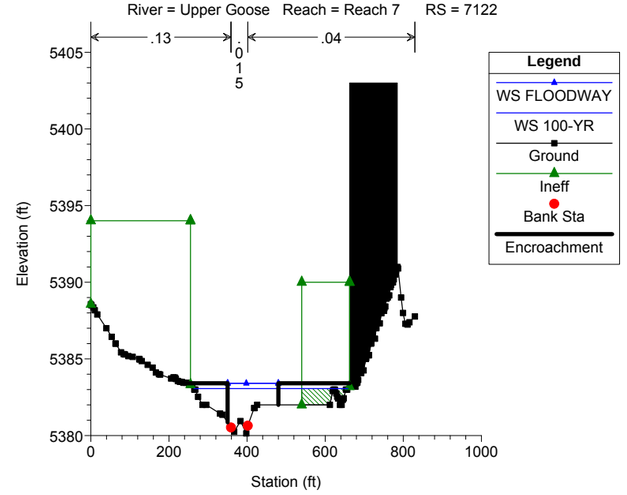
UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = Upper Goose Reach = Reach 7 RS = 7239



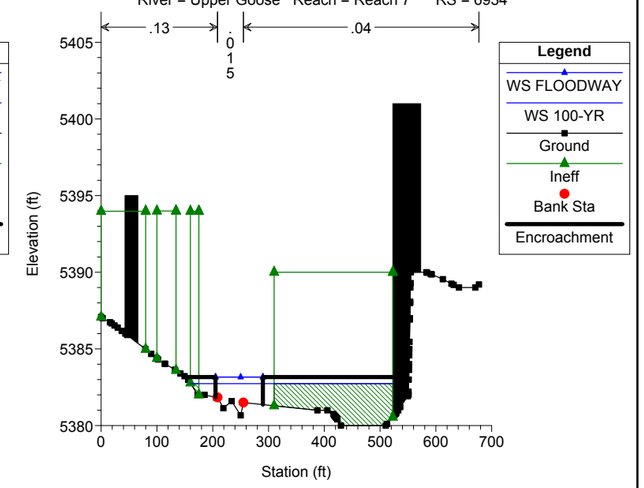
UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = Upper Goose Reach = Reach 7 RS = 7160



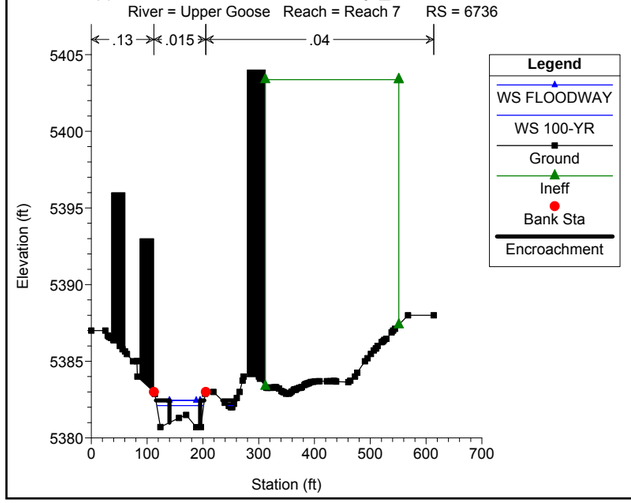
UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = Upper Goose Reach = Reach 7 RS = 7122



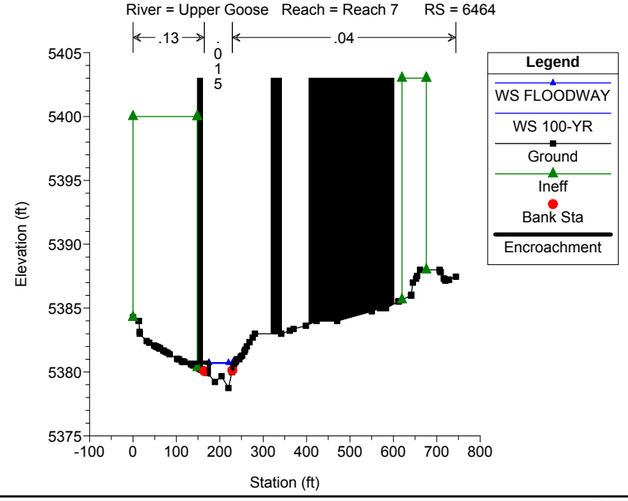
UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = Upper Goose Reach = Reach 7 RS = 6934



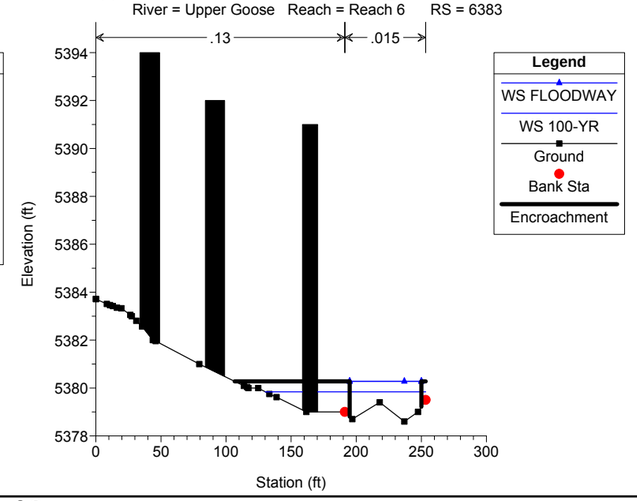
UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = Upper Goose Reach = Reach 7 RS = 6736



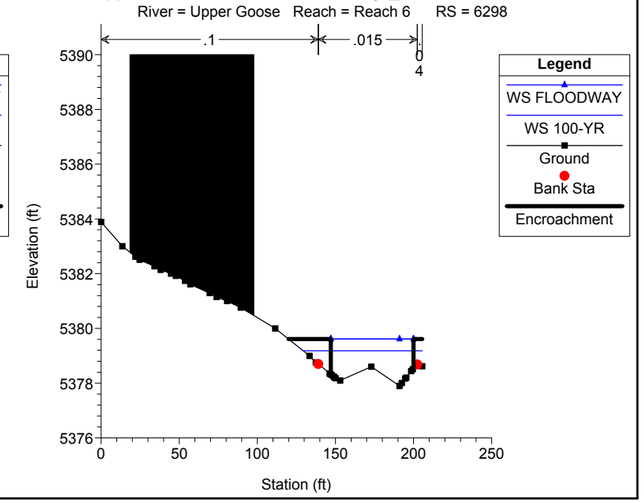
UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = Upper Goose Reach = Reach 7 RS = 6464



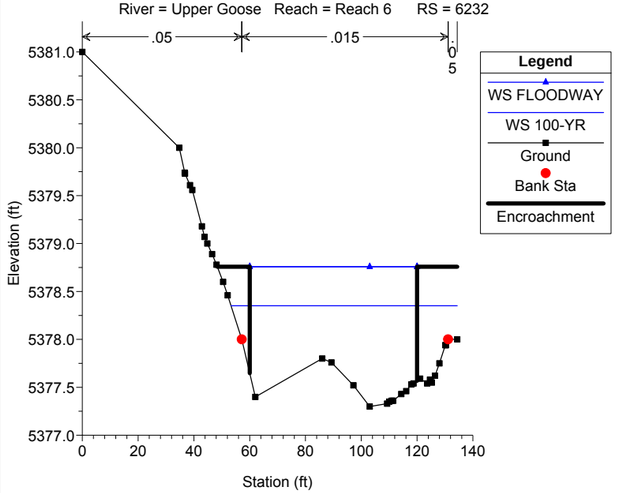
UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = Upper Goose Reach = Reach 6 RS = 6383



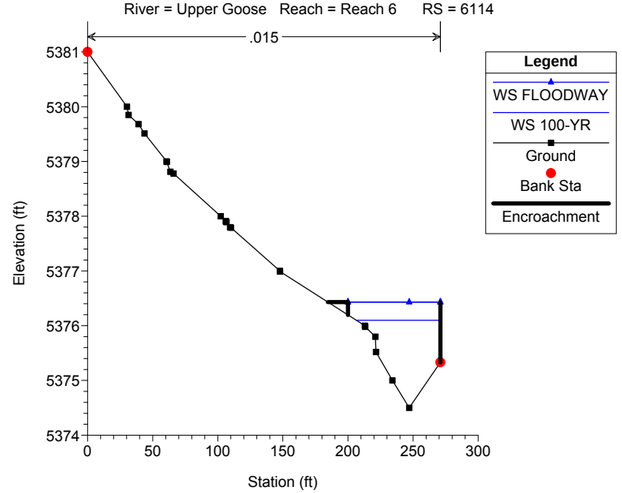
UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = Upper Goose Reach = Reach 6 RS = 6298



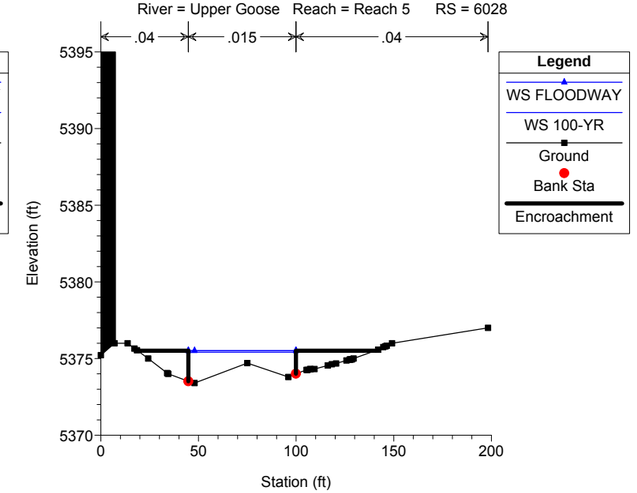
UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = Upper Goose Reach = Reach 6 RS = 6232



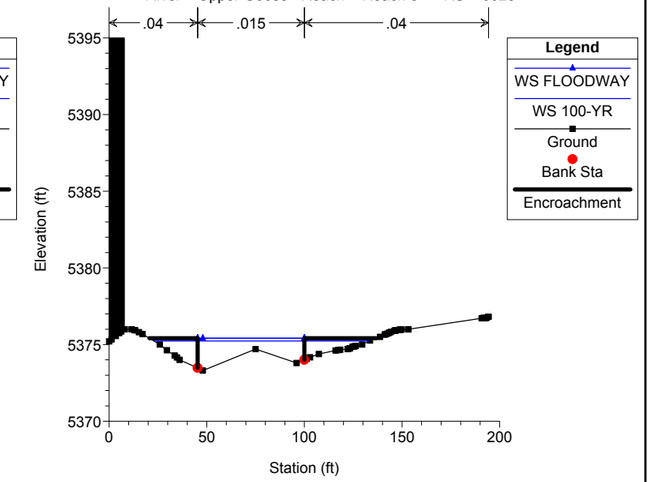
UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = Upper Goose Reach = Reach 6 RS = 6114



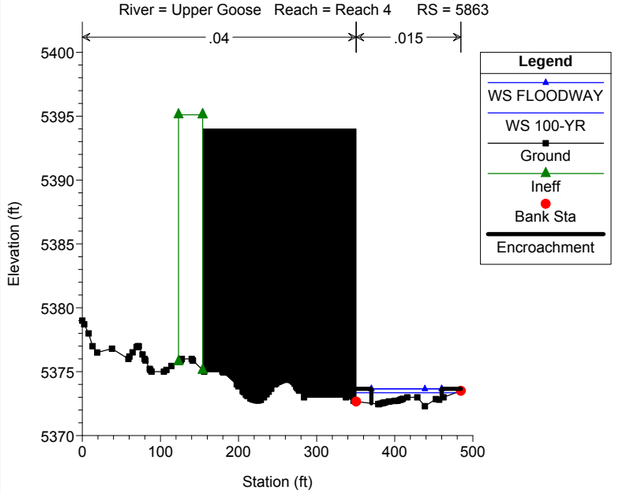
UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = Upper Goose Reach = Reach 5 RS = 6028



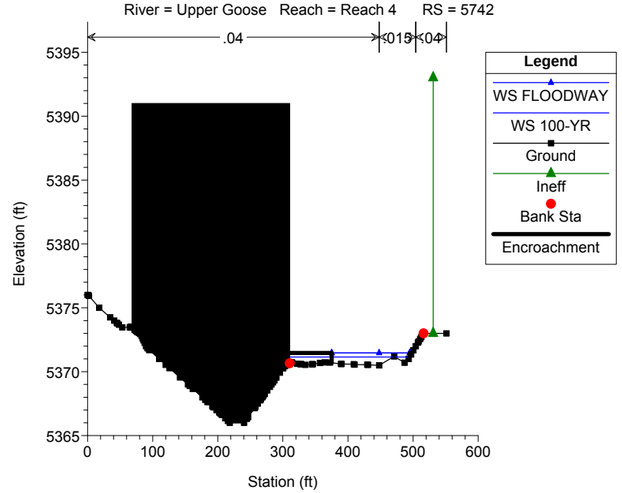
UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = Upper Goose Reach = Reach 5 RS = 6025



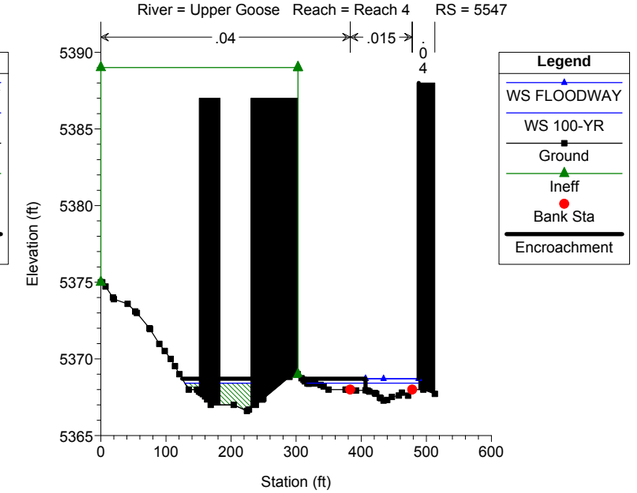
UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = Upper Goose Reach = Reach 4 RS = 5863



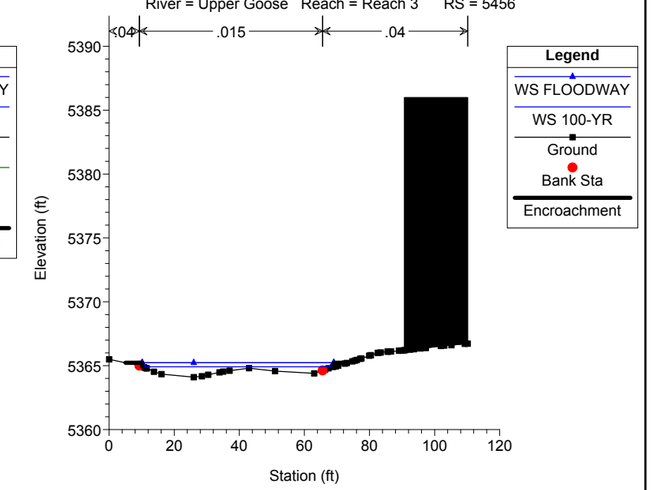
UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = Upper Goose Reach = Reach 4 RS = 5742



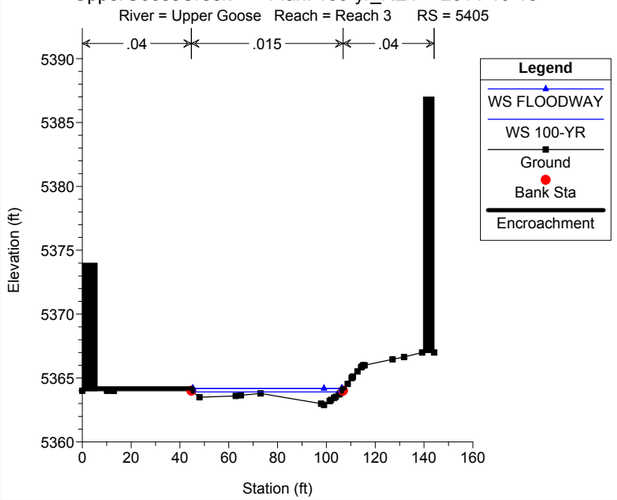
UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = Upper Goose Reach = Reach 4 RS = 5547



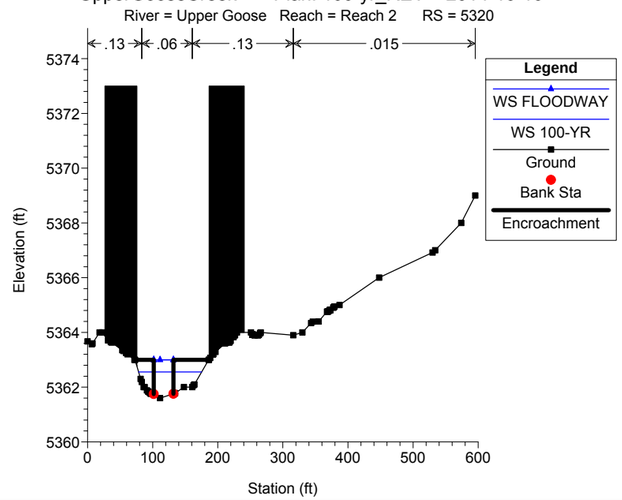
UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = Upper Goose Reach = Reach 3 RS = 5456



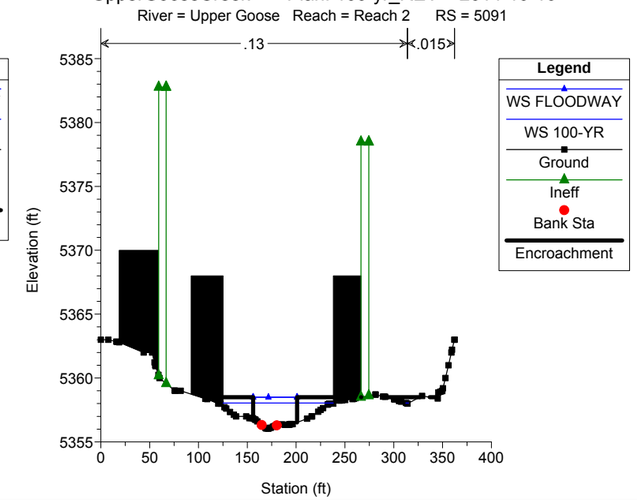
UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = Upper Goose Reach = Reach 3 RS = 5405



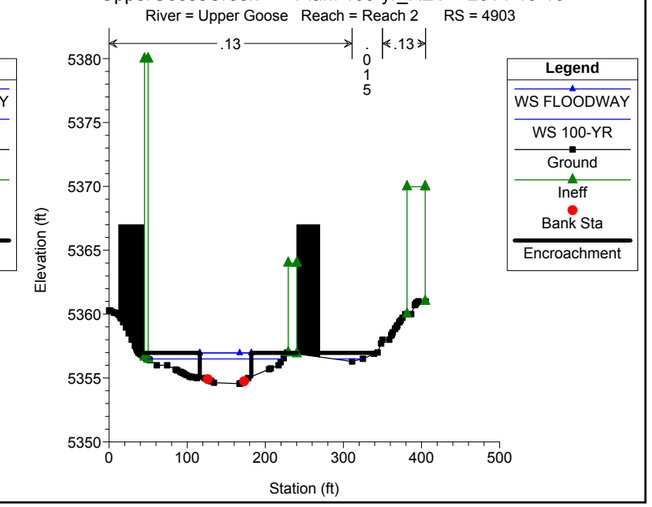
UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = Upper Goose Reach = Reach 2 RS = 5320

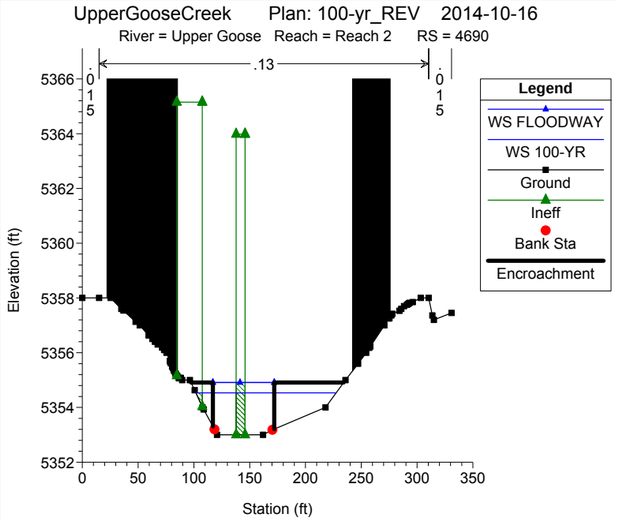


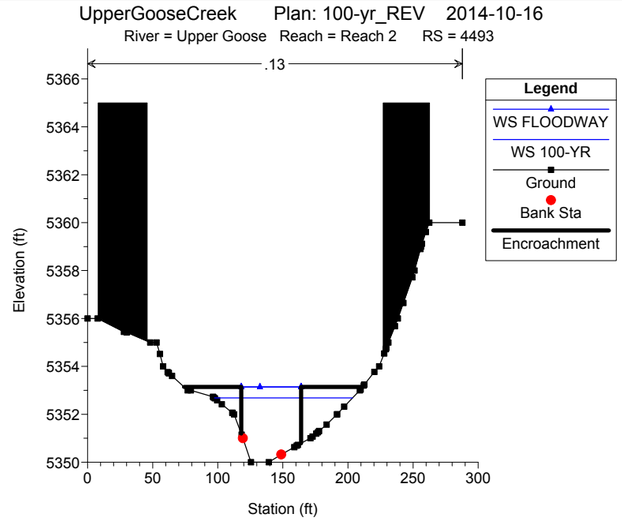
UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = Upper Goose Reach = Reach 2 RS = 5091

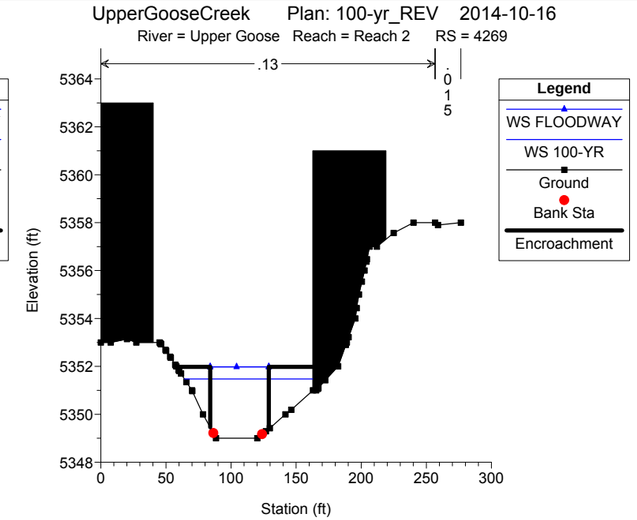


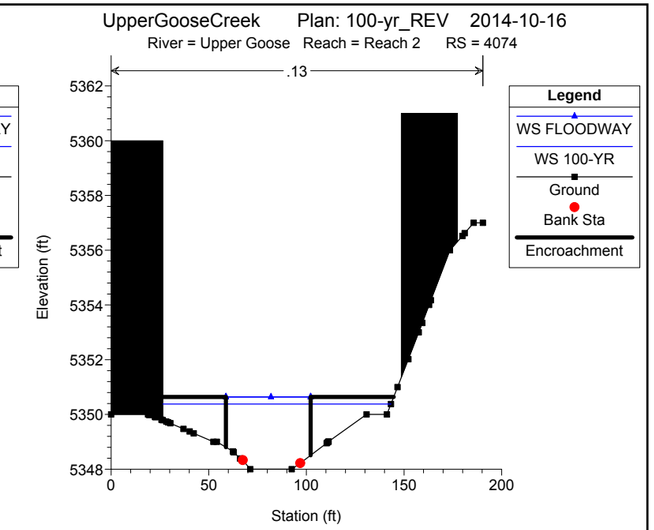
UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = Upper Goose Reach = Reach 2 RS = 4903

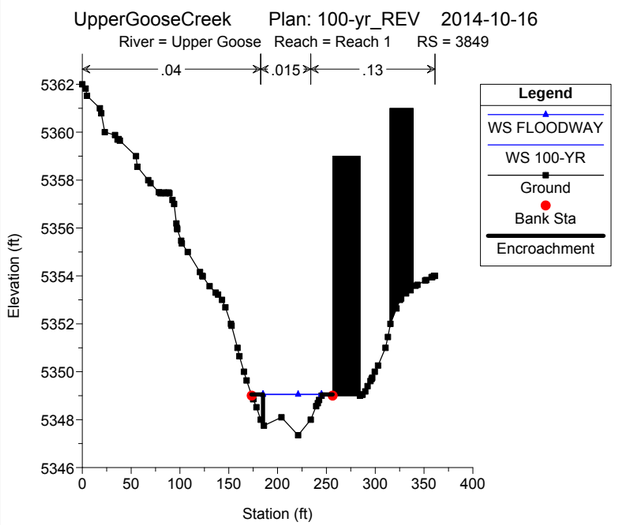


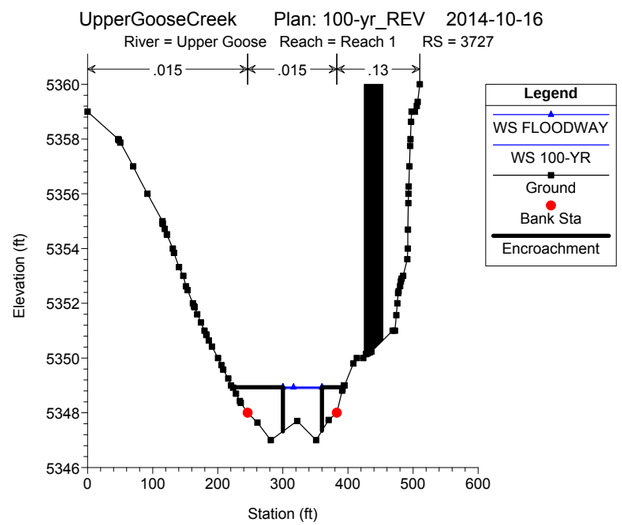

UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = Upper Goose Reach = Reach 2 RS = 4690
Legend
WS FLOODWAY
WS 100-YR
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)

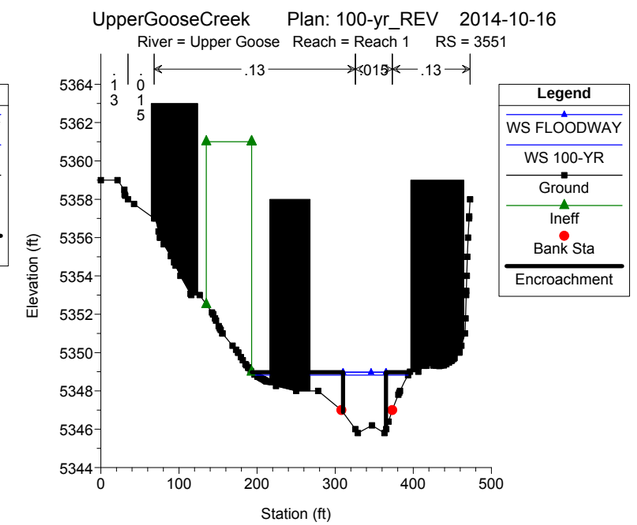

UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = Upper Goose Reach = Reach 2 RS = 4493
Legend
WS FLOODWAY
WS 100-YR
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)

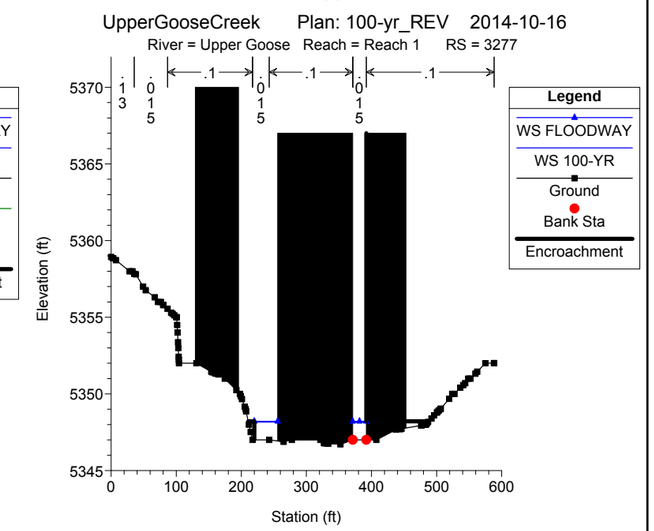

UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = Upper Goose Reach = Reach 2 RS = 4269
Legend
WS FLOODWAY
WS 100-YR
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)

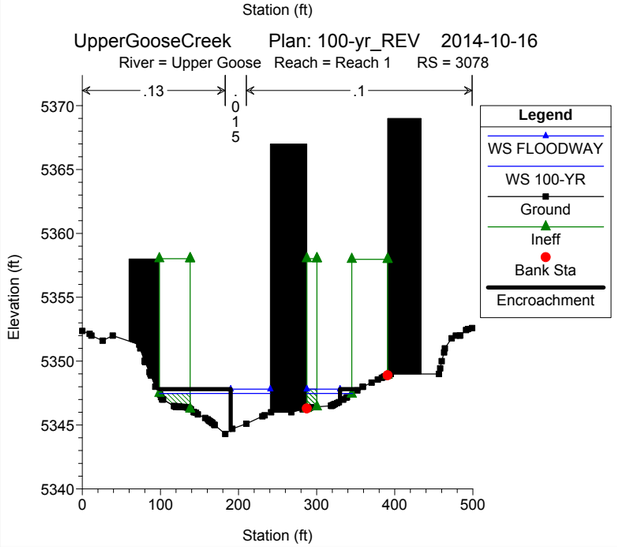

UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = Upper Goose Reach = Reach 2 RS = 4074
Legend
WS FLOODWAY
WS 100-YR
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)

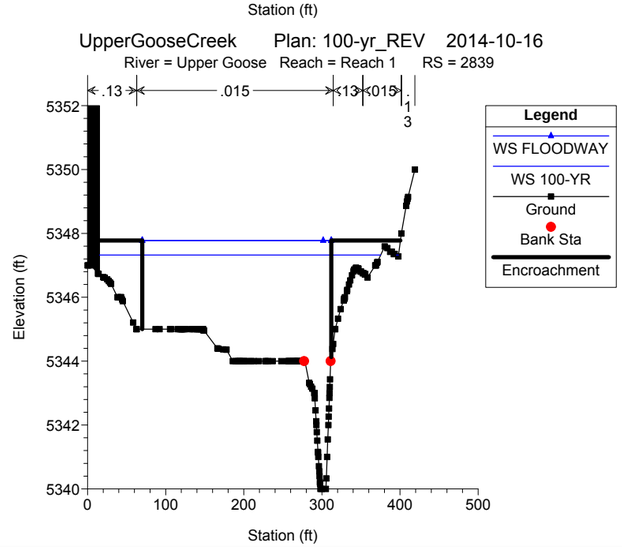

UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = Upper Goose Reach = Reach 1 RS = 3849
Legend
WS FLOODWAY
WS 100-YR
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)

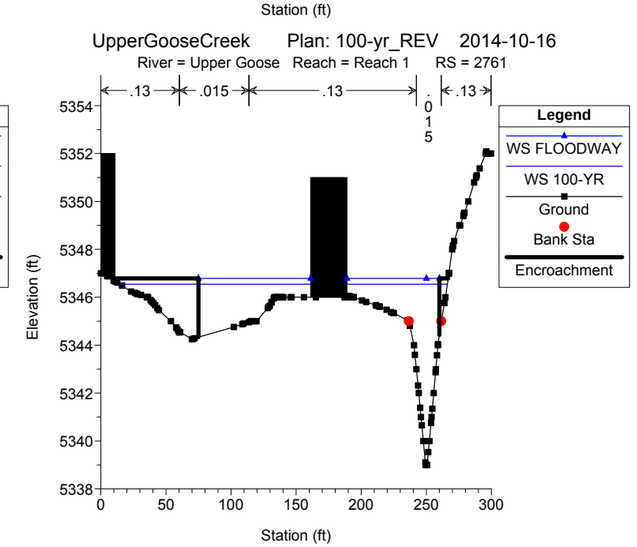

UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = Upper Goose Reach = Reach 1 RS = 3727
Legend
WS FLOODWAY
WS 100-YR
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)

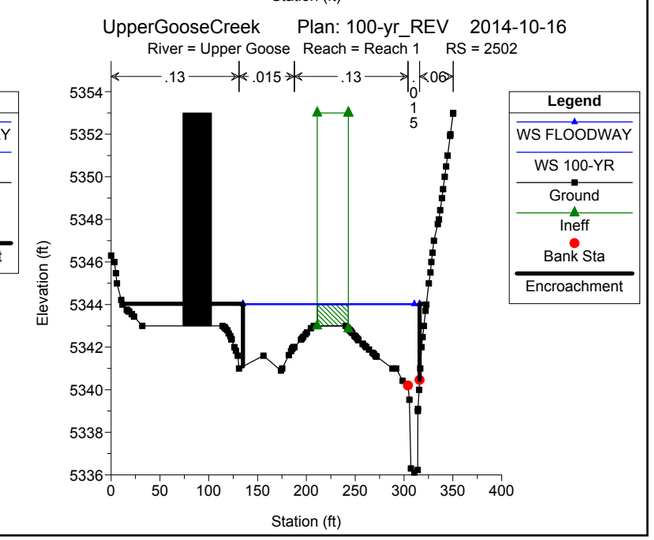

UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = Upper Goose Reach = Reach 1 RS = 3551
Legend
WS FLOODWAY
WS 100-YR
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = Upper Goose Reach = Reach 1 RS = 3277
Legend
WS FLOODWAY
WS 100-YR
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)

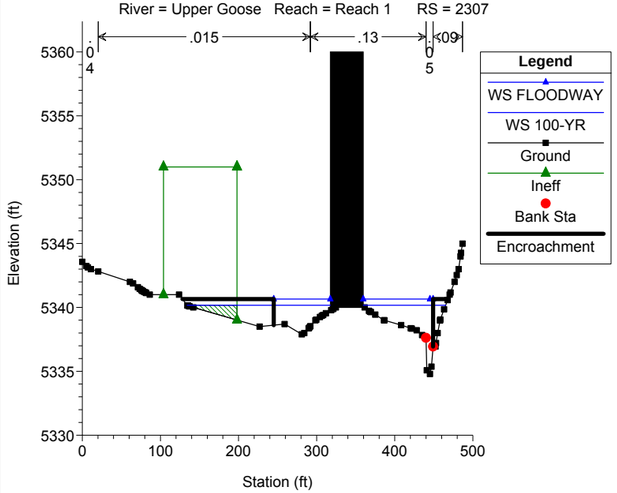

UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = Upper Goose Reach = Reach 1 RS = 3078
Legend
WS FLOODWAY
WS 100-YR
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = Upper Goose Reach = Reach 1 RS = 2839
Legend
WS FLOODWAY
WS 100-YR
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)

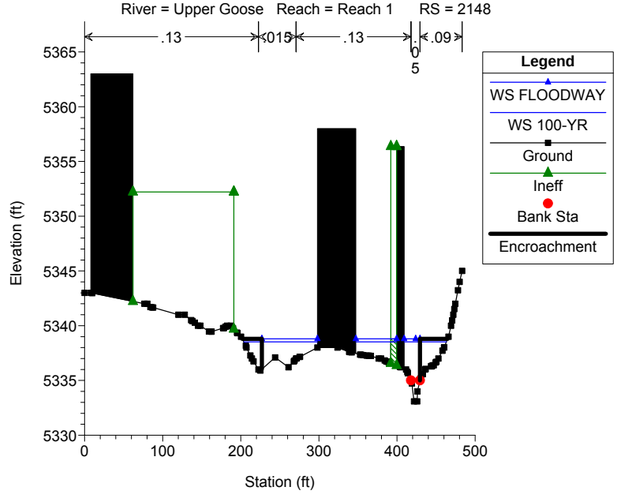

UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = Upper Goose Reach = Reach 1 RS = 2761
Legend
WS FLOODWAY
WS 100-YR
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = Upper Goose Reach = Reach 1 RS = 2502
Legend
WS FLOODWAY
WS 100-YR
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)

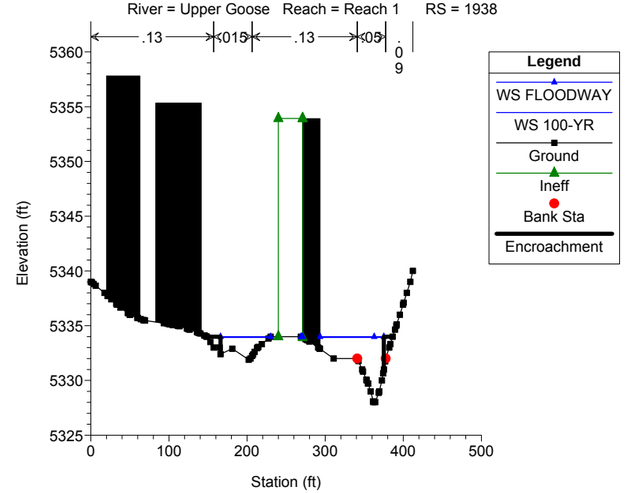
UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = Upper Goose Reach = Reach 1 RS = 2307



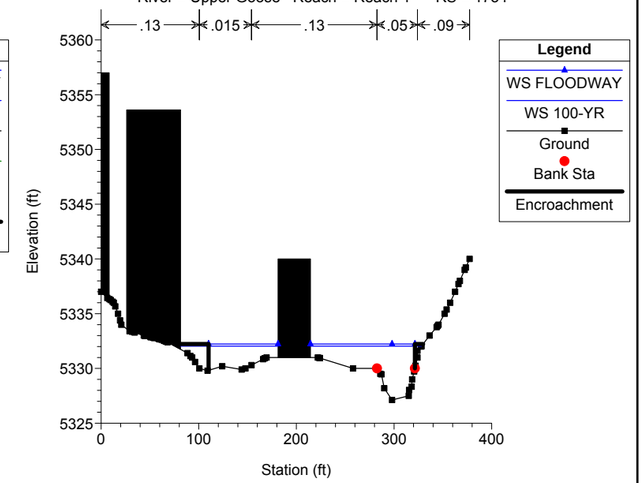
UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = Upper Goose Reach = Reach 1 RS = 2148



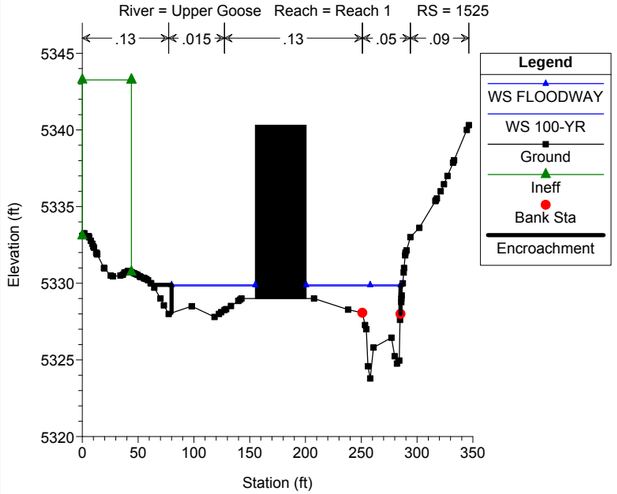
UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = Upper Goose Reach = Reach 1 RS = 1938



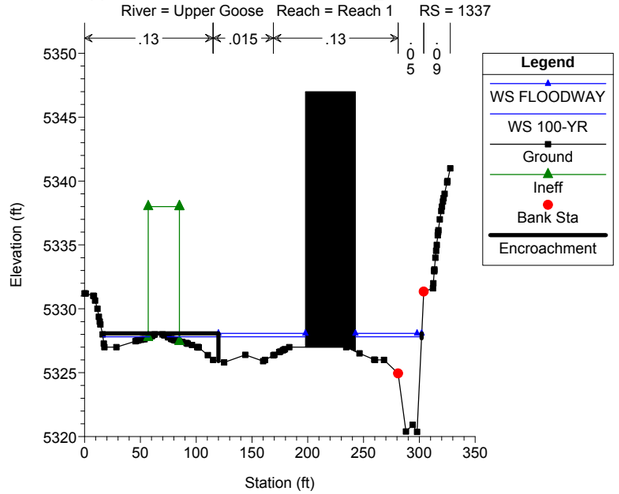
UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = Upper Goose Reach = Reach 1 RS = 1734



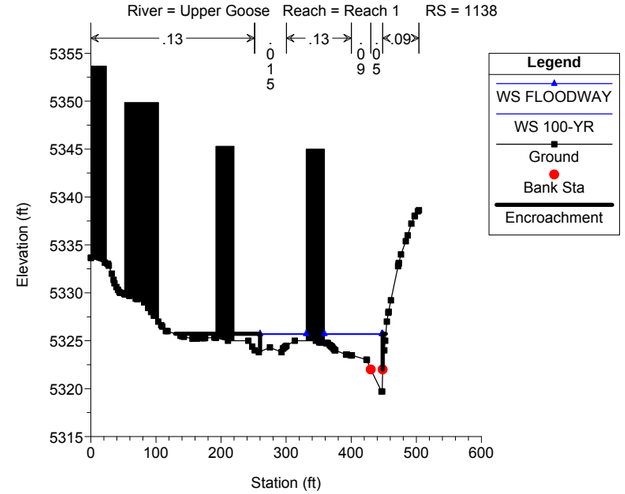
UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = Upper Goose Reach = Reach 1 RS = 1525



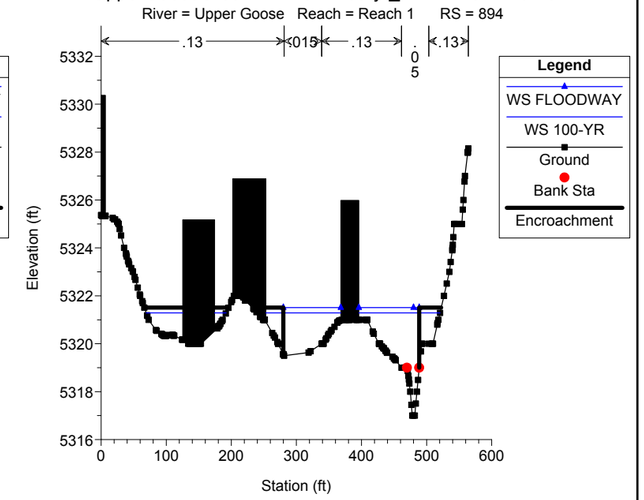
UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = Upper Goose Reach = Reach 1 RS = 1337



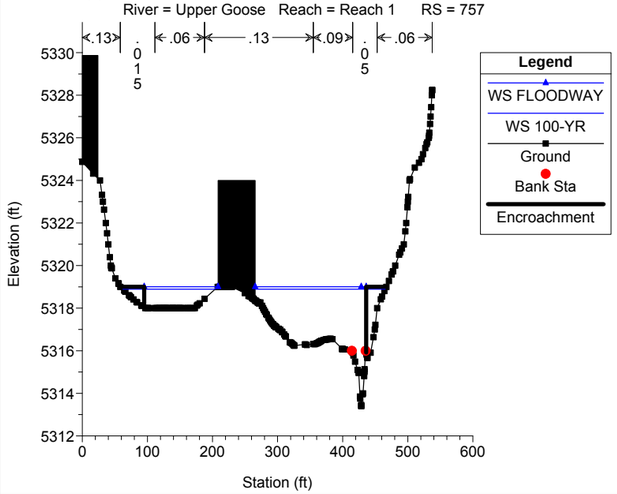
UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = Upper Goose Reach = Reach 1 RS = 1138



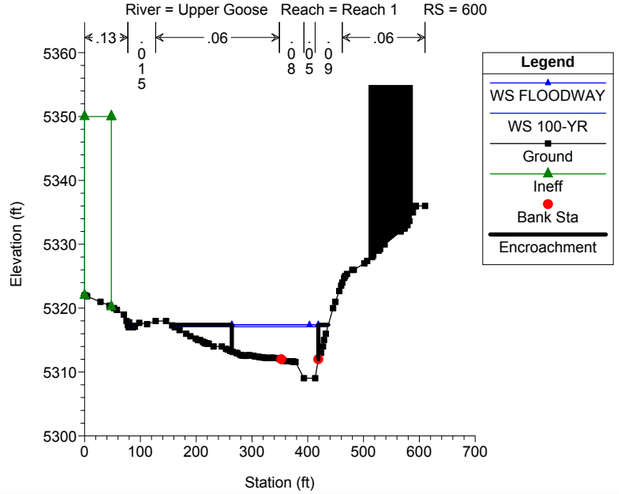
UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = Upper Goose Reach = Reach 1 RS = 894



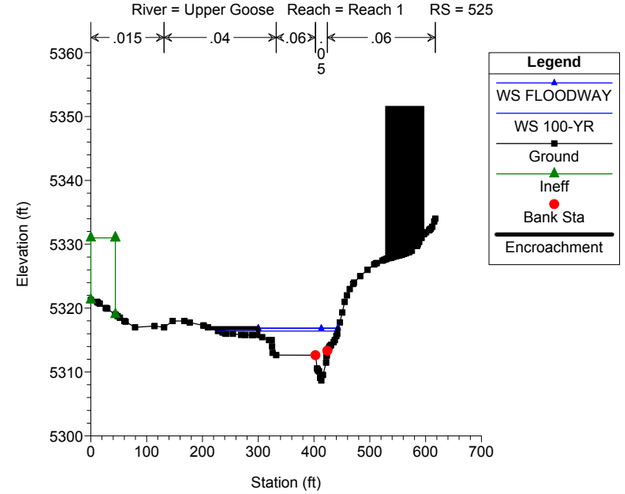
UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = Upper Goose Reach = Reach 1 RS = 757



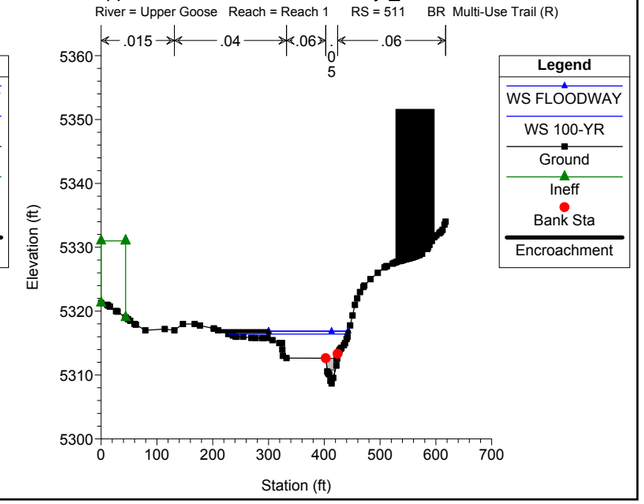
UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = Upper Goose Reach = Reach 1 RS = 600

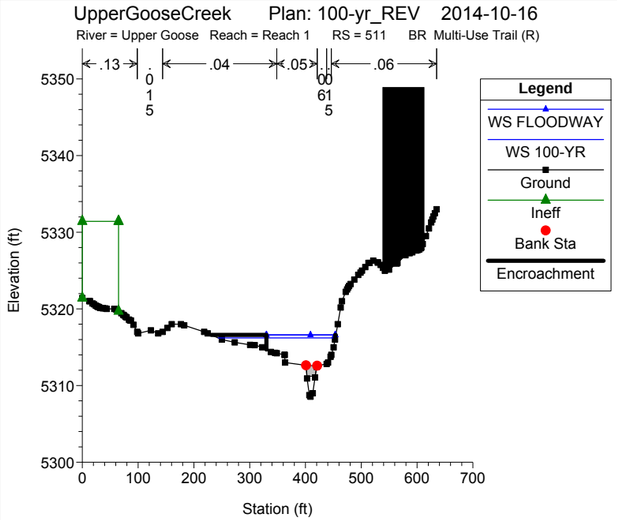


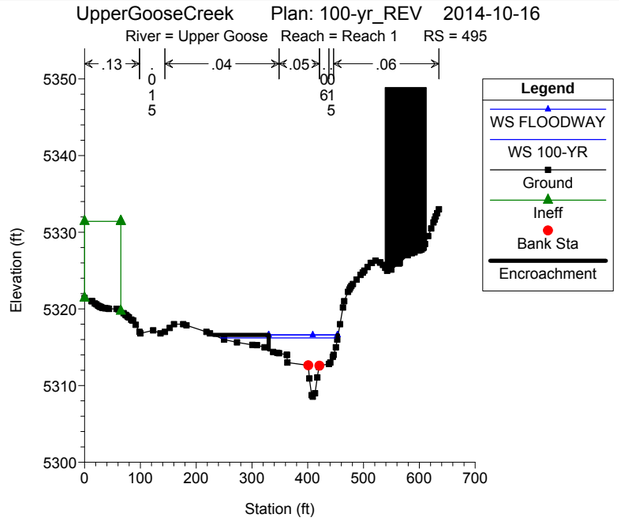
UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = Upper Goose Reach = Reach 1 RS = 525

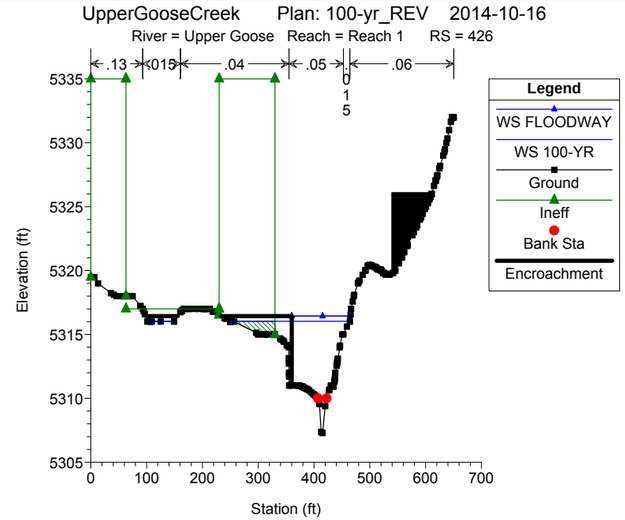


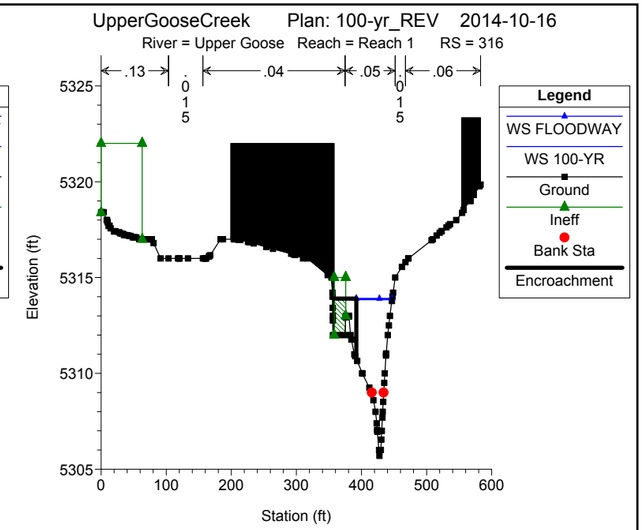
UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = Upper Goose Reach = Reach 1 RS = 511 BR Multi-Use Trail (R)

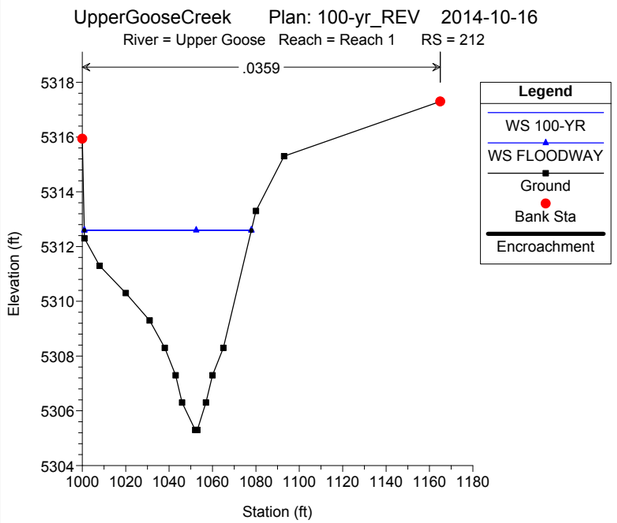



UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = Upper Goose Reach = Reach 1 RS = 511 BR Multi-Use Trail (R)
.13
.04
.05
.06
Elevation (ft)
Station (ft)
Legend
WS FLOODWAY
WS 100-YR
Ground
Ineff
Bank Sta
Encroachment


UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = Upper Goose Reach = Reach 1 RS = 495
.13
.04
.05
.06
Elevation (ft)
Station (ft)
Legend
WS FLOODWAY
WS 100-YR
Ground
Ineff
Bank Sta
Encroachment


UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = Upper Goose Reach = Reach 1 RS = 426
.13
.04
.05
.06
Elevation (ft)
Station (ft)
Legend
WS FLOODWAY
WS 100-YR
Ground
Ineff
Bank Sta
Encroachment


UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = Upper Goose Reach = Reach 1 RS = 316
.13
.04
.05
.06
Elevation (ft)
Station (ft)
Legend
WS FLOODWAY
WS 100-YR
Ground
Ineff
Bank Sta
Encroachment


UpperGooseCreek Plan: 100-yr_REV 2014-10-16
River = Upper Goose Reach = Reach 1 RS = 212
.0359
Elevation (ft)
Station (ft)
Legend
WS 100-YR
WS FLOODWAY
Ground
Bank Sta
Encroachment

```
                    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    X    X   X
          XXXXXXX  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     X  XXXXXX    XXXX        X    X   X    X   XXXXX



PROJECT DATA
Project Title: TwomileCanyonCreek
Project File : TwomileCanyonCreek.prj
Run Date and Time: 2014-11-03 8:17:36 AM

Project in English units


PLAN DATA

Plan Title: Conveyance_Zone
Plan File : p:\P\11022TGF\Hydraulics\HEC_RAS_PMR\TwomileCanyonCreek.p05

        Geometry Title: Conveyance_Zone
        Geometry File : p:\P\11022TGF\Hydraulics\HEC_RAS_PMR\TwomileCanyonCreek.g03

        Flow Title    : Conveyance_Zone
        Flow File     : p:\P\11022TGF\Hydraulics\HEC_RAS_PMR\TwomileCanyonCreek.f05

Plan Summary Information:
Number of:  Cross Sections =  325    Multiple Openings  =    0
            Culverts       =    5    Inline Structures  =    0
            Bridges        =    7    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         =  0.1
    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

Encroachment Data
   Equal Conveyance = True
   Left Offset      =        0
   Right Offset     =        0

River = TCC              Reach = 1
RS      Profile           Method  Value1  Value2
610     CZ                     1      35      80
499     CZ                     1      45      90
429     CZ                     1      35      85
331     CZ                     1      40      90
216     CZ                     1      50     135
39      CZ                     1     135     310

River = TCC              Reach = 5
RS      Profile           Method  Value1  Value2
11886   CZ                     1      29   51.56
11801   CZ                     1   16.14   39.06
11665   CZ                     1   27.56    49.1
11524   CZ                     1   36.57   60.42
11364   CZ                     1   70.29  107.57
11247   CZ                     1   59.69   90.95
11120   CZ                     1   47.21   82.36
11017   CZ                     1      75     100
10968   CZ                     1     105     130
10881   CZ                     1   60.25    92.7
10814   CZ                     1   43.41   96.65
10710   CZ                     1      45      70
10638   CZ                     1      90     125
10520   CZ                     1      65     110
10449   CZ                     1     135     160
10342   CZ                     1   72.73   124.9
10226   CZ                     1   73.73  122.29
10102   CZ                     1   68.41   97.03
10013   CZ                     1      94  118.53
9960    CZ                     1      75  111.66
9942    CZ                     1      75     110
9888    CZ                     1  113.35  129.65
9844    CZ                     1    65.3    86.9
9755    CZ                     1   70.07   91.32
9664    CZ                     1   77.18   90.16

River = TCC              Reach = 4
RS      Profile           Method  Value1  Value2
9501    CZ                     1     100     125
9475    CZ                     1     122     136
9452    CZ                     1  135.16  153.56
9423    CZ                     1   125.7     142
9374    CZ                     1     153     177
9260    CZ                     1   95.12  138.88
9226    CZ                     1    86.7  139.38
9176    CZ                     1   61.99  119.39
9123    CZ                     1       0      63

River = TCC              Reach = 3
RS      Profile           Method  Value1  Value2
9110    CZ                     1   26.15   45.44
9005    CZ                     1   85.79  108.14
8912    CZ                     1   66.15   84.22
8792    CZ                     1  133.83  149.71

River = TCC              Reach = 2
RS      Profile           Method  Value1  Value2
8675    CZ                     1  248.56  277.55
8573    CZ                     1  127.11  143.89
8525    CZ                     1    55.1   80.35
8474    CZ                     1      47      85
8448    CZ                     1      58      85
8437    CZ                     1      58     104
8413    CZ                     1      39      96
8395    CZ                     1      85     100
8367    CZ                     1     105     125
8276    CZ                     1   24.52   43.77
```

8215	CZ	1	25	50
8137	CZ	1	30.12	42.15
8109	CZ	1	18.51	33.6
8004	CZ	1	32	44.35
7898	CZ	1	114.84	127.25
7857	CZ	1	41.06	56.44
7844	CZ	1	38.55	52.84
7822	CZ	1	35	50
7767	CZ	1	75	95
7750	CZ	1	80	100
7743	CZ	1	90	120
7726	CZ	1	60	80
7713	CZ	1	74.69	84.47
7681	CZ	1	61.16	72.87
7608	CZ	1	57.36	71.34
7504	CZ	1	4.44	20.63
7430	CZ	1	45	85
7371	CZ	1	33.13	45.59
7359	CZ	1	39.7	54.56
7298	CZ	1	62.43	78.98
7226	CZ	1	26.09	41.2
7203	CZ	1	38.74	54.91
7173	CZ	1	56.93	73.97
7158	CZ	1	70.48	88.26
7138	CZ	1	132.99	151.52
7004	CZ	1	165	180
6880	CZ	1	70.54	87.79
6777	CZ	1	113.52	129.05
6760	CZ	1	111.59	131.45
6731	CZ	1	101.43	121.92
6637	CZ	1	102.72	123.7
6629	CZ	1	103.28	120.05
6595	CZ	1	113.08	132.92
6524	CZ	1	90.62	111.46
6515	CZ	1	91.23	113.28
6466	CZ	1	75.4	103.91
6454	CZ	1	83.59	103.39
6423	CZ	1	82	103
6372	CZ	1	83	96
6361	CZ	1	78	100
6303	CZ	1	137	185
6278	CZ	1	140	185
6265	CZ	1	140	180
6228	CZ	1	230	255
6175	CZ	1	205	230
6082	CZ	1	60	80
5996	CZ	1	65	93
5959	CZ	1	35	100
5900	CZ	1	58	120
5861	CZ	1	15	75
5763	CZ	1	25	125
5624	CZ	1	180.19	220
5439	CZ	1	180	275
5363	CZ	1	221.11	300.18
5288	CZ	1	240	320
5167	CZ	1	127.53	200
4996	CZ	1	240	300
4922	CZ	1	195	230
4840	CZ	1	117	152
4700	CZ	1	60	100
4630	CZ	1	300	340
4561	CZ	1	40	75
4486	CZ	1	35	70
4375	CZ	1	40	80
4209	CZ	1	40	75
4137	CZ	1	10	45
3976	CZ	1	10	45
3862	CZ	1	45	80
3677	CZ	1	50	85
3536	CZ	1	55	90
3458	CZ	1	50	95
3399	CZ	1	35	70
3310	CZ	1	45	80
3186	CZ	1	35	70
3018	CZ	1	45	85
2915	CZ	1	40	75
2862	CZ	1	10	40
2799	CZ	1	0	25
2689	CZ	1	0	25
2563	CZ	1	0	25
2490	CZ	1	2	25
2434	CZ	1	0	20
2294	CZ	1	40	80
2183	CZ	1	65	115
2084	CZ	1	45	90
1955	CZ	1	10	52
1763	CZ	1	40	85
1611	CZ	1	40	85
1466	CZ	1	50	95
1303	CZ	1	45	85
1161	CZ	1	45	85
1017	CZ	1	40	90
861	CZ	1	40	90
735	CZ	1	40	80

River = TCC_S1 Reach = 1

RS	Profile	Method	Value1	Value2
603	CZ	1	110	170
541	CZ	1	35	70
459	CZ	1	150	190
379	CZ	1	145	180
252	CZ	1	40	72
175	CZ	1	45	80
105	CZ	1	50	85

River = TCC_S1 Reach = 7

RS	Profile	Method	Value1	Value2
9130	CZ	1	10	110
9043	CZ	1	105	155
8909	CZ	1	125	180
8826	CZ	1	140	180

River = TCC_S1 Reach = 6

RS	Profile	Method	Value1	Value2
8699	CZ	1	5	45
8612	CZ	1	135	180
8447	CZ	1	305	362
8352	CZ	1	268	300
8109	CZ	1	210	280
7933	CZ	1	200	275
7712	CZ	1	60	94
7550	CZ	1	105.8	240.46
7408	CZ	1	130	195
7247	CZ	1	90	192
7148	CZ	1	195	235
6977	CZ	1	205	270
6770	CZ	1	235	300
6680	CZ	1	80	125
6559	CZ	1	110	144
6468	CZ	1	124.92	155

6392	CZ	1	83	130
6244	CZ	1	11	50
6177	CZ	1	75	115
6082	CZ	1	70	110
5944	CZ	1	150	225
5821	CZ	1	95	170
5697	CZ	1	160	210
5576	CZ	1	95	150

River = TCC_S1 Reach = 5

RS	Profile	Method	Value1	Value2
5433	CZ	1	16	35
5288	CZ	1	60	115
5122	CZ	1	175	233

River = TCC_S1 Reach = 4

RS	Profile	Method	Value1	Value2
4977	CZ	1	5	36.73
4935	CZ	1	37	65
4876	CZ	1	38	67
4785	CZ	1	11	29
4612	CZ	1	25	42
4529	CZ	1	42	69
4429	CZ	1	44	70
4324	CZ	1	20	50
4305	CZ	1	18	45

River = TCC_S1 Reach = 3

RS	Profile	Method	Value1	Value2
4186	CZ	1	49	92
4070	CZ	1	30	75
3915	CZ	1	37	85
3739	CZ	1	50	90
3537	CZ	1	65	110
3334	CZ	1	60	105
3157	CZ	1	36	70
2964	CZ	1	40	75
2722	CZ	1	36	70
2553	CZ	1	80	115
2421	CZ	1	55	90
2327	CZ	1	65	105
2243	CZ	1	65	110

River = TCC_S1 Reach = 2

RS	Profile	Method	Value1	Value2
2173	CZ	1	15	45
2143	CZ	1	45	75
2059	CZ	1	105	138
1983	CZ	1	47	75
1904	CZ	1	110	143
1837	CZ	1	125	160
1762	CZ	1	116	145
1682	CZ	1	25	40
1585	CZ	1	45	116
1462	CZ	1	45	75
1336	CZ	1	40	80
1215	CZ	1	40	80
1114	CZ	1	80	125
1053	CZ	1	45	75
934	CZ	1	40	70
802	CZ	1	25	57
703	CZ	1	28	60

River = TCC_S1_4TH Reach = 1

RS	Profile	Method	Value1	Value2
415	CZ	1	10	55
334	CZ	1	38	75
260	CZ	1	7	30
190	CZ	1	5	30
79	CZ	1	5	25

River = TCC_S1_ELDER Reach = 1

RS	Profile	Method	Value1	Value2
1548	CZ	1	37	66
1436	CZ	1	39	68
1296	CZ	1	33	61
1168	CZ	1	34	63
1028	CZ	1	32	60
880	CZ	1	32	61
772	CZ	1	40	71
670	CZ	1	37	67
536	CZ	1	40	70
459	CZ	1	25	55
320	CZ	1	45	75
234	CZ	1	45	75
162	CZ	1	45	75
91	CZ	1	50	75

River = TCC_S1_GRAPE Reach = 1

RS	Profile	Method	Value1	Value2
441	CZ	1	22	61
345	CZ	1	14	53
226	CZ	1	12	51
127	CZ	1	62	100
75	CZ	1	68	110

River = TCC_S1_GRAPE Reach = 2

RS	Profile	Method	Value1	Value2
766	CZ	1	64	75
751	CZ	1	70	85
665	CZ	1	70	86
623	CZ	1	80	95
533	CZ	1	70	90

River = TCC_S1_HAWTHORN Reach = 1

RS	Profile	Method	Value1	Value2
984	CZ	1	31	75
763	CZ	1	35	67
539	CZ	1	30	60
366	CZ	1	30	58
257	CZ	1	12	53
157	CZ	1	12	53
46	CZ	1	14	58

River = TCC_S2 Reach = 1

RS	Profile	Method	Value1	Value2
7815	CZ	1	50	80
7766	CZ	1	38	60
7708	CZ	1	10	74
7625	CZ	1	119	150
7510	CZ	1	143.28	209
7371	CZ	1	160	230
7287	CZ	1	220	280
7123	CZ	1	318	350
6941	CZ	1	275	325
6743	CZ	1	343	370
6656	CZ	1	180	250
6524	CZ	1	195	255
6385	CZ	1	195	305
6313	CZ	1	214.06	269.85

6165	CZ	1	150	200
6087	CZ	1	165	222
5962	CZ	1	25	80
5725	CZ	1	220	245
5571	CZ	1	95	183
5389	CZ	1	148	185
5170	CZ	1	135	180
4927	CZ	1	120	190
4591	CZ	1	192	250
4543	CZ	1	205	265
4455	CZ	1	78	125
4307	CZ	1	62	111
4216	CZ	1	155	208
4041	CZ	1	133	205
3841	CZ	1	55	104
3679	CZ	1	50	95
3568	CZ	1	70	118
3484	CZ	1	33	83
3402	CZ	1	68	112
3270	CZ	1	50	117
3117	CZ	1	38	106
3071	CZ	1	38	109
2915	CZ	1	28	93
2727	CZ	1	98	153
2561	CZ	1	15	70
2406	CZ	1	31	86
2208	CZ	1	24	83
1935	CZ	1	17	68
1628	CZ	1	34	90
1300	CZ	1	28	83
975	CZ	1	95	162
802	CZ	1	48	120
563	CZ	1	100	185
366	CZ	1	86	160
78	CZ	1	50	115

River = TCC_S_4TH Reach = 1

RS	Profile	Method	Value1	Value2
645	CZ	1	24	50
510	CZ	1	30	70
407	CZ	1	30	55
264	CZ	1	43	73
102	CZ	1	50	72

River = TCC_S_LINDEN Reach = 1

RS	Profile	Method	Value1	Value2
228	CZ	1	0	38.79
169	CZ	1	0	31.01
113	CZ	1	0	35.21
79	CZ	1	0	31.32
53	CZ	1	0	29.52

River = TCC_S_SVALLEY Reach = 1

RS	Profile	Method	Value1	Value2
536	CZ	1	45	85
495	CZ	1	70	115
447	CZ	1	105	165
298	CZ	1	95	135
186	CZ	1	55	95

FLOW DATA

Flow Title: Conveyance_Zone
Flow File : p:\P\11022TGF\Hydraulics\HEC_RAS_PMR\TwomileCanyonCreek.f05

Flow Data (cfs)

River	Reach	RS	100_Year	CZ
TCC	5	11886	699	699
TCC	5	9942	699	699
TCC	5	9888	208	208
TCC	4	9501	208	208
TCC	3	9110	208	208
TCC	2	8675	314	314
TCC	2	8137	136	136
TCC	2	7359	184	184
TCC	2	6524	323	323
TCC	2	5763	274	274
TCC	2	2862	325	325
TCC	1	610	652	652
TCC	1	39	2419	2419
TCC_S1	7	9130	247	247
TCC_S1	6	8699	385	385
TCC_S1	6	8109	326	326
TCC_S1	6	7247	278	278
TCC_S1	5	5433	130	130
TCC_S1	4	4977	70	70
TCC_S1	3	4186	314	314
TCC_S1	2	2173	182	182
TCC_S1	1	603	314	314
TCC_S1_4TH	1	415	244	244
TCC_S1_4TH	1	260	138	138
TCC_S1_ELDER	1	1548	132	132
TCC_S1_GRAPE	2	766	61	61
TCC_S1_GRAPE	1	441	244	244
TCC_S1_HAWTHORN	1	984	148	148
TCC_S1_HAWTHORN	1	257	184	184
TCC_S2	1	7815	237	237
TCC_S2	1	5571	250	250
TCC_S2	1	3117	258	258
TCC_S2	1	2561	222	222
TCC_S_4TH	1	645	106	106
TCC_S_LINDEN	1	228	.01	.01
TCC_S_SVALLEY	1	536	491	491
TCC_S_SVALLEY	1	186	244	244

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
TCC	1	100_Year		Known WS = 5347.32
TCC	1	CZ		Known WS = 5347.78
TCC_S2	1	100_Year		Normal S = 0.014
TCC_S2	1	CZ		Normal S = 0.014

GEOMETRY DATA

Geometry Title: Conveyance_Zone
Geometry File : p:\P\11022TGF\Hydraulics\HEC_RAS_PMR\TwomileCanyonCreek.g03

Reach Connection Table

River	Reach	Upstream Boundary	Downstream Boundary

TCC	5		4
TCC	4	4	3
TCC	3	3	2
TCC	2	2	1
TCC	1	1	
TCC_S1	7		S1_7
TCC_S1	6	S1_7	S1_6
TCC_S1	5	S1_6	S1_4
TCC_S1	4	S1_4	S1_3
TCC_S1	3	S1_3	S1_2
TCC_S1	2	S1_2	S1_1
TCC_S1	1	S1_1	1
TCC_S1_4TH	1		S1_7
TCC_S1_ELDER	1	S1_2	S1_1
TCC_S1_GRAPE	2	S1_4	S1_5
TCC_S1_GRAPE	1	S1_5	S1_3
TCC_S1_HAWTHORN	1	S1_6	S1_5
TCC_S2	1		
TCC_S_4TH	1		2
TCC_S_LINDEN	1		3
TCC_S_SVALLEY	1		4

JUNCTION INFORMATION

Name: 1
Description:
Energy computation Method

Length across Junction River	Reach	Tributary River	Reach	Length	Angle
TCC	2	to TCC	1	125.26	
TCC_S1	1	to TCC	1	139	

Name: 2
Description:
Energy computation Method

Length across Junction River	Reach	Tributary River	Reach	Length	Angle
TCC	3	to TCC	2	117.12	
TCC_S_4TH	1	to TCC	2	125	

Name: 3
Description:
Energy computation Method

Length across Junction River	Reach	Tributary River	Reach	Length	Angle
TCC	4	to TCC	3	13.22	
TCC_S_LINDEN	1	to TCC	3	55	

Name: 4
Description:
Energy computation Method

Length across Junction River	Reach	Tributary River	Reach	Length	Angle
TCC	5	to TCC	4	163.41	
TCC_S_SVALLEY	1	to TCC	4	209	

Name: S1_1
Description:
Energy computation Method

Length across Junction River	Reach	Tributary River	Reach	Length	Angle
TCC_S1	2	to TCC_S1	1	100.65	
TCC_S1_ELDER	1	to TCC_S1	1	97	

Name: S1_2
Description:
Energy computation Method

Length across Junction River	Reach	Tributary River	Reach	Length	Angle
TCC_S1	3	to TCC_S1	2	70.47	
TCC_S1	3	to TCC_S1_ELDER	1	77	

Name: S1_3
Description:
Energy computation Method

Length across Junction River	Reach	Tributary River	Reach	Length	Angle
TCC_S1	4	to TCC_S1	3	119.06	
TCC_S1_GRAPE	1	to TCC_S1	3	117	

Name: S1_4
Description:
Energy computation Method

Length across Junction River	Reach	Tributary River	Reach	Length	Angle
TCC_S1	5	to TCC_S1	4	144.87	
TCC_S1	5	to TCC_S1_GRAPE	2	156	

Name: S1_5
Description:
Energy computation Method

Length across Junction River	Reach	Tributary River	Reach	Length	Angle
TCC_S1_GRAPE	2	to TCC_S1_GRAPE	1	91.62	
TCC_S1_HAWTHORN	1	to TCC_S1_GRAPE	1	73	

Name: S1_6
Description:
Energy computation Method

Length across Junction River	Reach	Tributary River	Reach	Length	Angle
TCC_S1	6	to TCC_S1	5	143	
TCC_S1	6	to TCC_S1_HAWTHORN	1	117	

Name: S1_7
Description:
Energy computation Method

Length across Junction River	Reach	Tributary River	Reach	Length	Angle
TCC_S1	7	to TCC_S1	6	126.87	
TCC_S1_4TH	1	to TCC_S1	6	94	

CROSS SECTION

RIVER: TCC
REACH: 5 RS: 11886

```
INPUT
Description: 11886
Station Elevation Data    num=      46
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5761.81    1.98 5761.79    3.96  5761.8    5.94 5761.73    7.93  5761.6
    9.91 5761.46   10.35 5761.42   11.89 5761.31   13.87 5761.04   15.85 5760.26
   17.83 5759.17   19.81 5758.11    20.4 5757.83    21.8 5757.17   23.78 5756.08
   25.76 5754.75   27.74 5753.39   29.72 5752.21    31.7 5751.34   33.69 5750.69
   35.67 5749.79   37.65 5748.56   39.63  5747.8   41.61 5747.47   43.59 5747.42
   45.57 5748.22   47.56 5749.46   49.54 5750.86   51.52  5752.6    53.5 5754.54
   54.87 5755.78   55.48 5756.33   56.37 5757.04   57.46 5757.91   59.44 5758.93
   61.34 5759.12   63.41 5759.18   65.39  5759.5   67.37 5759.75   69.35 5759.84
   71.33    5760   73.32 5760.11    75.3 5760.19   77.28 5760.48   79.26 5760.64
   81.24 5760.79

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1   10.35     .06   54.87      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         13.87   59.44            83.82    85.4   78.21             .1       .3

CROSS SECTION


RIVER: TCC
REACH: 5                  RS: 11801

INPUT
Description: 11801
Station Elevation Data    num=      62
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5757.88    1.98 5757.38    3.97  5756.9    5.95 5756.45    7.93 5755.15
    9.92 5753.33    11.9 5751.56   13.71 5749.87   13.88  5749.7   15.87 5747.91
   17.85 5746.16   19.71 5744.93   19.83 5744.84   21.82 5744.24    23.8 5743.65
   25.78 5743.19   27.77 5743.22   29.75  5743.3   31.74  5743.5   33.72 5744.16
    35.7 5745.56   37.69 5746.96   39.67 5747.99   41.65 5748.88   43.64 5749.49
   44.27 5749.58   45.08  5749.7   45.62 5749.78    47.6 5749.83   49.59 5749.62
   51.57 5749.27   53.55 5749.17   55.54  5749.2   57.52 5749.13    59.5 5749.15
   61.49 5749.57   63.47 5749.74   65.45 5749.88   67.44 5750.22   69.42 5750.43
    71.4  5750.5   73.39 5750.52   75.37 5750.42   77.35 5750.37   79.34 5750.38
   81.32 5750.34    83.3 5750.33   85.29 5750.38   87.27 5750.54   89.26  5750.9
   91.24 5751.35   93.22 5751.85   95.21 5752.76   97.19 5753.86   99.17 5754.87
  101.16  5755.8  103.14 5756.34  105.12 5756.43  107.11 5756.38  109.09  5756.4
  111.07 5756.49  113.06 5756.55

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1   13.71     .06   44.27      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         13.88   45.08           130.64  136.25  134.09             .1       .3

CROSS SECTION


RIVER: TCC
REACH: 5                  RS: 11665

INPUT
Description: 11665
Station Elevation Data    num=      56
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5738.09    1.97 5738.34    3.94 5738.45    5.91 5738.55    7.88 5738.77
    9.85 5738.83   11.82 5738.68   13.79  5737.9    15.2 5737.37   15.76 5737.16
   17.73 5736.18    19.7 5735.46   21.67 5735.28   23.64 5735.27   25.61 5735.11
   27.58 5734.26    27.8 5734.12   29.55 5733.07   31.52 5730.93   33.49 5729.72
   35.46 5729.37   37.43  5729.4    39.4  5729.6   41.37  5729.9   43.34 5730.61
   45.31  5731.9   47.28 5733.29   49.25 5734.35   51.22 5734.97   52.41 5734.92
   52.54 5734.91   53.19 5734.89   55.16 5734.67   57.13 5734.85    59.1 5735.45
   61.07  5736.3   63.04 5737.14   65.01 5737.91   66.98 5738.42   68.95 5738.17
   70.92 5737.13   72.89 5736.22   74.86 5735.32   76.83 5734.35    78.8 5734.12
   80.77 5734.39   82.74  5734.6   84.71 5734.49   86.68 5734.32   88.65 5734.19
   90.62 5734.35   92.59  5734.7   94.56 5734.86   96.53 5734.77    98.5 5734.95
  100.47 5735.41

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1    15.2     .06   52.41      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         25.61   51.22           117.95  140.45  148.65             .1       .3
Ineffective Flow          num=       1
   Sta L    Sta R    Elev  Permanent
   66.98  100.47 5738.42       T

CROSS SECTION


RIVER: TCC
REACH: 5                  RS: 11524

INPUT
Description: 11524
Station Elevation Data    num=      63
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5728.91    1.99 5728.83    3.99 5728.81    5.98 5728.78    7.97 5728.76
    9.97 5728.72   11.96 5728.51   13.96 5727.91   15.95 5727.19   17.94  5726.5
   19.94 5726.25   21.93 5726.09   22.39 5726.03   23.92 5725.85   25.92 5725.51
   27.91 5724.76    29.9 5724.12    31.9 5723.58   33.89 5722.87   35.89 5721.77
   37.88 5720.53   39.29 5719.85   39.87 5719.57   41.87 5718.56   43.86 5717.33
   45.85 5716.74   47.85 5716.63   49.84 5716.76   51.84  5717.37   53.83 5717.95
   55.26 5718.37   55.82 5718.54   57.82 5719.46   58.47  5719.9   59.81 5720.79
    61.8  5722.6    63.8 5724.79   65.79 5726.61   67.78 5727.63   69.78 5728.18
   71.77 5728.67   73.77 5729.38   75.76 5730.07   77.75 5730.78   79.75 5731.32
   81.74 5731.83   83.73 5732.44   85.73 5732.63   87.72 5732.59   89.71 5732.59
   91.71 5732.85    93.7  5732.9    95.7 5732.87   97.69 5733.48   99.68 5734.23
  101.68 5734.86  103.67 5735.36  105.66 5735.59  107.66  5735.9  109.65 5736.14
  111.65 5736.21  113.64 5736.22  115.63 5736.23

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1   22.39     .06   55.26      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         35.89    61.8           160.94  160.53  150.93             .1       .3

CROSS SECTION


RIVER: TCC
REACH: 5                  RS: 11364

INPUT
Description: 11364
Station Elevation Data    num=      95
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5733.48    1.99 5733.21    3.98 5732.94    5.97 5732.73    7.96 5732.26
    9.95 5731.39   11.94 5730.73   13.93 5730.08   15.93 5729.37   17.92 5728.64
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   19.91 5727.86    21.9 5726.96   23.89 5726.03   25.88 5724.98   27.87 5723.67
   29.86 5722.55   31.85 5721.79   33.84 5721.27   35.83 5720.94   37.82 5720.59
   39.81  5720.3    41.8 5719.83    43.8 5719.16   45.79  5718.5   47.78 5717.97
   49.77 5717.49   51.76 5716.91   53.75 5716.21   54.16 5716.03   55.74 5715.35
   57.73 5714.14   58.47 5713.68   59.72 5712.91   61.71 5711.73    63.7 5710.55
   65.69 5709.67   67.68 5708.91   69.67 5708.14   71.67 5706.93   73.66 5705.42
   75.65 5704.19   77.64 5703.52   79.63 5703.47   81.41 5703.67   81.62 5703.69
   83.61 5703.95    85.6  5704.3   87.59 5704.86   89.58 5705.05   91.57 5705.73
   93.56 5706.41   95.55 5706.54   96.46 5706.46   97.54 5706.36   99.54 5706.42
  101.53 5706.64  103.52 5706.92  105.51 5707.34   107.5 5707.75  109.49 5708.24
  111.48  5708.7  113.47 5709.24  115.46 5709.91  117.45 5711.02  119.44 5712.42
  121.43 5713.82  123.42 5714.71  125.41 5715.26   127.4 5715.81   129.4 5716.51
  131.39 5716.91  133.38 5717.31  135.37 5717.76  137.36 5718.25  139.35 5718.67
  141.34 5719.07  143.33 5719.32  145.32 5719.45  147.31 5719.34   149.3 5719.39
  151.29 5719.58  153.28 5719.85  155.27 5720.42  157.27 5721.53  159.26 5722.61
  161.25 5723.33  163.24 5723.66  165.23  5723.9  167.22 5724.04  169.21 5724.18
   171.2 5724.36  173.19 5724.59  175.18 5724.82  177.17 5725.05  179.16 5725.27

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1   54.16     .06   81.41      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          58.47  113.47           116.74  116.28   110.1             .1       .3
Ineffective Flow     num=        1
   Sta L   Sta R    Elev  Permanent
  150.26  162.175733.505       F
Blocked Obstructions      num=       1
   Sta L   Sta R    Elev
  162.17  179.165735.273

CROSS SECTION


RIVER: TCC
REACH: 5                   RS: 11247

INPUT
Description: 11247
Station Elevation Data    num=      81
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5717.39    1.98 5716.63    3.95 5715.87    5.93 5715.11    7.91 5714.35
    9.89 5713.59   11.86 5712.83   13.84 5712.08   15.82 5711.32    17.8 5710.56
   19.77  5709.8   21.75 5709.04   23.73 5708.29   25.71 5707.62   27.68 5707.01
   29.66  5706.6   31.64 5706.39   33.62 5706.22   35.59 5706.08   37.57 5705.92
   39.55 5705.75   41.53 5705.64    43.5 5704.97   43.63  5704.9   45.48 5703.79
   47.46 5702.64   49.43 5701.78   51.41 5701.26   53.39 5700.85   55.37 5700.03
   57.34 5698.49   57.88 5697.97   59.32 5696.55    61.3 5695.19   63.28 5694.17
   65.25 5693.46   67.23 5692.65   69.21 5692.17   71.19 5692.01   73.16    5692
   75.14 5692.22   77.12 5692.44    79.1 5692.66   81.07 5693.55   83.05 5694.77
   85.03 5695.57   87.01 5695.91   87.87 5695.99   88.98  5696.1   90.96  5696.3
   92.94 5696.41   94.91 5696.29   96.89 5696.32   98.87 5696.91  100.85 5698.33
  102.82 5699.86   104.8 5701.32  106.78 5702.84  108.76 5704.61  110.73 5705.81
  112.71 5706.77  114.69 5707.56  116.67 5708.35  118.64 5709.18  120.62 5710.16
   122.6  5710.8  124.58 5711.49  126.55 5712.49  128.53 5713.43  130.51 5714.09
  132.49 5714.48  134.46 5714.76  135.94 5714.94  136.44    5715  138.42 5715.18
  140.39 5715.53  142.37 5715.82  144.35 5716.05  146.33 5716.31   148.3 5716.57
  150.28 5716.75

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1   43.63     .06  135.94      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          57.88   92.94           121.65  127.59   127.5             .1       .3
Blocked Obstructions      num=       1
   Sta L   Sta R    Elev
       0   24.995717.856

CROSS SECTION


RIVER: TCC
REACH: 5                   RS: 11120

INPUT
Description: 11120
Station Elevation Data    num=      72
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5696.67    1.98 5696.57    3.95 5696.51    5.93 5696.48     7.9 5696.49
    9.88 5696.56   11.86 5696.54   13.83  5696.4   15.81 5696.22   17.79 5696.06
   19.76 5695.92   21.74 5695.66   23.71 5695.38   25.69 5695.04   27.67 5694.75
   29.64 5694.48   31.62 5694.15   33.59 5693.64   35.57 5693.06   37.55 5692.34
   39.52 5691.59    41.5 5690.91   43.47 5690.15   45.15 5689.18   45.45 5689.01
   47.43 5687.36   47.49 5687.31    49.4  5685.8   51.38 5684.78   53.36 5684.31
   55.33 5684.29   57.31 5684.37   59.28 5684.47   61.26 5684.72   63.24 5684.87
   65.21 5684.89   67.19 5684.77   69.16 5684.61   71.14 5684.88   73.12 5685.49
   75.09 5686.13   77.07 5686.09   79.04 5686.23   81.02 5686.72      83 5687.94
   84.97 5689.65   86.95  5691.5   88.93 5693.14    90.9 5694.74   92.88 5696.28
   94.85 5698.03   96.83 5699.13   98.81 5700.31  100.78 5702.23  102.42 5703.37
  102.76 5703.61  104.73 5704.64   104.9 5704.72  106.71 5705.54  108.69  5705.9
  110.66  5705.9  112.64 5705.97  114.62 5706.07  116.59 5706.13  118.57 5705.96
  120.54 5705.79  122.52 5705.57   124.5 5705.61  126.47 5705.75  128.45 5705.65
  130.42 5705.63   132.4 5705.65

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1   47.49     .06  102.42      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          45.15   84.97           110.3  102.66   80.46             .1       .3

CROSS SECTION


RIVER: TCC
REACH: 5                   RS: 11017

INPUT
Description: 11017
Station Elevation Data    num=      85
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5689.85    1.98 5689.84    3.95 5689.83    5.93 5689.82     7.9 5689.81
    9.88 5689.86   11.85 5689.83   13.83 5689.64   15.81 5689.39   17.78 5688.91
   19.76 5688.22   21.73 5687.72   23.71 5687.34   25.69 5687.07   27.66  5686.9
   29.64 5686.68   31.61 5686.49   33.59 5686.33   35.56 5686.09   37.54 5685.82
   39.52  5685.6   41.49 5685.34   43.47 5684.86   45.44 5684.36   47.42 5683.85
   49.39  5683.2   51.37 5682.56   53.35 5682.08   55.32 5681.72    57.3 5681.49
   59.27 5681.36   61.25 5681.28   63.23 5681.22    65.2 5681.15   67.18 5681.14
   69.15 5681.09   71.13 5681.03    73.1 5680.82   75.08 5680.45   77.06  5680.3
   78.39 5680.14   78.97 5680.08   79.03 5680.07   81.01 5679.69   82.98  5679.2
   84.96 5678.93   86.94 5678.79   88.91 5678.86   90.89 5678.62   92.86 5678.31
   94.84 5678.39   96.81 5678.79   98.79 5679.05  100.77 5679.09  102.74 5679.52
  104.72 5679.88  106.69 5680.82  108.67 5682.46  110.64    5684  112.62 5685.47
   114.6 5686.98  116.57 5688.97  118.55 5691.08  120.52 5692.65   122.5 5693.86
  124.48 5694.86  125.95 5695.42  126.45 5695.61  128.43 5696.23  128.85 5696.32
   130.4 5696.66  132.38 5696.93  134.35 5697.23  136.33 5697.56  138.31 5697.93
  140.28 5698.09  142.26 5698.19  144.23 5698.27  146.21 5698.38  148.18 5698.54
  150.16 5698.53  152.14 5698.26  154.11 5698.02  156.09 5697.87  158.06 5697.61
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Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1   78.39     .06  128.85      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         71.13  108.67             53.5   49.36   41.04             .1       .3
Blocked Obstructions      num=       1
   Sta L   Sta R    Elev
       0    12.95699.742

CROSS SECTION


RIVER: TCC
REACH: 5                  RS: 10968

INPUT
Description: 10968
Station Elevation Data    num=      93
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5685.05    1.99 5684.88    3.99 5684.76    5.98 5684.81    7.97 5684.82
    9.96 5684.42   11.96 5684.04   13.95 5683.55   15.94  5683.1   17.93 5682.73
   19.93  5682.4   21.92 5682.17   23.91 5682.05   25.91 5681.87    27.9 5681.95
   29.89  5681.8   31.88 5681.81   33.88 5681.66   35.87 5681.34   37.86 5681.13
   39.86 5680.97   41.85 5680.84   43.84 5680.73   45.83 5680.72   47.83 5680.67
   49.82 5680.59   51.81 5680.47    53.8 5680.08    55.8 5679.51   57.79 5678.98
   59.78 5678.77   61.78 5678.61   63.77 5678.82   65.76 5678.94   67.75 5678.99
   69.75 5678.97   71.74 5678.87   73.73 5678.87   75.73 5678.64   77.72 5678.39
   79.71 5678.32    81.7 5678.27    83.7 5678.13   85.69 5678.05   87.68 5678.08
   89.67 5678.05   91.67    5678   93.66 5677.93   95.65 5677.74   97.65 5677.53
   99.64 5677.46  101.63 5677.36  103.62 5677.07  105.62 5676.63  107.61 5676.31
   109.6  5675.9  110.49 5675.68  110.81  5675.6   111.6 5675.41  113.59 5674.74
  115.58  5674.2  117.57 5674.06  119.57 5674.06  121.56  5674.1  123.55 5674.11
  125.54 5674.23  127.54 5674.56  129.53 5674.96  131.52 5675.35  133.52 5676.06
  135.51 5677.34   137.5 5678.65  139.49 5678.55  141.49 5678.65  143.48 5680.39
  145.47 5681.38  147.47 5682.18  149.46 5683.04  150.81 5683.59  151.45 5683.85
  153.44 5684.35  155.44 5684.88  157.43 5685.56  159.42 5685.98  161.41 5686.28
  163.41 5686.35   165.4 5686.48  167.39 5686.73  169.39 5687.07  171.38 5687.71
  173.37 5688.36  175.36 5688.85  177.36 5689.01

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0      .1  110.81     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         93.66   137.5             94.18   86.68   66.51             .1       .3

CROSS SECTION


RIVER: TCC
REACH: 5                  RS: 10881

INPUT
Description: 10881
Station Elevation Data    num=      81
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5674.16    1.97 5674.12    3.95 5674.09    5.92 5673.98     7.9 5673.98
    9.87 5673.93   11.85 5673.95   13.82 5673.95   15.79 5673.92   17.77 5674.04
   19.74 5674.79   21.72 5675.55   23.69 5676.18   25.67  5676.5   27.64 5676.57
   29.61  5676.6   31.59 5676.61   33.56 5676.61   35.54 5676.45   37.51 5676.02
   39.49 5675.06   41.46    5675   43.43 5674.81   45.41 5674.53   47.38 5674.24
   49.36 5673.09   51.33 5670.83    53.3 5669.29   55.28 5669.08   57.25 5669.02
   59.23 5668.96    61.2 5668.95   63.18 5668.97   65.15 5668.69    66.7 5668.28
   67.12 5668.16   67.17 5668.15    69.1  5667.6   71.07 5667.14   73.05 5666.47
   75.02 5666.67      77 5667.23   78.97  5667.9   80.94 5668.62   82.28 5668.96
   82.92 5669.12   84.89 5669.45   86.87 5669.65   88.84 5669.68   90.82 5669.71
   92.79 5669.77   94.76 5669.75   96.74  5669.8   98.71 5669.83  100.69 5669.83
  102.66 5669.91  104.64 5670.14  106.61 5670.65  108.58 5671.18  110.56 5671.58
  112.53 5672.18  114.51 5672.98  116.48  5673.8  118.46 5674.51  120.43 5675.43
   122.4 5676.38  124.38 5676.98  126.35 5677.29  128.33 5677.27   130.3 5677.07
  132.27 5676.95  134.25 5677.02  136.22 5677.21   138.2 5677.37  140.17 5677.66
  142.15  5678.3  144.12 5679.31  146.09 5680.57  148.07 5681.49  150.04    5682
  152.02 5682.49

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0      .1    66.7     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         63.18   86.87             67.05   66.72   65.89             .1       .3

CROSS SECTION


RIVER: TCC
REACH: 5                  RS: 10814

INPUT
Description: 10814
Station Elevation Data    num=      78
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5672.97    1.97 5672.99    3.95 5672.96    5.92 5672.96     7.9    5673
    9.87 5673.33   11.85 5673.27   13.82 5673.28   15.79 5673.25   17.77 5673.39
   19.74 5673.64   21.72  5673.7   23.69 5673.73   25.67 5673.72   27.64 5673.64
   29.61 5673.57   31.59 5673.44   33.56 5673.42   35.54 5673.86   37.51 5673.41
   39.49 5669.84   41.46 5667.16   43.43 5665.96   45.41 5665.28   47.38 5665.04
   49.36 5664.96   51.33 5664.91   53.31  5664.9   55.28 5664.91   57.25 5664.91
   59.23 5664.54   61.19 5663.78    61.2 5663.78   63.18 5662.87   63.81 5662.65
   65.15 5662.18   67.13 5661.56    69.1  5661.2   71.07 5662.13   73.05 5662.41
   75.02 5662.44      77 5662.91   78.97  5663.7   80.95 5664.35    82.6  5664.8
   82.92 5664.89   84.89 5665.24   86.87 5665.49   88.84 5665.69   90.82 5665.76
   92.79 5665.78   94.77 5665.86   96.74 5665.98   98.71    5666  100.69 5666.04
  102.66 5666.11  104.64 5666.14  106.61 5666.22  108.59 5666.39  110.56 5666.58
  112.53 5667.06  114.51 5667.55  116.48 5668.03  118.46 5668.41  120.43 5668.74
  122.41 5669.21  124.38 5669.93  126.35 5670.84  128.33 5671.75   130.3 5672.58
  132.28 5673.57  134.25 5674.22  136.23 5674.84   138.2 5675.96  140.18 5677.01
  142.15 5677.91  144.12 5678.68   146.1 5679.46

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0      .1   63.81     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         57.25   88.84             91.73  104.43  119.18             .1       .3

CROSS SECTION


RIVER: TCC
REACH: 5                  RS: 10710

INPUT
Description: 10710
Station Elevation Data    num=      63
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5660.94    1.97 5660.95    3.95 5660.92    5.92 5660.91    7.89 5660.92
    9.87 5660.96   11.84 5660.95   13.81 5660.79   15.79 5660.72   17.76  5660.6
   19.73 5660.46   21.71 5660.45   23.68 5660.32   25.65 5660.17   27.63 5660.06
    29.6 5659.88   31.57  5659.8   33.55  5659.7   35.52 5659.62   37.49 5659.53
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   39.47 5659.37   41.44 5659.16   43.41 5658.87   43.59 5658.83   44.12  5658.7
   45.39 5658.41   47.36 5657.82   49.33 5657.48   51.31 5657.26   53.28 5657.18
   55.25 5656.94   57.23 5656.74    59.2 5656.31   61.17 5655.75   63.15 5655.41
   65.12 5655.39   67.09 5655.78   69.07  5656.8   71.04 5657.59   73.01  5658.2
   74.99 5659.15   76.96 5660.16   78.93 5661.18   80.91 5662.49   82.84 5663.23
   82.88 5663.25   84.85 5663.85   85.03 5663.89   86.83 5664.28    88.8 5664.62
   90.77 5665.19   92.74 5665.57   94.72 5665.84   96.69 5665.91   98.66 5665.64
  100.64 5665.48  102.61 5665.38  104.58 5665.15  106.56    5665  108.53 5665.76
   110.5  5667.3  112.48  5669.1  114.45 5670.64

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1   43.59     .06   85.03      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         41.44   82.84             67.97   71.97   77.66             .1       .3

CROSS SECTION


RIVER: TCC
REACH: 5                  RS: 10638

INPUT
Description: 10638
Station Elevation Data    num=     104
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5660.33    1.99 5660.24    3.97 5660.24    5.96 5660.05    7.95 5659.67
    9.93 5659.16   11.92 5658.58   13.91 5657.75   15.89 5656.71   17.88 5656.94
   19.86 5657.29   21.85 5657.45   23.84 5657.48   25.82 5657.52   27.81 5657.63
    29.8 5657.69   31.78 5657.73   33.77 5657.73   35.76 5657.73   37.74  5657.8
   39.73  5657.9   41.72 5657.77    43.7 5657.68   45.69 5657.61   47.68 5657.63
   49.66 5657.33   51.65 5657.41   53.64 5657.42   55.62 5657.51   57.61 5657.61
   59.59 5657.65   61.58 5657.73   63.57 5657.88   65.55 5657.55   67.54 5657.24
   69.53 5656.95   71.51 5656.71    73.5 5656.41   75.49 5655.84   77.47 5655.02
   79.46  5654.4   81.45 5654.03   83.43 5653.96   85.42 5653.97   87.41 5653.88
   89.39  5653.8   91.38 5653.72   93.36 5653.49   94.08 5653.34   95.35 5653.06
    95.5 5653.02   97.34 5652.51   99.32 5652.52  101.31 5652.57   103.3 5652.59
  105.28 5652.33  107.27 5651.94  109.26 5651.78  111.24 5651.76  113.23 5651.97
  115.22 5652.01   117.2  5652.1  119.19 5652.23  121.18 5652.53  123.16 5652.79
  125.15 5653.08  127.14  5653.3  129.12 5653.48  131.11 5653.99  133.09 5654.32
  135.08 5654.57  137.07 5654.77  138.92 5655.03  139.05 5655.05  141.04 5655.41
  141.26 5655.44  143.03 5655.71  145.01 5655.85     147 5655.96  148.99 5656.16
  150.97 5656.32  152.96 5656.38  154.95 5656.37  156.93 5656.31  158.92 5656.29
  160.91 5656.27  162.89 5656.11  164.88 5655.86  166.86 5656.04  168.85  5656.5
  170.84 5657.42  172.82  5658.5  174.81 5659.61   176.8 5660.58  178.78 5661.12
  180.77 5661.54  182.76 5661.92  184.74 5662.45  186.73 5662.98  188.72 5663.55
   190.7  5664.1  192.69  5664.5  194.68 5664.98  196.66 5665.68

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1   94.08     .06  141.26      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          73.5  143.03            118.03  117.56  116.38             .1       .3

CROSS SECTION


RIVER: TCC
REACH: 5                  RS: 10520

INPUT
Description: 10520
Station Elevation Data    num=     109
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  5649.5    1.98 5649.15    3.96 5648.72    5.94 5648.23    7.92  5647.8
     9.9 5647.48   11.89 5647.34   13.87 5647.24   15.85 5647.23   17.83 5647.19
   19.81 5647.11   21.79 5647.02   23.77    5647   25.75 5646.93   27.73 5647.01
   29.71 5646.99   31.69 5646.93   33.68 5646.88   35.66 5646.81   37.64 5646.77
   39.62 5646.79    41.6 5646.63   43.58  5646.6   45.56 5646.57   47.54 5646.52
   49.52 5646.43    51.5 5646.11   53.49 5645.28   55.47 5644.34   57.45 5643.66
   59.43 5643.53   61.41 5643.43   63.39 5643.43   65.37 5643.38   67.35 5643.15
   69.33 5642.67   71.31 5642.22   73.29 5642.09   75.28 5642.16   77.26 5642.29
   79.24 5642.53   81.22 5642.82    83.2 5643.16   85.18 5643.32   87.16 5643.49
   88.55 5643.61   89.14 5643.66   91.09  5643.9   91.12  5643.9    93.1 5644.03
   95.08 5644.07   97.07 5644.04   99.05 5643.57  101.03 5642.94  103.01 5642.81
  104.99  5643.2  106.97 5643.82  108.95 5644.15  110.93 5644.07  112.91 5643.87
  114.89    5644  116.88 5644.21  118.86  5644.5  120.84 5644.94  122.82 5645.53
   124.8 5646.15  125.93 5646.58  126.46 5646.78  126.78  5646.9  128.76 5647.51
  130.74 5647.52  132.72 5647.61   134.7  5647.7  136.68 5647.77  138.67 5647.73
  140.65 5647.67  142.63 5647.58  144.61 5647.46  146.59 5647.43  148.57 5647.38
  150.55 5647.18  152.53 5646.88  154.51 5646.29  156.49 5645.38  158.47 5644.87
  160.46 5644.29  162.44 5643.63  164.42 5642.95   166.4 5642.75  168.38  5642.8
  170.36 5643.16  172.34 5643.74  174.32 5644.25   176.3 5644.62  178.28  5644.7
  180.26 5644.75  182.25 5645.04  184.23 5645.75  186.21  5646.3  188.19  5646.6
  190.17 5646.71  192.15 5646.79  194.13 5646.87  196.11 5646.98  198.09  5647.1
  200.07 5647.16  202.06 5647.16  204.04 5647.23  206.02 5647.32

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1   88.55     .06  126.46      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          49.52  128.76            73.97   71.86   66.07             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
  136.68  206.02 5647.77       F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
       0   12.065657.321

CROSS SECTION


RIVER: TCC
REACH: 5                  RS: 10449

INPUT
Description: 10449
Station Elevation Data    num=     138
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5644.29       2 5644.37    3.99 5644.42    5.99 5644.43    7.99 5644.46
    9.99 5644.54   11.98 5644.65   13.98 5644.62   15.98 5644.63   17.98 5644.66
   19.97 5644.66   21.97 5644.59   23.97 5644.71   25.97 5644.77   27.96 5644.77
   29.96  5644.6   31.96 5644.42   33.96 5644.24   35.95 5644.07   37.95 5643.89
   39.95 5643.72   41.94 5643.54   43.94 5643.37   45.94 5643.19   47.94 5643.01
   49.93 5642.84   51.93 5642.66   53.93 5642.49   55.93 5642.31   57.92 5642.13
   59.92 5641.91   61.92  5641.8   63.92 5641.78   65.91 5641.74   67.91 5641.67
   69.91  5641.6   71.91 5641.53    73.9 5641.48    75.9 5641.45    77.9 5641.41
   79.89 5641.37   81.89 5641.28   83.89 5641.13   85.89 5640.98   87.88 5640.83
   89.88 5640.68   91.88 5640.53   93.88 5640.38   95.87 5640.23   97.87 5640.08
   99.87 5639.93  101.87 5639.78  103.86 5639.63  105.86 5639.49  107.86 5639.34
  109.86 5639.19  111.85 5639.12  113.85 5639.08  115.85 5638.86  117.85 5638.86
  119.84    5639  121.84 5638.98  123.84 5638.97  125.83 5638.95  127.83 5638.89
  129.53 5638.75  129.83 5638.72  131.83 5638.25  133.82 5637.62  135.82 5636.66
   136.8 5636.27  137.82 5635.86  139.82 5635.62  141.81 5636.11  143.81 5636.37
  145.81 5636.62  147.81 5636.41   149.8  5636.2   151.8 5635.94   153.8 5636.19
   155.8 5636.09  157.79 5635.83  159.79 5636.08  160.98  5636.6  161.79 5636.94
  163.78 5639.05  165.78 5640.04  167.78 5640.36  169.78 5640.47  171.77  5640.5
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  173.77 5640.58  175.77 5641.07  177.13 5641.46  177.77 5641.65  179.76 5642.14
  181.76  5642.5  183.76  5642.8  185.76 5642.89  187.75 5643.01  189.75 5643.01
  191.75 5643.17  193.75 5643.34  195.74 5643.33  197.74 5643.34  199.74 5643.24
  201.73 5642.83  203.73 5642.28  205.73 5641.61  207.73 5641.36  209.72 5640.48
  211.72 5639.52  213.72 5638.72  215.72 5638.13  217.71 5638.14  219.71 5638.32
  221.71  5638.6  223.71 5639.04   225.7  5639.6   227.7 5640.26   229.7 5640.92
   231.7 5641.67  233.69 5642.68  235.69 5643.21  237.69 5643.63  239.69 5644.12
  241.68 5644.43  243.68 5644.71  245.68 5644.94  247.67 5645.22  249.67 5645.56
  251.67 5646.04  253.67  5646.4  255.66 5646.57  257.66 5646.72  259.66 5646.82
  261.66 5646.87  263.65 5646.93  265.65  5646.8

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1  129.53     .06  160.98      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         129.53  165.78           109.98  106.84  105.03             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
  193.75  265.65 5643.34       F
Blocked Obstructions     num=       3
   Sta L   Sta R    Elev   Sta L   Sta R    Elev   Sta L   Sta R    Elev
    26.4  106.615649.429   244.2  247.895655.257   253.1  265.65  5656.8

CROSS SECTION


RIVER: TCC
REACH: 5                  RS: 10342

INPUT
Description: 10342
Station Elevation Data    num=      83
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0    5639       2 5638.82    3.99 5638.78    5.99 5638.77    7.98 5638.81
    9.98 5639.05   11.97 5639.19   13.97 5639.25   15.97  5639.1   17.96 5638.96
   19.96 5638.87   21.95 5638.62   23.95 5638.51   25.94 5638.46   27.94 5638.37
   29.93 5638.33   31.93 5638.36   33.93 5638.44   35.92 5638.46   37.92 5638.45
   39.91 5638.35   41.91  5638.3    43.9 5638.25    45.9 5638.19    47.9 5638.06
   49.89 5637.92   51.89 5637.83   53.88 5637.72   55.88 5637.44   57.87 5637.18
   59.87 5636.99   60.98 5636.83   61.87  5636.7   63.86 5635.96   65.86 5634.95
   67.85 5633.83   69.85 5633.19   71.84 5632.28   73.84 5631.29   75.84 5630.12
   77.83 5629.53   78.07 5629.52   79.83 5629.49   81.82  5629.5   83.82 5629.52
   85.81 5629.58   87.81  5629.7    89.8 5629.68    91.8 5629.49    93.8 5629.19
   95.79 5628.95   97.79 5628.91   99.78 5629.22  101.78  5629.7  103.77 5630.05
  105.77 5630.25  107.77 5630.35  109.76 5630.26  111.76 5630.09  113.75 5630.13
  114.42 5630.14  115.75 5630.17  117.74 5630.22  119.74  5630.4  121.41 5630.74
  121.74 5630.81  123.73 5631.49  125.73 5632.09  127.72 5632.57  129.72 5632.67
  131.71 5632.53  133.71  5632.6   135.7 5632.73   137.7 5632.99   139.7 5633.44
  141.69 5633.83  143.69 5634.21  145.68 5634.57  147.68 5634.97  149.67 5635.19
  151.67 5635.31  153.67 5635.37  155.66 5635.48

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1   78.07     .06  114.42      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          61.87  127.72           112.53  115.47  117.53             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
       0   29.265648.359

CROSS SECTION


RIVER: TCC
REACH: 5                  RS: 10226

INPUT
Description: 10226
Station Elevation Data    num=      90
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5627.91    1.99 5627.92    3.98 5627.92    5.97 5627.94    7.97 5627.94
    9.96 5627.95   11.95 5627.96   13.94 5627.96   15.93 5627.96   17.92 5627.88
   19.92 5627.73   21.91 5627.67    23.9 5627.36   25.89 5627.15   27.88 5626.89
   29.87 5626.37   31.87 5626.32   33.86  5626.4   35.85 5626.26   37.84 5626.16
   39.83 5626.18   41.82  5626.1   43.81 5625.96   45.81 5625.82    47.8 5625.67
   49.79 5625.58   51.78 5625.54    53.5 5625.48   53.77 5625.47   55.76 5625.37
   57.76 5625.34   59.75 5625.32   61.74 5625.28   63.73  5625.2   65.72 5625.18
   67.71 5625.19   69.71 5625.16    71.7 5625.11   73.69 5624.93   75.68 5624.42
   77.26 5623.99   77.67 5623.88   79.66 5623.25   81.65 5622.61   83.65 5622.29
   85.64  5622.3   87.63 5622.33   89.62 5621.94   91.61 5621.29    93.6 5621.12
    95.6 5621.54   97.59 5621.85   99.58  5622.2  101.57 5622.38  103.56 5622.59
  105.55 5622.99  107.54 5623.67  109.54 5624.21  111.53 5624.42  113.26 5624.37
  113.52 5624.36  115.51 5624.23  116.82 5624.21   117.5 5624.19  119.49 5624.32
  121.49  5624.7  123.48 5625.25  125.47 5625.84  127.46 5625.95  129.45 5625.88
  131.44 5625.86  133.44 5625.85  135.43 5625.87  137.42 5625.86  139.41 5625.88
   141.4 5625.88  143.39 5625.85  145.38 5625.86  147.38 5625.87  149.37 5625.79
  151.36 5625.73  153.35 5625.69  155.34 5625.66  157.33 5625.65  159.33 5625.62
  161.32 5625.63  163.31 5625.64   165.3 5625.59  167.29 5625.57  169.28 5625.42

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1   77.26     .06  113.26      .1

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          73.69  125.47           116.14   123.8   128.2             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
       0   14.885637.961

CROSS SECTION


RIVER: TCC
REACH: 5                  RS: 10102

INPUT
Description: 10102
Station Elevation Data    num=      54
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5618.58    1.98 5618.56    3.96 5618.55    5.94 5618.53    7.92 5618.52
     9.9 5618.51   11.88 5618.49   13.86 5618.48   15.84 5618.47   17.82 5618.45
    19.8 5618.44   21.78 5618.42   23.76 5618.41   25.74 5618.47   27.72 5618.78
    29.7 5619.07   31.68 5619.08   33.66 5618.79   35.64 5618.53   37.62 5618.38
    39.6 5618.24   41.58 5618.24   43.56 5618.29   45.54 5618.67   47.52 5618.79
    49.5  5618.7   51.48 5618.72   53.46 5618.63   55.09 5618.67   55.45 5618.68
   57.43 5618.73   59.41 5618.47   61.39 5618.19   63.37 5618.08   65.35 5618.12
   67.15 5617.98   67.33 5617.96   69.31 5617.47   71.29 5616.97   73.27 5616.49
   75.25 5615.96   77.23 5615.12   79.21 5614.53   81.19 5614.29   83.17 5613.96
   85.15 5613.46   87.22 5612.55   89.11 5613.49   91.09 5614.37   93.07 5615.22
   94.12 5615.66   95.05 5616.04   95.31 5616.07   97.03 5616.26

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0      .1   67.15     .06   95.31     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          67.15   97.03           93.98    89.5   88.79             .1       .3
Ineffective Flow     num=       1
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   Sta L   Sta R    Elev  Permanent
   14.94   25.645628.455       F
Blocked Obstructions      num=       1
   Sta L   Sta R    Elev
       0   14.945628.472

CROSS SECTION


RIVER: TCC
REACH: 5                  RS: 10013

INPUT
Description: 10013
Station Elevation Data    num=      65
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5615.55    1.99 5615.01    3.98 5614.54    5.97 5614.35    7.96 5614.27
    9.95 5614.14   11.94 5614.06   13.93 5614.02   15.92 5613.96   17.91 5613.88
    19.9 5613.79   21.89 5613.67   23.88 5613.51   25.87 5613.41   27.86 5613.28
   29.85 5613.16   31.84 5613.17   33.83  5613.2   35.82 5613.14   37.81 5613.01
    39.8 5612.86   41.79 5612.63   43.78 5612.41   45.77 5612.05   47.76 5611.77
   49.75 5611.34   51.74 5610.64   53.73 5610.13   55.72    5610   57.71    5610
    59.7    5610   61.69 5610.01   63.68    5610   65.67 5610.03   67.66 5611.07
   69.65 5612.22   71.64 5612.68   73.63 5612.98   75.62 5613.27   77.61 5613.49
    79.6 5613.52   81.59 5613.62    82.7 5613.71   83.58 5613.78   83.64 5613.79
   85.57 5614.12   87.56  5614.6   89.55 5614.25   91.54 5612.85   93.53 5611.46
   95.52 5609.83   97.51 5608.24    99.5 5607.77  101.49  5607.3  103.48 5607.04
  105.47 5606.67  107.46 5606.43  109.45 5606.77  111.44 5607.54  113.43 5608.49
  115.42 5609.57  117.41 5610.65   119.4  5611.4  121.06 5611.82  121.39  5611.9

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0      .1   83.64     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          87.56  121.39             51.5   52.96   54.03             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
       0   87.56  5614.6       F

CROSS SECTION


RIVER: TCC
REACH: 5                  RS: 9960

INPUT
Description: 9960
Station Elevation Data    num=      61
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5611.23    1.99 5611.14    3.99 5611.04    5.98 5610.94    7.98 5610.82
    9.97 5610.73   11.96 5610.59   13.96 5610.47   15.95 5610.37   17.94 5610.28
   19.94 5610.12   21.93 5610.02   23.93  5609.9   25.92 5609.66   27.91 5609.45
   29.91 5609.41    31.9  5609.3   33.21  5609.2    33.9 5609.16   35.89 5609.02
   37.88  5608.9   39.88 5608.79   41.87  5608.7   43.86 5608.63   45.86 5608.59
   47.85 5608.61   49.85 5608.91   51.84  5609.6   53.83 5610.04   55.83 5610.27
   57.82 5610.71   59.82 5610.87   61.81 5611.08   63.01 5611.12   63.14 5611.13
    63.8 5611.15    65.8 5611.07   67.79 5610.59   69.78 5609.96   71.78 5609.49
   73.77 5608.95   75.77 5607.98   77.76 5607.01   79.75 5605.87   81.75 5605.47
   83.74  5605.1   85.74  5605.1   87.73 5604.94   89.72 5604.65   91.72 5603.98
   93.71 5603.07    95.7 5602.44    97.7 5602.61   99.69 5603.63  101.69 5605.14
  103.68  5606.1  105.67 5606.78  107.67 5607.12  108.27 5607.19  109.66 5607.34
  111.66 5607.46

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .015   33.21      .1   63.14     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          65.8  111.66             17.84   18.04   18.11             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
       0    63.8 5611.15       T

CROSS SECTION


RIVER: TCC
REACH: 5                  RS: 9942

INPUT
Description: 9942 Upstream of Spring Valley Drive
Station Elevation Data    num=      61
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5610.99    1.93 5610.88    3.85 5610.79    5.78 5610.67    7.71 5610.51
    9.63 5610.39   11.56 5610.29   13.49 5610.17   15.41 5610.06   17.34 5609.94
   19.27 5609.81    21.2 5609.71   23.12 5609.64   25.05 5609.53   26.98 5609.38
    28.9 5609.28   30.83  5609.2   32.76  5609.1   34.68 5608.97   36.65 5608.89
   38.63 5608.78    40.6 5608.65   42.57 5608.52   44.54 5608.44   46.51 5608.33
   48.49 5608.21   50.46  5608.1   52.43 5607.98    54.4 5607.83   56.37 5607.71
   58.34 5607.59   60.32 5607.45   62.29 5607.32   64.26 5607.21   66.23  5607.3
   66.44 5607.33    68.2 5607.57   70.18 5607.78   72.15 5607.86   73.59  5607.9
   74.12 5607.92   76.09 5608.03   78.06 5607.55   80.03  5606.9   82.01 5606.03
   83.98 5604.87   85.95    5603   87.92    5601   89.89  5599.6   91.87  5599.6
   93.84  5599.6   95.81  5599.6   97.78 5599.44   99.75 5599.44  101.72  5599.6
   103.7 5602.34  105.67 5604.49  107.64 5605.86  109.61 5606.61  109.73 5606.62
  111.58 5606.64

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0    .015   73.59     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          76.09  109.73             48.06   53.44   60.76             .6       .8

CULVERT


RIVER: TCC
REACH: 5                  RS: 9937

INPUT
Description: Spring Valley Drive
Distance from Upstream XS =       5
Deck/Roadway Width        =      41
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=       8
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
       0    5611               12    5611               26    5610
      37    5609               54    5608               70    5607
      79  5606.7              114  5605.1

Upstream Bridge Cross Section Data
Station Elevation Data    num=      61
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5610.99    1.93 5610.88    3.85 5610.79    5.78 5610.67    7.71 5610.51
    9.63 5610.39   11.56 5610.29   13.49 5610.17   15.41 5610.06   17.34 5609.94
   19.27 5609.81    21.2 5609.71   23.12 5609.64   25.05 5609.53   26.98 5609.38
    28.9 5609.28   30.83  5609.2   32.76  5609.1   34.68 5608.97   36.65 5608.89
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   38.63 5608.78    40.6 5608.65   42.57 5608.52   44.54 5608.44   46.51 5608.33
   48.49 5608.21   50.46  5608.1   52.43 5607.98    54.4 5607.83   56.37 5607.71
   58.34 5607.59   60.32 5607.45   62.29 5607.32   64.26 5607.21   66.23  5607.3
   66.44 5607.33    68.2 5607.57   70.18 5607.78   72.15 5607.86   73.59  5607.9
   74.12 5607.92   76.09 5608.03   78.06 5607.55   80.03  5606.9   82.01 5606.03
   83.98 5604.87   85.95    5603   87.92    5601   89.89  5599.6   91.87  5599.6
   93.84  5599.6   95.81  5599.6   97.78 5599.44   99.75 5599.44  101.72  5599.6
   103.7 5602.34  105.67 5604.49  107.64 5605.86  109.61 5606.61  109.73 5606.62
  111.58 5606.64

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0    .015   73.59     .06

Bank Sta: Left   Right    Coeff Contr.   Expan.
         76.09  109.73             .6       .8

Downstream  Deck/Roadway Coordinates
    num=       8
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
       0  5611.5              15    5611              43    5609
      77    5607              93  5606.8             129  5605.1
     137    5604             176    5603

Downstream Bridge Cross Section Data
Station Elevation Data    num=      80
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5611.04    1.97 5610.78    3.94 5610.64    5.91 5610.51    7.88  5610.4
    9.85 5610.25   11.81 5610.14   13.78    5610   15.75 5609.88   17.72 5609.78
   19.69 5609.66   21.66 5609.56   23.63 5609.55    25.6 5609.56   27.57 5609.52
   29.54 5609.52   31.51 5609.47   33.47 5609.29   35.44 5609.13   37.41 5609.05
   39.38 5608.95   41.35 5608.83   43.32 5608.73   45.29 5608.71   47.26 5608.39
   49.23 5608.13    51.2 5608.05   53.17 5608.02   55.13 5607.89    57.1 5607.81
   59.07 5607.78   61.04  5607.7   63.01 5607.56   64.98 5607.48   66.95 5607.42
   68.92 5607.25   70.89 5607.02   72.86 5606.73   74.83 5606.33   76.79 5606.06
   78.76 5605.92   80.73 5605.76    82.7 5605.55   84.67  5605.3   86.64 5605.08
   88.61 5604.99   90.58 5604.92   92.55 5604.74   94.52 5604.61   96.49 5604.58
   98.46 5604.48  100.01 5604.47  100.44 5604.46  102.41 5604.44  104.38 5604.42
  104.87 5604.39  106.35 5604.27  108.33 5604.06   110.3 5603.92  112.27 5603.08
  114.24 5599.17  116.22 5599.17  118.19 5598.91  120.16 5598.72  122.13 5598.76
   124.1  5598.9  126.08 5599.13  128.05 5600.06  130.02 5601.14  131.99 5602.08
  133.97 5602.91  135.94 5603.25  137.91 5603.39  139.88 5603.31  140.39 5603.28
  141.86 5603.18  142.35 5603.15  143.83 5603.06   145.8 5603.01  147.77 5602.95

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .08  100.01     .06  140.39     .06

Bank Sta: Left   Right    Coeff Contr.   Expan.
         110.3  137.91             .6       .8

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .98
Elevation at which weir flow begins         = 5605.42
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Culverts =  2

Culvert Name     Shape      Rise    Span
Culvert #1       Ellipse       4    5.33
FHWA Chart # 29- Horizontal Ellipse; Concrete
FHWA Scale # 3 - Grooved end projecting
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    Top n  Bottom n  Depth Blocked  Entrance Loss Coef   Exit Loss Coef
                 5      41     .024     .024      3.9                    .9                  1
Upstream   Elevation =  5599.6
           Centerline Station =  91
Downstream Elevation =  5599.17
           Centerline Station =  117

Culvert Name     Shape      Rise    Span
Culvert #2       Ellipse       4    5.33
FHWA Chart # 29- Horizontal Ellipse; Concrete
FHWA Scale # 3 - Grooved end projecting
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    Top n  Bottom n  Depth Blocked  Entrance Loss Coef   Exit Loss Coef
                 5      41     .024     .024      3.9                    .9                  1
Upstream   Elevation =  5599.44
           Centerline Station =  99
Downstream Elevation =  5599.16
           Centerline Station =  123

CROSS SECTION


RIVER: TCC
REACH: 5                  RS: 9888

INPUT
Description: 9888 Downstream of Spring Valley Drive
Station Elevation Data    num=      80
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5611.04    1.97 5610.78    3.94 5610.64    5.91 5610.51    7.88  5610.4
    9.85 5610.25   11.81 5610.14   13.78    5610   15.75 5609.88   17.72 5609.78
   19.69 5609.66   21.66 5609.56   23.63 5609.55    25.6 5609.56   27.57 5609.52
   29.54 5609.52   31.51 5609.47   33.47 5609.29   35.44 5609.13   37.41 5609.05
   39.38 5608.95   41.35 5608.83   43.32 5608.73   45.29 5608.71   47.26 5608.39
   49.23 5608.13    51.2 5608.05   53.17 5608.02   55.13 5607.89    57.1 5607.81
   59.07 5607.78   61.04  5607.7   63.01 5607.56   64.98 5607.48   66.95 5607.42
   68.92 5607.25   70.89 5607.02   72.86 5606.73   74.83 5606.33   76.79 5606.06
   78.76 5605.92   80.73 5605.76    82.7 5605.55   84.67  5605.3   86.64 5605.08
   88.61 5604.99   90.58 5604.92   92.55 5604.74   94.52 5604.61   96.49 5604.58
   98.46 5604.48  100.01 5604.47  100.44 5604.46  102.41 5604.44  104.38 5604.42
  104.87 5604.39  106.35 5604.27  108.33 5604.06   110.3 5603.92  112.27 5603.08
  114.24 5599.17  116.22 5599.17  118.19 5598.91  120.16 5598.72  122.13 5598.76
   124.1  5598.9  126.08 5599.13  128.05 5600.06  130.02 5601.14  131.99 5602.08
  133.97 5602.91  135.94 5603.25  137.91 5603.39  139.88 5603.31  140.39 5603.28
  141.86 5603.18  142.35 5603.15  143.83 5603.06   145.8 5603.01  147.77 5602.95

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .08  100.01     .06  140.39     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         110.3  137.91            47.82   44.41   41.49             .6       .8

CROSS SECTION


RIVER: TCC
REACH: 5                  RS: 9844

INPUT
Description: 9844
Station Elevation Data    num=      70
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  5603.3    1.99 5603.06    3.98 5603.02    5.96 5603.02    7.95 5602.89
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    9.94 5602.79   11.93 5602.67   13.91 5602.79    15.9 5602.84   17.89 5602.71
   19.88 5602.51   21.87 5602.55   23.85 5602.62   25.84 5602.58   27.83  5602.5
   29.82 5602.42    31.8 5602.37   33.79 5602.25   35.78 5602.21   37.77 5602.25
   39.75 5602.34   41.74 5602.35   43.73 5602.27   45.72  5602.2   47.71 5602.12
   49.69 5602.02   51.68 5601.93   53.67 5601.84   55.66 5601.77   57.64 5601.56
   59.63 5601.17   61.17 5600.47   61.32 5600.41   61.62 5600.27   63.61 5599.17
    65.6 5598.19   67.58 5597.52   69.57 5597.07   71.56 5596.82   73.55 5596.35
   75.53 5595.96   77.52 5595.98   79.51 5596.47    81.5 5596.87   83.48 5597.23
   85.47 5597.79   87.46 5598.55   89.45 5599.06   91.44 5599.35   93.42  5599.6
   94.43 5599.69   95.41 5599.78    97.4 5600.03   98.15 5600.12   99.39 5600.29
  101.37  5600.3  103.36 5600.24  105.35 5600.15  107.34  5600.1  109.31 5600.21
  111.27 5600.33  113.24 5600.54  115.21 5600.67  117.18 5600.77  119.15 5600.76
  121.12 5600.71  123.09 5600.77  125.05 5600.84  127.02 5600.97  128.99 5600.82

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .08   61.17     .06   94.43     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         59.63   91.44            89.84    88.6   86.77             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
       0   13.765612.779

CROSS SECTION


RIVER: TCC
REACH: 5                  RS: 9755

INPUT
Description: 9755
Station Elevation Data    num=      82
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5599.68    1.97 5599.76    3.93 5599.79     5.9 5599.75    7.87  5599.7
    9.84 5599.64   11.81 5599.46   13.77 5599.25   15.74 5599.03   17.71 5598.82
   19.68  5598.6   21.64 5598.38   23.61 5598.17   25.58 5597.95   27.55 5597.73
   29.51 5597.52   31.48  5597.3   33.45 5597.08   35.42 5596.86   37.38 5596.65
   39.35 5596.43   41.32 5596.21   43.29    5596   45.25 5595.78   47.22 5595.59
   49.19 5595.36   51.16 5595.17   53.12  5595.2   55.09 5595.33   57.06 5594.98
   59.03  5594.8   59.37 5594.82   60.99 5594.92   62.96 5595.03   64.93 5594.96
   66.19 5594.75    66.9 5594.63   68.86 5593.49   70.83 5591.84    72.8 5590.56
   74.77 5590.23   76.73 5590.71    78.7 5590.92   80.67 5590.91   82.64 5590.95
    84.6  5590.8   86.57 5590.96   88.54 5591.51   90.51 5592.11   92.47    5593
   94.21 5593.52   94.44 5593.59   96.41 5593.84   98.38 5593.83  100.34 5593.91
  102.31 5594.09  102.55  5594.1  104.28 5594.19  106.25 5594.18  108.21 5594.14
  110.18 5594.06  112.15 5593.95  114.12  5593.9  116.08  5593.8  118.05 5593.77
  119.94 5593.83  121.83 5593.95  123.72 5594.02   125.6 5594.08  127.49 5594.17
  129.38 5594.33  131.27 5594.33  133.15 5594.44  135.04 5594.47  136.93 5594.57
  138.82 5594.63   140.7 5594.78  142.59 5595.03  144.48 5595.29  146.37 5595.41
  148.26 5595.44  150.14 5595.46

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .08   66.19     .06   94.21     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          66.9   96.41            89.87   91.06   92.97             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
       0    40.75606.283

CROSS SECTION


RIVER: TCC
REACH: 5                  RS: 9664

INPUT
Description: 9664
Station Elevation Data    num=      78
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5593.17    1.99 5593.05    3.98 5592.98    5.97  5592.9    7.96 5592.82
    9.95 5592.74   11.94 5592.62   13.93 5592.61   15.92 5592.64   17.91 5592.65
    19.9 5592.66   21.89  5592.6   23.88 5592.59   25.87 5592.59   27.86 5592.42
   29.85 5592.26   31.84 5592.04   33.83 5591.91   35.82 5591.81   37.81 5591.51
    39.8 5591.45   41.79 5591.43   43.78 5591.44   45.77 5591.25   47.76 5590.78
   49.75 5590.68   51.74 5590.51   53.73 5590.41   55.72 5590.24   57.71 5590.03
    59.7  5589.8   61.69 5589.57   63.68 5589.53   65.67  5589.4   67.66 5589.13
   67.95 5589.07   69.65 5588.75   71.32 5588.38   71.64 5588.31   73.63 5587.84
   75.62 5587.01   77.61 5585.81    79.6  5584.5   81.59 5583.38   83.58 5582.81
   85.57 5583.01   87.56  5584.1   89.55 5585.66   91.54 5586.99    93.5 5587.63
   93.53 5587.63   95.52 5587.63   97.51 5587.63    99.5 5587.68  101.49 5587.68
  103.48 5587.76  103.53 5587.76  105.47 5587.88  107.46 5587.97  109.45 5588.02
  111.44 5588.02  113.43 5587.99  115.41 5587.86   117.4 5587.76  119.39 5587.72
  121.38  5587.6  123.37 5587.48  125.25 5587.55  127.13 5587.63  129.01 5587.83
  130.88 5588.18  132.76 5588.37  134.64 5588.51  136.51 5588.61  138.39 5588.73
  140.27 5588.87  142.14 5588.93  144.02 5588.92

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .08   67.95     .06    93.5     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         71.32    93.5            177.06  163.41  139.47             .1       .3

CROSS SECTION


RIVER: TCC
REACH: 4                  RS: 9501

INPUT
Description: 9501
Station Elevation Data    num=     119
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5583.22    1.99 5583.26    3.98 5583.24    5.97 5583.25    7.96 5583.31
    9.95 5583.44   11.94 5583.52   13.93 5583.51   15.92 5583.54   17.91 5583.43
   19.89 5583.38   21.88 5583.42   23.87 5583.43   25.86 5583.45   27.85 5583.44
   29.84 5583.44   31.83 5583.44   33.82 5583.45   35.81 5583.39    37.8 5583.33
   39.79 5583.29   41.78 5583.23   43.77 5583.14   45.76 5583.09   47.75 5582.97
   49.74 5582.88   51.73 5582.78   53.72 5582.65   55.71 5582.55   57.69 5582.51
   59.68 5582.49   61.67 5582.42   63.66 5582.28   65.65  5582.1   67.64 5581.95
   69.63 5581.92   71.62 5581.85   73.61 5581.76    75.6 5581.62   77.59 5581.64
   79.58 5581.66   81.56 5581.67   83.55 5581.62   85.54 5581.55   87.53  5581.4
   89.52 5581.31    91.5 5581.27   93.49 5581.25   95.48 5581.12   95.89 5581.09
   97.47 5580.95   97.94 5580.92   99.46 5580.84  101.44 5580.71  103.43 5580.55
  105.42 5580.29  107.41 5580.02   109.4  5579.2  111.39 5578.37  113.37 5578.52
  115.36 5579.17  117.35 5579.72  119.34 5580.21  121.33 5580.38  123.31 5580.58
   125.3 5580.83  127.29 5581.08  128.36 5581.24  129.28 5581.37  131.27  5581.6
  133.25 5581.89  135.24 5582.16  137.23 5582.31  139.22 5582.36  141.21 5582.52
  143.19 5582.63  145.18  5582.7  146.63 5582.75  147.17  5582.77  149.16 5582.88
  151.15 5582.85  153.13 5582.78  155.12  5582.7  157.11  5582.5   159.1 5582.21
  161.09 5582.02  163.07 5581.91  165.06 5581.86  167.05 5581.81  169.04  5581.9
  171.03  5581.9  173.01 5581.91     175 5581.88  176.99 5581.92  178.98 5581.82
  180.97  5581.6  182.95 5581.47  184.94 5581.33  186.93 5581.18  188.92  5580.9
  190.91 5580.73  192.89 5581.09  194.88 5581.19  196.87 5581.23  198.86 5581.22
  200.85 5581.26  202.84 5581.49  204.82 5581.65  206.81 5581.77  207.24  5581.8
   208.8 5581.91  210.79 5582.06  212.78 5582.17  214.76 5582.28  216.75 5582.38
  218.74  5582.5  220.73 5582.63  222.72 5582.71   224.7 5582.83
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Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .08   95.89     .06  128.36     .06  207.24    .015

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        81.56  149.16              33.85   26.46   18.44             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
  149.16   224.7 5582.88       F

CROSS SECTION


RIVER: TCC
REACH: 4                  RS: 9475

INPUT
Description: 9475 Upstream of Multi-Use Trail (O)
Station Elevation Data    num=     129
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5582.84    1.98 5582.94    3.97 5582.95    5.95 5583.02    7.93 5582.99
    9.92 5582.91    11.9 5582.78   13.88 5582.81   15.87  5582.7   17.85 5582.57
   19.83 5582.53   21.82 5582.46    23.8 5582.36   25.78 5582.41   27.77 5582.42
   29.75 5582.42   31.73 5582.38   33.72 5582.31    35.7 5582.29   37.68 5582.28
   39.67 5582.21   41.65 5582.18   43.63 5582.11   45.61 5581.95    47.6 5581.83
   49.58  5581.7   51.56 5581.66   53.55 5581.73   55.53 5581.76   57.51 5581.77
    59.5 5581.74   61.48 5581.68   63.46 5581.64   65.45 5581.57   67.43 5581.52
   69.41 5581.43    71.4  5581.3   73.38 5581.24   75.36 5581.18   77.35 5581.18
   79.33  5581.2   81.31 5581.18    83.3 5581.14   85.28 5581.16   87.26 5581.05
   89.25 5581.15   91.23 5581.16   93.21 5581.14    95.2 5581.04   97.18 5580.96
   99.16 5580.87  101.15 5580.85   101.9 5580.89  103.13 5580.95  105.11 5581.08
   107.1 5581.09  109.08 5581.26  111.01 5581.25  112.93 5581.24  114.86 5581.16
  116.79 5581.06  117.39 5580.95  118.72 5580.71  120.64  5579.7  122.57 5578.76
   124.5 5578.22  126.43 5577.68  128.35 5577.66  130.28 5577.75  132.21 5577.86
  134.13 5578.28  136.06  5579.2  137.99 5580.26  139.92 5580.86  141.84 5581.24
  143.77 5581.43   145.7 5581.57  147.31 5581.67  147.63 5581.69  149.55 5581.84
  151.48 5582.12  153.44 5582.15   155.4 5582.25  156.27 5582.28  157.36 5582.31
  159.32 5582.29  161.28 5582.23  163.24 5582.06   165.2 5581.89  167.17 5581.74
  169.13 5581.63  171.09 5581.64  173.05 5581.66  175.01 5581.57  176.97 5581.52
  178.93 5581.53  180.89 5581.55  182.85  5581.6  184.81 5581.65  186.77 5581.58
  188.73 5581.46  190.69 5581.51  192.65 5581.36  194.61 5581.12  196.57 5580.91
  198.53 5580.83   200.5 5580.78  202.46 5580.66  204.42 5580.64  206.38  5580.6
  208.34 5580.38   210.3  5580.4  212.26 5580.56  214.22 5580.74  216.18 5580.88
  218.14 5580.97   220.1 5581.17  221.53 5581.26  222.06  5581.3  224.02 5581.42
  225.98 5581.52  227.94 5581.65   229.9 5581.75  231.87 5581.82  233.83  5581.9
  235.79 5581.98  237.75 5582.11  239.71 5582.28  241.67 5582.38

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .08   101.9     .06  147.31     .06  221.53    .015

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        117.39  156.27             24.19   23.02   27.51             .3       .5
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
  157.36  241.67 5582.31       F

BRIDGE


RIVER: TCC
REACH: 4                  RS: 9467

INPUT
Description: Mulit-Use Trail (O)
Distance from Upstream XS =       8
Deck/Roadway Width        =      10
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=       4
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
     104 5581.46 5579.16     109 5584.96 5579.16     138 5585.06 5579.26
     143 5581.56 5579.26

Upstream Bridge Cross Section Data
Station Elevation Data    num=     129
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5582.84    1.98 5582.94    3.97 5582.95    5.95 5583.02    7.93 5582.99
    9.92 5582.91    11.9 5582.78   13.88 5582.81   15.87  5582.7   17.85 5582.57
   19.83 5582.53   21.82 5582.46    23.8 5582.36   25.78 5582.41   27.77 5582.42
   29.75 5582.42   31.73 5582.38   33.72 5582.31    35.7 5582.29   37.68 5582.28
   39.67 5582.21   41.65 5582.18   43.63 5582.11   45.61 5581.95    47.6 5581.83
   49.58  5581.7   51.56 5581.66   53.55 5581.73   55.53 5581.76   57.51 5581.77
    59.5 5581.74   61.48 5581.68   63.46 5581.64   65.45 5581.57   67.43 5581.52
   69.41 5581.43    71.4  5581.3   73.38 5581.24   75.36 5581.18   77.35 5581.18
   79.33  5581.2   81.31 5581.18    83.3 5581.14   85.28 5581.16   87.26 5581.05
   89.25 5581.15   91.23 5581.16   93.21 5581.14    95.2 5581.04   97.18 5580.96
   99.16 5580.87  101.15 5580.85   101.9 5580.89  103.13 5580.95  105.11 5581.08
   107.1 5581.09  109.08 5581.26  111.01 5581.25  112.93 5581.24  114.86 5581.16
  116.79 5581.06  117.39 5580.95  118.72 5580.71  120.64  5579.7  122.57 5578.76
   124.5 5578.22  126.43 5577.68  128.35 5577.66  130.28 5577.75  132.21 5577.86
  134.13 5578.28  136.06  5579.2  137.99 5580.26  139.92 5580.86  141.84 5581.24
  143.77 5581.43   145.7 5581.57  147.31 5581.67  147.63 5581.69  149.55 5581.84
  151.48 5582.12  153.44 5582.15   155.4 5582.25  156.27 5582.28  157.36 5582.31
  159.32 5582.29  161.28 5582.23  163.24 5582.06   165.2 5581.89  167.17 5581.74
  169.13 5581.63  171.09 5581.64  173.05 5581.66  175.01 5581.57  176.97 5581.52
  178.93 5581.53  180.89 5581.55  182.85  5581.6  184.81 5581.65  186.77 5581.58
  188.73 5581.46  190.69 5581.51  192.65 5581.36  194.61 5581.12  196.57 5580.91
  198.53 5580.83   200.5 5580.78  202.46 5580.66  204.42 5580.64  206.38  5580.6
  208.34 5580.38   210.3  5580.4  212.26 5580.56  214.22 5580.74  216.18 5580.88
  218.14 5580.97   220.1 5581.17  221.53 5581.26  222.06  5581.3  224.02 5581.42
  225.98 5581.52  227.94 5581.65   229.9 5581.75  231.87 5581.82  233.83  5581.9
  235.79 5581.98  237.75 5582.11  239.71 5582.28  241.67 5582.38

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .08   101.9     .06  147.31     .06  221.53    .015

Bank Sta: Left   Right    Coeff Contr.   Expan.
        117.39  156.27              .3       .5
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
  157.36  241.67 5582.31       F

Downstream  Deck/Roadway Coordinates
    num=       6
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
  116.73    5580             128 5581.46 5579.66     133 5584.96 5579.66
     160 5585.06 5579.76     165 5581.56 5579.76  183.16  5580.9

Downstream Bridge Cross Section Data
Station Elevation Data    num=     136
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5581.25    1.98 5581.36    3.96 5581.31    5.95 5581.25    7.93 5581.19
    9.91  5581.2   11.89 5581.34   13.87 5581.38   15.86  5581.2   17.84 5581.09
   19.82 5581.04    21.8 5581.09   23.79 5581.06   25.77 5581.08   27.75 5581.09
   29.73 5581.09   31.71 5581.07    33.7 5580.96   35.68 5580.99   37.66 5580.92
   39.64  5580.8   41.62 5580.65   43.61 5580.56   45.59 5580.46   47.57 5580.39
   49.55 5580.43   51.54 5580.28   53.52 5580.16    55.5    5580   57.48 5579.91
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   59.46 5579.86   61.45 5579.73   63.43  5579.6   65.41 5579.37   67.39 5579.25
   69.37 5579.04   71.36 5578.88   73.34 5578.85   75.32  5578.9    77.3 5578.87
   79.29 5578.78   81.27 5578.79   83.25 5578.86   85.23 5578.88   87.21 5578.88
    89.2 5578.85   91.18 5578.79   93.16 5578.81   95.14 5578.87   97.12 5578.85
   99.11 5578.91  101.09 5579.15  103.07 5579.18  105.05 5579.32  107.04 5579.69
  107.05 5579.69  109.02 5580.02     111 5580.03  112.98 5580.04  114.96    5580
  116.95 5579.96  118.51 5579.64  118.93 5579.55  120.91 5578.78  122.86 5578.64
  124.81 5578.66  126.76 5578.68  128.71 5578.73  130.66 5578.77   132.6 5578.77
  134.55 5578.57   136.5 5577.93  138.45 5577.06   140.4 5576.03  142.35 5575.75
   144.3 5575.92  146.25 5576.24   148.2 5576.63  150.15 5577.02   152.1 5577.72
  154.04 5578.58  154.73 5578.81  155.99 5579.22  156.99 5579.39  157.94 5579.55
  159.89 5579.64  161.84 5579.69  163.79 5579.92  165.74  5580.2  167.69 5580.45
  169.64 5580.53  171.59 5580.51  173.53 5580.54  175.48 5580.64  177.43 5580.73
  179.38 5580.78  181.33 5580.82  183.28 5580.88  185.24  5580.9  187.19 5580.94
  189.15 5580.82  191.11 5580.87  193.07 5580.68  195.02 5580.51  196.98 5580.42
  198.94 5580.32   200.9 5580.17  202.85 5579.95  204.81 5579.87  206.77 5579.86
  208.73 5579.81  210.68 5579.81  212.64 5579.82   214.6 5579.79  216.55 5579.81
  218.51 5579.85  220.47 5579.92  222.43 5580.16  224.38 5580.33  226.23 5580.45
  226.34 5580.46   228.3  5580.6  230.26 5580.71  232.21 5580.79  234.17 5580.88
  236.13 5580.97  238.09 5581.05  240.04 5581.13     242 5581.23  243.96 5581.27
  245.91 5581.41  247.87  5581.5  249.83  5581.6  251.79 5581.67  253.74 5581.75
   255.7 5581.89

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .08  107.05     .06  154.73     .06  226.23    .015

Bank Sta: Left   Right    Coeff Contr.   Expan.
        116.95  157.94          .3         .5
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
       0     111 5580.03       F

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .98
Elevation at which weir flow begins         = 5580.38
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
Selected Low Flow Methods = Highest Energy Answer

High Flow Method
       Energy Only

Additional Bridge Parameters
       Add Friction component to Momentum
       Do not add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION


RIVER: TCC
REACH: 4                  RS: 9452

INPUT
Description: 9452 Downstream of Multi-Use Trail (O)
Station Elevation Data    num=     136
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5581.25    1.98 5581.36    3.96 5581.31    5.95 5581.25    7.93 5581.19
    9.91  5581.2   11.89 5581.34   13.87 5581.38   15.86  5581.2   17.84 5581.09
   19.82 5581.04    21.8 5581.09   23.79 5581.06   25.77 5581.08   27.75 5581.09
   29.73 5581.09   31.71 5581.07    33.7 5580.96   35.68 5580.99   37.66 5580.92
   39.64  5580.8   41.62 5580.65   43.61 5580.56   45.59 5580.46   47.57 5580.39
   49.55 5580.43   51.54 5580.28   53.52 5580.16    55.5    5580   57.48 5579.91
   59.46 5579.86   61.45 5579.73   63.43  5579.6   65.41 5579.37   67.39 5579.25
   69.37 5579.04   71.36 5578.88   73.34 5578.85   75.32  5578.9    77.3 5578.87
   79.29 5578.78   81.27 5578.79   83.25 5578.86   85.23 5578.88   87.21 5578.88
    89.2 5578.85   91.18 5578.79   93.16 5578.81   95.14 5578.87   97.12 5578.85
   99.11 5578.91  101.09 5579.15  103.07 5579.18  105.05 5579.32  107.04 5579.69
  107.05 5579.69  109.02 5580.02     111 5580.03  112.98 5580.04  114.96    5580
  116.95 5579.96  118.51 5579.64  118.93 5579.55  120.91 5578.78  122.86 5578.64
  124.81 5578.66  126.76 5578.68  128.71 5578.73  130.66 5578.77   132.6 5578.77
  134.55 5578.57   136.5 5577.93  138.45 5577.06   140.4 5576.03  142.35 5575.75
   144.3 5575.92  146.25 5576.24   148.2 5576.63  150.15 5577.02   152.1 5577.72
  154.04 5578.58  154.73 5578.81  155.99 5579.22  156.99 5579.39  157.94 5579.55
  159.89 5579.64  161.84 5579.69  163.79 5579.92  165.74  5580.2  167.69 5580.45
  169.64 5580.53  171.59 5580.51  173.53 5580.54  175.48 5580.64  177.43 5580.73
  179.38 5580.78  181.33 5580.82  183.28 5580.88  185.24  5580.9  187.19 5580.94
  189.15 5580.82  191.11 5580.87  193.07 5580.68  195.02 5580.51  196.98 5580.42
  198.94 5580.32   200.9 5580.17  202.85 5579.95  204.81 5579.87  206.77 5579.86
  208.73 5579.81  210.68 5579.81  212.64 5579.82   214.6 5579.79  216.55 5579.81
  218.51 5579.85  220.47 5579.92  222.43 5580.16  224.38 5580.33  226.23 5580.45
  226.34 5580.46   228.3  5580.6  230.26 5580.71  232.21 5580.79  234.17 5580.88
  236.13 5580.97  238.09 5581.05  240.04 5581.13     242 5581.23  243.96 5581.27
  245.91 5581.41  247.87  5581.5  249.83  5581.6  251.79 5581.67  253.74 5581.75
   255.7 5581.89

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .08  107.05     .06  154.73     .06  226.23    .015

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        116.95  157.94          5.66   28.72   52.26             .3         .5
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
       0     111 5580.03       F

CROSS SECTION


RIVER: TCC
REACH: 4                  RS: 9423

INPUT
Description: 9423
Station Elevation Data    num=      86
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5581.18    1.99 5581.13    3.97 5581.11    5.96  5581.1    7.94 5581.07
    9.93 5581.06   11.91 5581.01    13.9 5580.98   15.88    5581   17.87 5580.99
   19.85 5580.93   21.84 5580.93   23.82 5580.92   25.81 5580.99    27.8 5580.94
   29.78 5580.92   31.77 5580.85   33.75 5580.81   35.74 5580.72   37.72 5580.72
   39.71 5580.56   41.69 5580.44   43.68 5580.27   45.66 5580.15   47.65 5580.04
   49.63 5579.95   51.62 5579.83   53.61 5579.68   55.59 5579.57   57.58 5579.48
   59.56 5579.44   61.55 5579.32   63.53 5579.23   65.52 5579.21    67.5 5579.09
   69.49 5579.02   71.47 5578.92   73.46 5578.87   75.44 5578.88   77.43 5578.78
   79.42 5578.73    81.4 5578.68   83.39 5578.65   85.37 5578.64   87.36 5578.65
   89.34 5578.67   91.33 5578.74   93.31 5578.79    95.3 5578.83   97.28 5578.91
   99.27 5578.98  101.25 5579.08  103.24 5579.22  105.23 5579.46  107.21 5579.58
  107.49 5579.57   109.2  5579.5  111.18 5579.48  113.17 5579.48  115.15 5579.47
  116.98 5579.26  117.14 5579.25  119.12 5578.88  121.11 5578.56  123.09 5578.01
  125.08 5577.33  127.06 5576.45  129.05 5575.68  131.04 5575.04  133.02  5574.6
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  135.01 5574.45  136.99 5575.11  138.98 5575.98  140.96 5576.59  141.53  5576.6
  142.91 5576.62  142.95 5576.62  144.93 5576.54  146.92 5576.36  148.51 5576.41
   148.9 5576.43  150.89 5576.46  152.87 5576.53  154.86  5576.6  156.85 5576.64
  158.83 5576.75

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .08  107.49     .06  141.53     .06  148.51    .015

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        116.98  140.96             47.4   49.29   50.82              .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
       0  107.21 5579.58       F

CROSS SECTION


RIVER: TCC
REACH: 4                  RS: 9374

INPUT
Description: 9374 Upstream of Wonderland Hill Avenue
Station Elevation Data     num=      101
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5578.56    1.99 5578.51    3.99 5578.39    5.98  5578.3    7.98 5578.18
    9.97 5577.99   11.96 5577.88   13.96  5577.7   15.95 5577.59   17.94 5577.48
   19.94 5577.38   21.93 5577.27   23.93 5577.19   25.92 5577.14   27.91 5577.09
   29.91 5576.98    31.9 5576.88   33.89 5576.85   35.89 5576.81   37.88 5576.79
   39.88 5576.71   41.87 5576.72   43.86 5576.71   45.86 5576.64   47.85 5576.58
   49.84 5576.49   51.84 5576.38   53.83 5576.27   55.83 5576.26   57.82 5576.29
   59.81 5576.22   61.81 5576.12    63.8 5576.07   65.79 5576.06   67.79 5576.06
   69.78 5576.04   71.78 5575.99   73.77 5576.02   75.76 5576.04   77.76 5576.01
   79.75 5575.95   81.75 5575.84   83.74 5575.76   85.73 5575.77   87.73 5575.76
   89.72 5575.71   91.71 5575.68   93.71 5575.65    95.7 5575.62    97.7 5575.58
   99.69 5575.51  101.68 5575.39  103.68 5575.33  105.67 5575.33  107.66  5575.3
  109.66 5575.27  111.65 5575.32  113.65 5575.36  115.64  5575.3  117.63 5575.28
  119.63 5575.27  121.62 5575.21  123.61 5575.23  125.61 5575.22   127.6 5575.12
   129.6 5575.08  131.59 5575.02  133.58 5574.97  135.58 5574.89  137.57 5574.76
  139.57 5574.67  141.56 5574.59  143.12 5574.56  143.55 5574.55  145.55 5574.56
  147.54 5574.54  149.53 5574.46  151.53  5574.4  153.52 5574.33  154.71 5574.26
  155.52 5574.22  157.51 5573.73   159.5 5572.63   161.5 5571.69  163.49  5569.5
  165.48 5568.86  167.48 5568.86  169.47  5571.1  171.47 5572.48  173.46  5573.7
  175.45 5574.12  175.81 5574.11  177.45 5574.04  177.55 5574.04  179.44 5574.01
  181.44 5574.03  183.43 5574.02  185.42 5574.02  187.42 5574.04  189.41 5574.06
   191.4 5574.07

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .08  143.12     .06  175.81    .015

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        154.71  175.45            112.3  113.36  114.76              .6       .8

CULVERT


RIVER: TCC
REACH: 4                  RS: 9368

INPUT
Description: Wonderland Hill Avenue
Distance from Upstream XS =      6
Deck/Roadway Width        =    101
Weir Coefficient          =    2.6
Upstream  Deck/Roadway Coordinates
    num=      2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
     150 5573.32             200 5573.32

Upstream Bridge Cross Section Data
Station Elevation Data    num=     101
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5578.56    1.99 5578.51    3.99 5578.39    5.98  5578.3    7.98 5578.18
    9.97 5577.99   11.96 5577.88   13.96  5577.7   15.95 5577.59   17.94 5577.48
   19.94 5577.38   21.93 5577.27   23.93 5577.19   25.92 5577.14   27.91 5577.09
   29.91 5576.98    31.9 5576.88   33.89 5576.85   35.89 5576.81   37.88 5576.79
   39.88 5576.71   41.87 5576.72   43.86 5576.71   45.86 5576.64   47.85 5576.58
   49.84 5576.49   51.84 5576.38   53.83 5576.27   55.83 5576.26   57.82 5576.29
   59.81 5576.22   61.81 5576.12    63.8 5576.07   65.79 5576.06   67.79 5576.06
   69.78 5576.04   71.78 5575.99   73.77 5576.02   75.76 5576.04   77.76 5576.01
   79.75 5575.95   81.75 5575.84   83.74 5575.76   85.73 5575.77   87.73 5575.76
   89.72 5575.71   91.71 5575.68   93.71 5575.65    95.7 5575.62    97.7 5575.58
   99.69 5575.51  101.68 5575.39  103.68 5575.33  105.67 5575.33  107.66  5575.3
  109.66 5575.27  111.65 5575.32  113.65 5575.36  115.64  5575.3  117.63 5575.28
  119.63 5575.27  121.62 5575.21  123.61 5575.23  125.61 5575.22   127.6 5575.12
   129.6 5575.08  131.59 5575.02  133.58 5574.97  135.58 5574.89  137.57 5574.76
  139.57 5574.67  141.56 5574.59  143.12 5574.56  143.55 5574.55  145.55 5574.56
  147.54 5574.54  149.53 5574.46  151.53  5574.4  153.52 5574.33  154.71 5574.26
  155.52 5574.22  157.51 5573.73   159.5 5572.63   161.5 5571.69  163.49  5569.5
  165.48 5568.86  167.48 5568.86  169.47  5571.1  171.47 5572.48  173.46  5573.7
  175.45 5574.12  175.81 5574.11  177.45 5574.04  177.55 5574.04  179.44 5574.01
  181.44 5574.03  183.43 5574.02  185.42 5574.02  187.42 5574.04  189.41 5574.06
   191.4 5574.07

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .08  143.12     .06  175.81    .015

Bank Sta: Left   Right    Coeff Contr.   Expan.
        154.71  175.45             .6       .8

Downstream  Deck/Roadway Coordinates
    num=      2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
      75    5570             200    5570

Downstream Bridge Cross Section Data
Station Elevation Data    num=      74
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5576.37    1.98  5576.3    3.97 5576.19    5.95  5576.1    7.94 5576.05
    9.92 5576.01    11.9 5575.96   13.89 5575.83   15.87 5575.83   17.86 5575.88
   19.84 5575.78   21.82 5575.61   23.81 5575.57   25.79 5575.54   27.78 5575.16
   29.76 5574.85   31.74 5574.54   33.73 5574.22   35.71 5574.05    37.7 5573.97
   39.68 5573.93   41.66 5573.79   43.65  5573.7   45.63 5573.63   47.62 5573.43
    49.6 5573.31   51.58 5573.21   53.57 5573.09   55.55 5573.01   57.54 5572.72
   59.52 5572.45    61.5 5572.26   63.49 5572.12   65.47 5572.02   67.46 5571.97
   69.44  5571.9   71.42 5571.83   73.41 5571.79   75.39 5571.68   77.38 5571.57
   79.36 5571.49   81.34 5571.47   83.33 5571.37   85.31 5571.21    87.3  5570.5
   89.28 5570.33   91.26 5569.89   93.25 5569.35   95.23 5568.52   97.22 5567.59
   98.86 5566.55    99.2 5566.33  101.18 5566.59  103.17 5567.65  105.15 5568.23
  107.14 5568.44  109.12  5567.9   111.1  5567.8  113.09 5566.67  114.04 5566.67
    116 5566.67  117.06 5568.74  119.04 5568.88  121.02 5568.87  123.01 5568.72
  124.99 5568.35  126.98 5568.28  128.96 5568.35  130.45 5568.35  130.94 5568.35
  132.93 5568.34  134.91 5568.36   136.9 5568.37  138.88 5568.37

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0     .13  114.04    .015
```

```
Bank Sta: Left   Right    Coeff Contr.   Expan.
         93.25  119.04             .6       .8

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .98
Elevation at which weir flow begins         = 5573.32
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Culverts =  1

Culvert Name     Shape      Rise    Span
Culvert #1       Ellipse    2.66     4.5
FHWA Chart # 29- Horizontal Ellipse; Concrete
FHWA Scale # 3 - Grooved end projecting
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    Top n  Bottom n  Depth Blocked  Entrance Loss Coef   Exit Loss Coef
                   6     101      .02      .02      2.6                   .5                 1
Upstream   Elevation =  5568.86
           Centerline Station =  166
Downstream Elevation =  5566.67
           Centerline Station =  114

CROSS SECTION


RIVER: TCC
REACH: 4                   RS: 9260

INPUT
Description: 9260 Downstream of Wonderland  Hill Avenue
Station Elevation Data    num=      74
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5576.37    1.98  5576.3    3.97 5576.19    5.95  5576.1    7.94 5576.05
    9.92 5576.01    11.9 5575.96   13.89 5575.83   15.87 5575.83   17.86 5575.88
   19.84 5575.78   21.82 5575.61   23.81 5575.57   25.79 5575.54   27.78 5575.16
   29.76 5574.85   31.74 5574.54   33.73 5574.22   35.71 5574.05    37.7 5573.97
   39.68 5573.93   41.66 5573.79   43.65  5573.7   45.63 5573.63   47.62 5573.43
    49.6 5573.31   51.58 5573.21   53.57 5573.09   55.55 5573.01   57.54 5572.72
   59.52 5572.45    61.5 5572.26   63.49 5572.12   65.47 5572.02   67.46 5571.97
   69.44  5571.9   71.42 5571.83   73.41 5571.79   75.39 5571.68   77.38 5571.57
   79.36 5571.49   81.34 5571.47   83.33 5571.37   85.31 5571.21    87.3  5570.5
   89.28 5570.33   91.26 5569.89   93.25 5569.35   95.23 5568.52   97.22 5567.59
   98.86 5566.55    99.2 5566.33  101.18 5566.59  103.17 5567.65  105.15 5568.23
  107.14 5568.44  109.12  5567.9   111.1  5567.8  113.09 5566.67  114.04 5566.67
     116 5566.67  117.06 5568.74  119.04 5568.88  121.02 5568.87  123.01 5568.72
  124.99 5568.35  126.98 5568.28  128.96 5568.35  130.45 5568.35  130.94 5568.35
  132.93 5568.34  134.91 5568.36   136.9 5568.37  138.88 5568.37

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0     .13  114.04    .015

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         93.25  119.04             33.85   33.88   34.35             .6       .8

CROSS SECTION


RIVER: TCC
REACH: 4                   RS: 9226

INPUT
Description: 9226
Station Elevation Data    num=      74
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0    5576    1.99 5575.93    3.98 5575.82    5.97 5575.63    7.96 5575.45
    9.96 5575.26   11.95 5575.08   13.94  5574.9   15.93 5574.71   17.92 5574.53
   19.91 5574.37    21.9  5574.2   23.89 5574.01   25.88 5573.85   27.88 5573.72
   29.87 5573.59   31.86 5573.45   33.85 5573.32   35.84 5573.18   37.83 5573.05
   39.82 5572.92   41.81 5572.83   43.81 5572.77    45.8 5572.63   47.79 5572.32
   49.78 5571.92   51.77 5571.78   53.76 5571.66   55.75 5571.57   57.74 5571.43
   59.73 5571.28   61.73 5571.07   63.72 5570.85   65.71 5570.64    67.7 5570.44
   69.69 5570.27   71.68 5570.11   73.67 5570.08   75.66 5570.02   77.65 5569.91
   79.65 5569.76   81.64 5569.33   83.63 5568.77   85.62 5568.06   87.61 5567.19
    89.6 5566.08   91.59 5564.92   93.58 5565.49   95.57 5566.73   97.57 5567.29
   99.03 5567.23   99.56  5567.2  101.55 5566.68  103.54 5565.85  105.53  5565.1
  108.55 5563.48  109.51 5564.58   111.5 5565.52   113.5 5566.41  115.49 5566.88
  117.48 5567.11  119.47 5567.19  121.46 5567.21  122.85 5567.18  123.45 5567.17
  125.44 5566.99  127.43 5566.61  129.42 5566.72  130.44  5566.7  131.42 5566.68
  133.41  5566.7   135.4 5566.74  137.39 5566.77  139.38  5566.8

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0     .13  122.85    .015

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         85.62  117.48             55.1   49.88   27.84             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
       0    46.65582.567

CROSS SECTION


RIVER: TCC
REACH: 4                   RS: 9176

INPUT
Description: 9176 Upstream of Linden Avenue
Station Elevation Data    num=      63
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5570.16    1.98 5570.07    3.96 5570.07    5.94 5569.91    7.92 5569.78
     9.9  5569.7   11.87 5569.76   13.85 5569.65   15.83 5569.55   17.81 5569.47
   19.79 5569.33   21.77 5569.17   23.75 5569.09   25.73 5568.86   27.71 5568.75
   29.69 5568.57   31.67 5568.43   33.64 5568.37   35.62 5568.24    37.6  5568.1
   39.58 5568.02   41.56  5567.8   43.54 5567.53   45.52 5567.29    47.5 5567.07
   49.48 5566.85   51.46 5566.79   53.43 5566.77   55.41 5566.84   57.39 5566.83
   59.37 5566.66   61.35 5566.32   63.33 5565.95   65.31 5565.48   67.29 5564.75
   69.27 5563.51   71.25  5562.9   73.23 5563.39    75.2 5564.04   77.18 5564.56
   79.16 5564.92   80.38 5564.87   81.14 5564.84   83.05 5564.54   84.97 5564.44
   86.88 5564.13   92.62 5560.74   94.53 5560.74   96.44 5560.74   97.87 5560.74
   98.35 5560.74  100.27 5561.89  102.18 5561.89  104.09 5561.89     106 5561.89
  107.92 5561.89  109.83 5565.14  111.74 5565.23  113.65  5565.3  115.57 5565.42
  116.02 5565.43  117.48 5565.47  119.39 5565.52

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0     .13   97.87    .015

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         61.35   79.16             56.08   53.11   27.66             .6       .8
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
       0   50.225576.795       F

CULVERT
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```
RIVER: TCC
REACH: 4                    RS: 9168

INPUT
Description: Linden Avenue
Distance from Upstream XS =       8
Deck/Roadway Width        =      44
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=        3
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
       0    5564             105    5565             118    5565

Upstream Bridge Cross Section Data
Station Elevation Data    num=      63
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5570.16    1.98 5570.07    3.96 5570.07    5.94 5569.91    7.92 5569.78
     9.9  5569.7   11.87 5569.76   13.85 5569.65   15.83 5569.55   17.81 5569.47
   19.79 5569.33   21.77 5569.17   23.75 5569.09   25.73 5568.86   27.71 5568.75
   29.69 5568.57   31.67 5568.43   33.64 5568.37   35.62 5568.24    37.6  5568.1
   39.58 5568.02   41.56  5567.8   43.54 5567.53   45.52 5567.29    47.5 5567.07
   49.48 5566.85   51.46 5566.79   53.43 5566.77   55.41 5566.84   57.39 5566.83
   59.37 5566.66   61.35 5566.32   63.33 5565.95   65.31 5565.48   67.29 5564.75
   69.27 5563.51   71.25  5562.9   73.23 5563.39    75.2 5564.04   77.18 5564.56
   79.16 5564.92   80.38 5564.87   81.14 5564.84   83.05 5564.54   84.97 5564.44
   86.88 5564.13   92.62 5560.74   94.53 5560.74   96.44 5560.74   97.87 5560.74
   98.35 5560.74  100.27 5561.89  102.18 5561.89  104.09 5561.89     106 5561.89
  107.92 5561.89  109.83 5565.14  111.74 5565.23  113.65  5565.3  115.57 5565.42
  116.02 5565.43  117.48 5565.47  119.39 5565.52

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0     .13   97.87    .015

Bank Sta: Left   Right    Coeff Contr.   Expan.
         61.35   79.16             .6       .8
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
       0   50.225576.795       F

Downstream  Deck/Roadway Coordinates
    num=        2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
       0    5563             200    5563

Downstream Bridge Cross Section Data
Station Elevation Data    num=      48
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5563.06    1.98  5563.1    3.96  5563.1    5.95 5563.07    7.93 5563.03
    9.91 5562.96   10.75 5562.93   11.89 5562.88   13.88 5562.86   15.86 5562.86
   17.84  5562.5   19.82 5558.71    21.8 5558.71   23.74 5558.71   25.67 5558.53
    26.3 5558.53    27.6 5558.53   29.54 5558.53   31.47 5558.53    33.4 5561.21
   35.34 5561.03   37.27 5561.21   38.29  5561.3    39.2 5561.38   41.14  5561.3
   43.07 5561.25      45 5561.32   46.94 5561.58   48.87 5561.48    50.8 5561.48
   52.73 5561.43   54.67 5561.45    56.6 5561.74   58.53  5561.7   60.39 5562.71
   60.84 5562.94   62.24 5563.63   64.09 5564.42   65.94 5564.52   67.79 5564.71
   69.65 5564.89    71.5 5564.99   73.35 5565.06    75.2 5565.15   77.05 5565.22
    78.9 5565.31   80.76 5565.41   82.61 5565.51

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .015    26.3     .05   60.84    .015

Bank Sta: Left   Right    Coeff Contr.   Expan.
         15.86   60.84             .6       .8

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .98
Elevation at which weir flow begins         = 5564.61
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Culverts =  2

Culvert Name     Shape      Rise    Span
Culvert #1       Ellipse    1.16       3
FHWA Chart # 29- Horizontal Ellipse; Concrete
FHWA Scale # 3 - Grooved end projecting
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    Top n  Bottom n  Depth Blocked  Entrance Loss Coef   Exit Loss Coef
                 8      44       .02       .02       1.1                   .5                 1
Upstream   Elevation =  5560.74
           Centerline Station =  94
Downstream Elevation =  5558.71
           Centerline Station =  22

Culvert Name     Shape      Rise    Span
Culvert #2       Ellipse    2.66    3.58
FHWA Chart # 29- Horizontal Ellipse; Concrete
FHWA Scale # 3 - Grooved end projecting
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    Top n  Bottom n  Depth Blocked  Entrance Loss Coef   Exit Loss Coef
                 8      44       .2        .2       2.6                   .5                 1
Upstream   Elevation =  5561.89
           Centerline Station =  105
Downstream Elevation =  5558.53
           Centerline Station =  29

CROSS SECTION


RIVER: TCC
REACH: 4                    RS: 9123

INPUT
Description: 9123 Downstream of Linden Avenue
Station Elevation Data    num=      48
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5563.06    1.98  5563.1    3.96  5563.1    5.95 5563.07    7.93 5563.03
    9.91 5562.96   10.75 5562.93   11.89 5562.88   13.88 5562.86   15.86 5562.86
   17.84  5562.5   19.82 5558.71    21.8 5558.71   23.74 5558.71   25.67 5558.53
    26.3 5558.53    27.6 5558.53   29.54 5558.53   31.47 5558.53    33.4 5561.21
   35.34 5561.03   37.27 5561.21   38.29  5561.3    39.2 5561.38   41.14  5561.3
   43.07 5561.25      45 5561.32   46.94 5561.58   48.87 5561.48    50.8 5561.48
   52.73 5561.43   54.67 5561.45    56.6 5561.74   58.53  5561.7   60.39 5562.71
   60.84 5562.94   62.24 5563.63   64.09 5564.42   65.94 5564.52   67.79 5564.71
   69.65 5564.89    71.5 5564.99   73.35 5565.06    75.2 5565.15   77.05 5565.22
    78.9 5565.31   80.76 5565.41   82.61 5565.51

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .015    26.3     .05   60.84    .015

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         15.86   60.84             9.02   13.22    38.6              .6       .8

CROSS SECTION
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```
RIVER: TCC
REACH: 3                    RS: 9110

INPUT
Description: 9110
Station Elevation Data    num=      66
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
        0 5562.69    1.99 5562.73    3.99 5562.74    5.98 5562.72    7.97  5562.7
     9.96 5562.69   11.96 5562.68   13.95 5562.65   15.94 5562.42   17.32 5562.42
    17.94 5562.41   19.93 5562.12   21.84 5561.27   21.92 5561.23   23.91 5560.15
    25.91 5559.22    27.9 5557.91   29.89 5556.48   31.89 5556.55   33.88 5556.68
    35.87 5556.82   37.86 5557.54   39.86 5558.09   41.85 5558.15   43.84 5558.48
    45.84 5559.21   47.83 5559.76   49.82 5560.03   51.42 5560.02   51.81 5560.01
    53.32 5559.95   53.81 5559.92    55.8 5559.94   57.79  5560.2   59.78 5560.38
    61.78 5560.45   63.77 5560.48   65.76 5560.61   67.76 5560.67   69.75 5560.67
    71.74  5560.6   73.73 5560.46   75.73 5560.44   77.72 5560.46   79.71 5560.46
    81.71 5560.41    83.7 5560.39   85.69 5560.47   87.68 5560.51   89.68 5560.52
    91.67 5560.55   93.66 5560.67   95.65 5560.83   97.64 5560.91   99.63 5560.99
   101.62 5561.19  103.61 5561.47   105.6 5561.88  107.59 5562.09  109.58 5562.16
   111.57  5562.2  113.56 5562.26  115.55 5562.36  117.54 5562.45  119.53 5562.55
   121.52 5562.67

Manning's n Values        num=       3
      Sta   n Val     Sta   n Val     Sta   n Val
        0    .015   21.84     .05   53.32     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          19.93   49.82            107.36  105.02     106              .1       .3

CROSS SECTION


RIVER: TCC
REACH: 3                    RS: 9005

INPUT
Description: 9005
Station Elevation Data    num=      95
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
        0 5557.38    1.99 5557.42    3.98 5557.48    5.98 5557.46    7.97 5557.41
     9.96 5557.38   11.95 5557.35   13.94 5557.34   15.94 5557.32   17.93 5557.24
    19.92 5556.96   20.67 5556.94   21.91 5556.92    23.9 5556.76   25.89 5556.79
    27.89 5556.93   29.88 5556.97   31.87 5556.82   33.86 5556.64   35.85 5556.44
    37.85 5556.24   39.84 5556.24   41.83 5556.15   43.82 5555.92   45.81  5555.3
    47.81 5554.48    49.8 5553.93   51.79 5553.55   53.78 5553.27   55.77 5553.48
    57.77  5554.8   59.76 5555.34   61.75 5555.22   63.74 5555.03   65.73 5554.83
    67.72 5554.85   69.72 5554.71   71.71 5554.56    73.7 5554.47   75.69 5554.31
    77.68 5554.16   79.68 5554.08   81.67 5553.84   83.07 5553.59   83.66 5553.48
    85.65 5552.82   86.63 5552.27   87.64 5551.69   89.64 5550.63   91.63 5550.22
    93.62  5550.6   95.61 5551.28    97.6 5551.56   99.59 5551.46  101.59 5551.28
   103.58 5551.39  105.57 5551.78  107.56 5552.46  109.55 5553.42  111.55 5554.17
   113.43 5554.47  113.54 5554.49  115.42 5554.71  115.53 5554.72  117.52 5554.81
   119.51 5554.96  121.51 5555.08   123.5 5555.11  125.49 5555.15  127.48 5555.24
   129.47 5555.26  131.47 5555.12  133.46 5554.98  135.45 5555.07  137.44 5554.99
   139.43 5555.03  141.42 5554.97  143.42 5554.93  145.41 5554.86   147.4 5554.86
   149.39 5554.91  151.38 5554.94  153.38 5554.99  155.37 5555.06  157.36 5555.09
   159.35 5555.27  161.34 5555.34  163.34 5555.32  165.33 5555.31  167.32 5555.26
   169.31 5555.16   171.3 5555.07  173.29 5554.96  175.29 5554.88  177.28 5554.75

Manning's n Values        num=       4
      Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
        0    .015   20.67     .13   86.63     .05  113.43     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          83.07  113.54            94.83   92.83   90.18              .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
  135.75  164.885565.305       F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
  164.88  177.285564.747

CROSS SECTION


RIVER: TCC
REACH: 3                    RS: 8912

INPUT
Description: 8912
Station Elevation Data    num=      92
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
        0 5551.29    1.99 5551.21    3.99  5551.4    5.98 5551.34    7.98  5551.3
     9.97 5551.23   11.97  5551.2   13.96  5551.2   15.96 5551.13   17.95 5551.13
    19.94 5551.18   21.94 5551.18   23.93 5551.15   25.93 5551.25   27.92  5551.3
    29.92 5551.26   31.91 5551.19    33.9 5551.19    35.9 5550.81   37.89 5549.82
    39.89 5550.18   41.88 5551.35   43.88 5551.82   45.87 5551.54   47.87 5551.04
    49.86  5550.8   51.85 5550.65   53.85 5550.23   55.84 5549.79   55.94 5549.77
    57.84 5549.35   59.83  5548.9   61.83  5548.6   63.34 5548.36   63.82 5548.28
    65.81 5547.53   67.81 5546.26    69.8 5545.38    71.8 5545.05   73.79 5544.98
    75.79 5545.02   77.78 5545.21   79.78 5545.72   81.77 5546.44   83.76 5547.19
    85.76 5547.74   87.75 5547.91   89.75 5548.08   91.74 5548.24   93.74 5548.34
    95.73 5548.42    97.6 5548.68   97.73  5548.7   98.89 5548.89   99.72 5549.04
   101.71 5549.49  103.71 5549.85   105.7 5549.86   107.7    5550  109.69 5550.08
   111.69  5550.1  113.68 5550.22  115.67 5550.26  117.64 5550.37  119.61  5550.5
   121.57 5550.63  123.54 5550.64  125.51  5550.7  127.47 5550.79  129.44 5550.89
   131.41 5550.97  133.37  5551.1  135.34 5551.18  137.31 5551.28  139.27 5551.41
   141.24 5551.43  143.21 5551.57  145.17 5551.83  147.14 5552.15  149.11 5552.52
   151.07 5552.85  153.04 5553.19  155.01 5553.52  156.97 5553.91  158.94 5554.23
   160.91  5554.4  162.87 5554.49  164.84 5554.55  166.81 5554.58  168.77 5554.61
   170.74 5554.61  172.71 5554.62

Manning's n Values        num=       3
      Sta   n Val     Sta   n Val     Sta   n Val
        0     .13   63.34     .05    97.6     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          63.82   85.76            127.67  120.13   109.5              .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
   161.2  172.715564.621

CROSS SECTION


RIVER: TCC
REACH: 3                    RS: 8792

INPUT
Description: 8792
Station Elevation Data    num=      95
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
        0 5547.74    1.99 5547.65    3.98 5547.57    5.97 5547.48    7.97 5547.37
     9.96 5547.27   11.95 5547.12   13.94    5547   15.93 5546.89   17.92 5546.82
    19.92 5546.76   21.91 5546.65    23.9 5546.57   25.89 5546.48   27.88 5546.42
    29.87 5546.35   31.87 5546.27   33.86 5546.21   35.85 5546.23   37.84 5546.17
    39.83 5546.11   41.82 5546.06   43.82 5546.03   45.81 5545.97    47.8 5545.91
    49.79 5545.86   51.78 5545.85   53.77 5545.79   55.76  5545.7   57.76 5545.64
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   59.75 5545.57   61.74 5545.45   63.73 5545.38   65.72  5545.3   67.71 5545.22
   69.71 5545.16    71.7 5545.12   73.69 5545.09   75.68 5545.04   77.67 5544.92
   79.66  5544.8   81.66 5544.82   83.65  5544.9   85.64 5544.91   87.63 5544.81
   89.62 5544.69   91.61  5544.6   93.61 5544.59    95.6 5544.59   97.59 5544.54
   99.58 5544.51  101.57 5544.46  103.56 5544.45  105.55 5544.41  107.55 5544.35
  109.54 5544.29  111.53 5544.23  113.52 5544.22  115.51 5544.25   117.5 5544.21
  119.49    5544  121.48 5544.81  123.46 5544.86  125.45 5544.52  127.32 5544.22
  127.44  5544.2  128.88 5544.01  129.42 5543.94  131.41 5543.24  133.39 5542.18
  135.38  5541.1  137.37 5540.29  139.35 5539.92  141.34 5539.21  143.32  5538.9
  145.31 5539.61   147.3 5540.67  149.28 5541.81  151.27 5542.41  153.26 5542.74
  155.24 5542.87  157.23 5542.89  159.21    5543  160.65  5543.1   161.2 5543.14
  163.19 5543.22  165.17 5543.39  167.16 5543.56  169.15 5543.71  171.13 5543.96
  172.39 5544.05  173.12  5544.1   175.1 5544.18  177.09 5544.37  179.08 5544.53

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13  128.88     .05  160.65     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        123.46  155.24           114.95  117.12  118.74             .1       .3

CROSS SECTION


RIVER: TCC
REACH: 2                  RS: 8675

INPUT
Description: 8675
Station Elevation Data    num=     192
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5543.45    1.99 5543.38    3.99 5543.24    5.98  5543.1    7.97 5543.02
    9.97 5542.88   11.96 5542.65   13.95 5542.42   15.95 5542.18   17.94 5541.98
   19.93 5541.76   21.93 5541.51   23.92 5541.21   25.92    5541   27.91 5540.78
    29.9 5540.58    31.9 5540.45   33.89 5540.28   35.88 5540.24   37.88 5540.12
   39.87 5540.04   41.86 5540.03   43.86 5540.05   45.85 5540.02   47.84 5540.02
   49.84 5540.02   51.83 5539.98   53.82 5539.98   55.82 5539.92   57.81 5539.99
    59.8 5539.99    61.8 5540.06   63.79 5540.22   65.78 5540.29   67.78 5540.28
   69.77 5540.23   71.77 5540.28   73.76 5540.19   75.75 5540.16   77.75 5540.21
   79.74 5540.25   81.73  5540.3   83.73 5540.35   85.72  5540.4   87.71 5540.44
   89.71 5540.44    91.7 5540.44   93.69 5540.42   95.69 5540.41   97.68  5540.4
   99.67 5540.38  101.67 5540.37  103.66 5540.36  105.65 5540.34  107.65 5540.33
  109.64 5540.32  111.63  5540.3  113.63 5540.29  115.62 5540.27  117.61 5540.26
  119.61 5540.25   121.6 5540.23   123.6 5540.23  125.59 5540.32  127.58 5540.27
  129.58 5539.96  131.57 5539.75  133.56 5539.83  135.56 5539.87  137.55 5539.84
  139.54 5539.88  141.54 5539.84  143.53 5539.73  145.52 5539.68  147.52 5539.65
  149.51 5539.45   151.5 5539.37   153.5  5539.3  155.49 5539.25  157.48 5539.18
  159.48 5539.18  161.47 5539.07  163.46 5539.01  165.46 5538.93  167.45 5538.87
  169.45 5538.81  171.44 5538.69  173.43 5538.57  175.43 5538.54  177.42 5538.58
  179.42 5538.65  181.41 5538.74   183.4  5538.8   185.4 5538.84  187.39  5538.8
  189.39 5538.71  191.38 5538.74  193.37 5538.89  195.37 5538.94  197.36    5539
  199.36 5538.98  201.35 5539.04  203.34 5539.07  205.34 5539.12  207.33 5539.26
  209.33 5539.31  211.32  5539.4  213.31 5539.51  215.31 5539.53   217.3 5539.49
   219.3 5539.45  221.29 5539.46  223.28 5539.44  225.28 5539.58  227.27  5539.3
  229.27 5538.34  231.26  5538.6  233.26 5539.44  235.25 5539.76  237.24 5539.53
  239.24  5539.1  241.23 5538.77  242.93 5538.52  243.23 5538.48   245.1 5538.27
  245.22 5538.25  247.21 5537.86  249.21 5537.11   251.2  5536.3   253.2 5535.84
  255.19 5535.52  257.18 5535.52  259.18 5535.42  261.17 5535.34  263.17 5535.23
  265.16 5535.23  267.15  5535.3  269.15 5535.35  271.14 5535.63  273.14 5536.14
  275.13 5536.77  277.12 5537.27  279.12 5537.67  281.11 5538.27  283.11 5538.63
  283.36 5538.69   285.1 5539.05  285.68 5539.07  287.09 5539.12  289.09 5539.21
  291.08 5539.37  293.07 5539.43  295.05 5539.61  297.04 5539.66  299.03  5539.6
  301.02 5539.62  303.01 5539.64    305 5539.74  306.99 5539.89  308.98 5540.03
  310.96 5540.09  312.95 5540.19  314.94 5540.28  316.93 5540.42  318.92 5540.51
  320.91 5540.63   322.9 5540.66  324.88 5540.79  326.87 5540.88  328.86 5540.97
  330.85 5540.99  332.84 5541.08  334.83 5541.13  336.82 5541.21   338.8 5541.24
  340.79 5541.28  342.78 5541.32  344.77 5541.37  346.76 5541.44  348.75  5541.5
  350.74 5541.61  352.72 5541.62  354.71 5541.59   356.7 5541.57  358.69  5541.6
  360.68 5541.69  362.67 5541.63  364.66 5541.66  366.65 5541.71  368.63 5541.81
  370.62  5541.9  372.61 5541.96

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13  242.93     .05  283.36     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        235.25  285.68            97.15  101.94  112.14             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
       0  235.25 5539.76       F
Blocked Obstructions      num=       1
   Sta L   Sta R    Elev
   75.53   130.35549.884

CROSS SECTION


RIVER: TCC
REACH: 2                  RS: 8573

INPUT
Description: 8573
Station Elevation Data    num=     129
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5539.79        2 5540.07    3.99 5539.95    5.99 5539.42    7.99 5538.67
    9.99 5537.78   11.98 5536.97   13.98 5536.18   15.98 5535.15   17.97 5534.98
   19.97 5534.95   21.97 5534.96   23.96 5534.84   25.96 5534.81   27.96 5534.85
   29.96 5534.76   31.95 5534.69   33.95 5534.67   35.95 5534.65   37.94 5534.64
   39.94 5534.67   41.94 5534.74   43.94 5534.77   45.93 5534.81   47.93 5534.81
   49.93 5534.86   51.92 5534.86   53.92 5534.89   55.92  5534.9   57.92  5534.9
   59.91 5534.89   61.91 5534.86   63.91 5534.96    65.9 5534.96    67.9 5534.59
    69.9 5534.03   71.89 5533.69   73.89 5534.15   75.89 5534.76   77.89 5534.74
   79.88 5534.84   81.88 5534.85   83.88 5534.81   85.87 5534.71   87.87 5534.65
   89.87   5534.7   91.87  5534.6   93.86  5534.6   95.86 5534.54   97.86 5534.46
   99.85 5534.45  101.85 5534.43  103.85 5534.31  105.85 5534.24  107.84 5534.19
  109.84 5534.19  111.84 5534.19  113.83 5534.17  115.83  5534.2  117.83 5534.12
  119.83 5533.82  121.45 5533.54  121.82 5533.48  123.82 5533.27  124.71 5532.98
  125.82 5532.63  127.81 5530.91  129.81 5528.82  131.81 5527.65   133.8 5527.31
   135.8 5527.87   137.8 5529.24   139.8 5530.35  141.79 5530.98  143.79 5531.48
  145.79 5532.12  147.78 5533.08  149.78 5534.33  151.78 5534.85  153.78 5534.91
  155.77 5534.54  156.67 5534.25  157.77 5533.88  159.77 5533.78  161.76 5533.93
  163.76 5533.33  165.76 5532.86  167.57 5532.66  167.75 5532.64  169.75 5532.54
  171.75 5532.52  173.75 5532.49  175.74 5532.52  177.74 5532.57  179.74 5532.55
  181.73 5532.36  183.73 5532.14  185.73 5532.24  187.73 5532.34  189.72 5532.29
  191.72 5532.42  193.72 5532.55  195.71  5532.5  197.71 5532.46  199.71 5532.57
  201.71 5532.55   203.7 5532.63   205.7 5532.64   207.7 5532.79  209.69 5533.24
  211.69 5533.56  213.69 5533.61  215.68 5533.55  217.68 5533.63  219.68 5533.57
  221.68 5533.56  223.67 5533.48  225.67 5533.39  227.67 5533.28  229.66 5533.31
  231.66 5533.18  233.66 5533.08  235.66 5533.02  237.65 5533.02  239.65 5533.04
  241.65 5533.02  243.64 5533.07  245.64 5533.24  247.64 5533.16

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13  121.45     .05  167.57     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        124.71  151.78            47.03   48.13   50.74             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
  153.78  247.64 5534.91       F
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CROSS SECTION


RIVER: TCC
REACH: 2                    RS: 8525

INPUT
Description: 8525
Station Elevation Data    num=     108
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
        0 5532.67    1.98 5532.57    3.97 5532.42    5.95 5532.27    7.93 5532.33
     9.92 5532.22    11.9 5532.19   13.89 5532.17   15.87 5532.14   17.85 5532.11
    19.84  5532.1   21.82 5532.09    23.8 5532.11   25.79 5532.06   27.77    5532
    29.76 5531.94   31.74 5531.87   33.72 5531.77   35.71 5531.66   37.69 5531.41
    39.67 5531.15   41.66 5530.87   43.64 5530.69   45.63 5530.44   47.61 5530.39
    49.59 5530.34   51.58 5530.25   51.59 5530.25   53.56 5530.09   55.31  5529.9
    55.54 5529.87   57.53 5529.72   59.51 5529.59   61.49 5529.21   63.48 5528.41
    65.46 5527.59   67.45 5526.83   69.43 5526.25   71.41 5526.07    73.4 5526.23
    75.38 5526.81   77.36 5527.47   79.35 5528.96   81.33 5530.86   83.32 5531.44
     85.3 5531.15   87.28  5530.5   89.08 5529.96   89.27 5529.91   91.25 5529.41
    92.47 5529.33   93.23 5529.28   95.22 5529.27    97.2 5529.23   99.19 5529.18
   101.17 5529.18  103.15 5529.25  105.14 5529.27  107.12 5529.29   109.1 5529.33
   111.09 5529.37  113.07 5529.31  115.06 5529.19  117.04 5529.07  119.02 5528.95
   121.01 5528.83  122.99 5528.73  124.97 5528.65  126.96 5528.59  128.94 5528.56
   130.92 5528.64  132.91 5528.58  134.89 5528.49  136.88 5528.39  138.86 5528.29
   140.84  5528.2  142.83 5528.21  144.81 5528.25  146.79 5528.19  148.77 5527.94
   150.75 5527.75  152.74 5527.77  154.72 5527.78   156.7 5527.83  158.68 5527.86
   160.66 5527.89  162.65 5527.89  164.63  5527.9  166.61 5527.88  168.59 5527.87
   170.57 5527.89  172.56 5527.95  174.54 5528.11  176.52 5528.48   178.5 5529.41
   180.48 5530.17  182.47 5530.57  184.45 5531.13  186.43 5531.81  188.41 5532.24
   190.39 5532.45  192.37 5532.48  194.36 5532.54  196.34 5532.63  198.32 5532.75
    200.3 5532.87  202.28 5532.84  204.27 5532.73

Manning's n Values        num=       3
      Sta   n Val     Sta   n Val     Sta   n Val
        0     .13   51.59     .05   92.47     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          55.31   83.32            51.13   50.59   49.03             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
   83.32  204.27 5531.44       F
Blocked Obstructions      num=       1
   Sta L   Sta R    Elev
  110.82  145.075538.254

CROSS SECTION


RIVER: TCC
REACH: 2                    RS: 8474

INPUT
Description: 8474 Upstream of Private Crossing (M)
Station Elevation Data    num=      67
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
        0 5531.21    1.99 5530.43    3.99 5529.92    5.98  5529.7    7.97 5529.61
     9.97 5529.66   11.96 5529.69   13.96 5529.49   15.95 5529.33   17.94 5529.23
    19.94 5529.19   21.93 5528.98   23.92 5528.86   25.92 5528.81   27.91 5528.84
     29.9 5528.93    31.9 5528.96   33.89 5529.05   35.89 5529.19   37.88 5529.23
    39.87 5529.21   41.87 5529.21   43.86 5529.24   45.85 5529.17   47.41 5529.23
    47.85 5529.25   49.84 5529.14   50.84 5529.14   51.83 5529.13   53.83 5528.47
    55.82  5527.2   57.82 5525.99   59.81 5524.89    61.8  5524.1    63.8 5523.73
    65.79 5524.12   67.78 5525.05   69.78 5526.81   71.77 5528.14   73.76 5528.19
    75.76 5528.29   77.75 5528.38   79.75 5528.37   80.84 5528.45   81.74 5528.52
    83.73  5528.6    85.7 5528.65   85.73 5528.65   87.72 5528.72   89.71 5528.78
    91.71 5528.87    93.7 5528.87   95.69  5528.9   97.69 5528.96   99.68 5528.97
   101.68 5529.07  103.67 5529.16  105.66 5529.18  107.66 5529.22  109.65 5529.24
   111.64 5529.28  113.64 5529.31  115.63 5529.35  117.62 5529.39  119.62 5529.44
   121.61 5529.45   123.6 5529.42

Manning's n Values        num=       3
      Sta   n Val     Sta   n Val     Sta   n Val
        0     .13   47.41     .05   80.84     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          50.84   71.77            26.05   26.56   27.34             .3       .5
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
   32.74   46.945539.247       F
Blocked Obstructions      num=       1
   Sta L   Sta R    Elev
  103.23   123.65539.421

BRIDGE


RIVER: TCC
REACH: 2                    RS: 8461

INPUT
Description: Private Crossing (M)
Distance from Upstream XS =      13
Deck/Roadway Width        =       3
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=       6
      Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
       40 5528.37              57 5528.37              57 5530.95 5527.14
       73 5530.77 5526.96      73 5528.19              80 5528.19

Upstream Bridge Cross Section Data
Station Elevation Data    num=      67
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
        0 5531.21    1.99 5530.43    3.99 5529.92    5.98  5529.7    7.97 5529.61
     9.97 5529.66   11.96 5529.69   13.96 5529.49   15.95 5529.33   17.94 5529.23
    19.94 5529.19   21.93 5528.98   23.92 5528.86   25.92 5528.81   27.91 5528.84
     29.9 5528.93    31.9 5528.96   33.89 5529.05   35.89 5529.19   37.88 5529.23
    39.87 5529.21   41.87 5529.21   43.86 5529.24   45.85 5529.17   47.41 5529.23
    47.85 5529.25   49.84 5529.14   50.84 5529.14   51.83 5529.13   53.83 5528.47
    55.82  5527.2   57.82 5525.99   59.81 5524.89    61.8  5524.1    63.8 5523.73
    65.79 5524.12   67.78 5525.05   69.78 5526.81   71.77 5528.14   73.76 5528.19
    75.76 5528.29   77.75 5528.38   79.75 5528.37   80.84 5528.45   81.74 5528.52
    83.73  5528.6    85.7 5528.65   85.73 5528.65   87.72 5528.72   89.71 5528.78
    91.71 5528.87    93.7 5528.87   95.69  5528.9   97.69 5528.96   99.68 5528.97
   101.68 5529.07  103.67 5529.16  105.66 5529.18  107.66 5529.22  109.65 5529.24
   111.64 5529.28  113.64 5529.31  115.63 5529.35  117.62 5529.39  119.62 5529.44
   121.61 5529.45   123.6 5529.42

Manning's n Values        num=       3
      Sta   n Val     Sta   n Val     Sta   n Val
        0     .13   47.41     .05   80.84     .13

Bank Sta: Left   Right    Coeff Contr.   Expan.
          50.84   71.77             .3       .5
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
   32.74   46.945539.247       F
Blocked Obstructions      num=       1
```

```
   Sta L   Sta R    Elev
  103.23   123.65539.421

Downstream  Deck/Roadway Coordinates
    num=          7
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
      40 5528.37                59 5528.37              59 5530.95 5528.04
      75 5530.77 5527.86        75 5528.19              80 5528.19
    89.3 5527.14

Downstream Bridge Cross Section Data
Station Elevation Data    num=      74
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5529.83    1.99 5530.27    3.99  5530.2    5.98 5529.63    7.98 5528.88
    9.97 5528.42   11.97 5528.25   13.96 5528.11   15.96 5527.51   17.95 5527.26
   19.94 5527.09   21.94 5527.07   23.93 5527.14   25.93 5527.15   27.92    5527
   29.92 5526.99   31.91 5526.99   33.91 5527.01    35.9 5527.04   37.89 5527.06
   39.89 5527.08   41.88 5527.07   43.88 5527.02   45.87  5527.1   47.87 5527.18
   49.86 5527.26   51.79 5527.34   51.86 5527.34   53.85 5527.41   55.84 5527.35
   57.84 5526.98   58.01 5526.86   59.83 5525.65   61.83 5524.44   63.82 5523.56
   65.82 5523.07   67.81 5523.35   69.81  5524.2    71.8 5524.97    73.8 5526.17
   75.79 5527.09   77.78 5527.14   79.78 5527.08   81.77 5527.22   83.36 5527.23
   83.77 5527.24   85.76  5527.3   87.76 5527.37    89.3 5527.43   89.75 5527.44
   91.75  5527.5   93.74  5527.6   95.73 5527.62   97.73 5527.64   99.72 5527.68
  101.72 5527.77  103.71 5527.89  105.71  5527.9   107.7 5527.86   109.7 5527.88
  111.69 5527.98  113.68 5528.05  115.68 5528.04  117.67    5528  119.67 5527.95
  121.66 5527.89  123.66  5527.8  125.65  5527.7  127.65 5527.63  129.64 5527.59
  131.63 5527.52  133.63 5527.46  135.62 5527.42  137.62 5527.39

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   51.79     .05   83.36     .13

Bank Sta: Left   Right    Coeff Contr.   Expan.
         58.01   75.79             .3       .5
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
   12.69   16.125537.464       F
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
   28.17   57.525537.128  106.62  137.625537.387

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .98
Elevation at which weir flow begins         = 5528.21
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
Selected Low Flow Methods = Highest Energy Answer

High Flow Method
       Energy Only

Additional Bridge Parameters
       Add Friction component to Momentum
       Do not add Weight component to Momentum
       Class B flow critical depth computations use critical depth
          inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION


RIVER: TCC
REACH: 2                   RS: 8448

INPUT
Description: 8448 Downstream of Private Crossing (M)
Station Elevation Data    num=      74
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5529.83    1.99 5530.27    3.99  5530.2    5.98 5529.63    7.98 5528.88
    9.97 5528.42   11.97 5528.25   13.96 5528.11   15.96 5527.51   17.95 5527.26
   19.94 5527.09   21.94 5527.07   23.93 5527.14   25.93 5527.15   27.92    5527
   29.92 5526.99   31.91 5526.99   33.91 5527.01    35.9 5527.04   37.89 5527.06
   39.89 5527.08   41.88 5527.07   43.88 5527.02   45.87  5527.1   47.87 5527.18
   49.86 5527.26   51.79 5527.34   51.86 5527.34   53.85 5527.41   55.84 5527.35
   57.84 5526.98   58.01 5526.86   59.83 5525.65   61.83 5524.44   63.82 5523.56
   65.82 5523.07   67.81 5523.35   69.81  5524.2    71.8 5524.97    73.8 5526.17
   75.79 5527.09   77.78 5527.14   79.78 5527.08   81.77 5527.22   83.36 5527.23
   83.77 5527.24   85.76  5527.3   87.76 5527.37    89.3 5527.43   89.75 5527.44
   91.75  5527.5   93.74  5527.6   95.73 5527.62   97.73 5527.64   99.72 5527.68
  101.72 5527.77  103.71 5527.89  105.71  5527.9   107.7 5527.86   109.7 5527.88
  111.69 5527.98  113.68 5528.05  115.68 5528.04  117.67    5528  119.67 5527.95
  121.66 5527.89  123.66  5527.8  125.65  5527.7  127.65 5527.63  129.64 5527.59
  131.63 5527.52  133.63 5527.46  135.62 5527.42  137.62 5527.39

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   51.79     .05   83.36     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         58.01   75.79            11.47   11.18   10.53             .3       .5
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
   12.69   16.125537.464       F
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
   28.17   57.525537.128  106.62  137.625537.387

CROSS SECTION


RIVER: TCC
REACH: 2                   RS: 8437

INPUT
Description: 8437 Upstream of Private Crossing (L)
Station Elevation Data    num=      77
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5530.08    1.94 5529.99    3.88 5529.48    5.82 5528.82    7.76 5528.29
     9.7 5527.98   11.64  5527.9   13.58 5527.65   15.52 5527.18   17.47    5527
   19.41 5526.92   21.35 5526.88   23.29 5526.92   25.27 5526.89   27.25 5526.79
   29.23 5526.83   31.21 5526.93   33.19 5526.95   35.17 5526.91   37.15 5526.89
   39.13 5526.87   41.11 5526.85   43.09 5526.87   45.07 5526.97   47.04 5527.06
   49.02 5527.13      51 5527.21   52.98 5527.31   53.23 5527.31   54.96 5527.34
   56.94 5527.35   58.92 5527.22   59.11 5527.13    60.9 5526.22   62.88 5524.93
   64.86  5524.1   66.84 5523.43   68.82 5523.04    70.8 5523.52   72.78 5524.29
   74.76 5526.11   76.74 5527.33   78.72 5527.46    80.7 5527.39   82.68 5527.11
   83.92 5527.05   84.66 5527.01   86.64 5526.98   88.62 5527.03   90.27 5527.08
    90.6 5527.09   92.58 5527.08   94.56  5527.1   96.54 5527.11   98.52 5527.18
   100.5 5527.21  102.48 5527.21  104.46 5527.28  106.44  5527.3  108.42  5527.3
   110.4 5527.31  112.38 5527.38  114.36 5527.42  116.34 5527.36  118.32 5527.36
   120.3 5527.34  122.15 5527.31  123.99 5527.32  125.84 5527.31  127.69  5527.3
  129.54  5527.3  131.39  5527.3  133.23 5527.29  135.08 5527.29  136.93 5527.28
```

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  138.78 5527.28  140.62 5527.28

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   53.23     .05   83.92     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          59.11   76.74             23.15   23.09   23.07             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
    9.87   19.925536.906       F
  104.89  109.475537.301       F
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
   28.07   57.37 5537.38  136.26  140.625537.277

BRIDGE


RIVER: TCC
REACH: 2                  RS: 8427

INPUT
Description: Private Crossing (L)
Distance from Upstream XS =      10
Deck/Roadway Width        =       8
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=       7
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
      44 5526.55              56 5527.42              62 5527.94 5526.04
      79 5528.09 5526.19      83 5527.25              97    5527
   97.76    5527

Upstream Bridge Cross Section Data
Station Elevation Data    num=      77
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5530.08    1.94 5529.99    3.88 5529.48    5.82 5528.82    7.76 5528.29
     9.7 5527.98   11.64  5527.9   13.58 5527.65   15.52 5527.18   17.47    5527
   19.41 5526.92   21.35 5526.88   23.29 5526.92   25.27 5526.89   27.25 5526.79
   29.23 5526.83   31.21 5526.93   33.19 5526.95   35.17 5526.91   37.15 5526.89
   39.13 5526.87   41.11 5526.85   43.09 5526.87   45.07 5526.97   47.04 5527.06
   49.02 5527.13      51 5527.21   52.98 5527.31   53.23 5527.31   54.96 5527.34
   56.94 5527.35   58.92 5527.22   59.11 5527.13    60.9 5526.22   62.88 5524.93
   64.86  5524.1   66.84 5523.43   68.82 5523.04    70.8 5523.52   72.78 5524.29
   74.76 5526.11   76.74 5527.33   78.72 5527.46    80.7 5527.39   82.68 5527.11
   83.92 5527.05   84.66 5527.01   86.64 5526.98   88.62 5527.03   90.27 5527.08
    90.6 5527.09   92.58 5527.08   94.56  5527.1   96.54 5527.11   98.52 5527.18
   100.5 5527.21  102.48 5527.21  104.46 5527.28  106.44  5527.3  108.42  5527.3
   110.4 5527.31  112.38 5527.38  114.36 5527.42  116.34 5527.36  118.32 5527.36
   120.3 5527.34  122.15 5527.31  123.99 5527.32  125.84 5527.31  127.69  5527.3
  129.54  5527.3  131.39  5527.3  133.23 5527.29  135.08 5527.29  136.93 5527.28
  138.78 5527.28  140.62 5527.28

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   53.23     .05   83.92     .13

Bank Sta: Left   Right    Coeff Contr.   Expan.
          59.11   76.74             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
    9.87   19.925536.906       F
  104.89  109.475537.301       F
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
   28.07   57.37 5537.38  136.26  140.625537.277

Downstream  Deck/Roadway Coordinates
    num=       7
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
      50    5526              61 5526.55              72 5527.42
      78 5527.94 5526.94      95 5528.09 5527.09      98 5527.25
     112  5526.5

Downstream Bridge Cross Section Data
Station Elevation Data    num=      91
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5528.14    1.94 5528.09    3.88 5527.98    5.82 5527.87    7.76 5527.82
     9.7 5527.69   11.64 5527.59   13.57 5527.48   15.51 5527.47   17.45 5527.38
   19.39 5527.32   21.33 5527.29   23.27 5527.23   25.21 5527.17   27.15 5527.07
   29.09 5526.94   31.03  5526.8   32.97 5526.68   34.91 5526.58   36.85 5526.49
   38.78 5526.37   40.72 5526.28   42.66 5526.24    44.6 5526.23   46.54 5526.17
   48.48 5526.05   50.42 5525.93   52.42 5525.91   54.41 5525.93   56.41 5525.96
   58.41 5525.89   60.41 5525.97    62.4 5526.04    64.4  5526.1    66.4 5526.22
    68.4 5526.25   70.39 5526.38   72.39 5526.38   73.23  5526.3   74.39 5526.19
   76.39 5525.65   76.46 5525.62   78.38 5524.88   80.38  5524.1   82.38  5523.4
   84.38  5522.8   86.37 5522.66   88.37  5523.4   90.37 5524.46   92.37 5525.27
   94.36 5526.02   96.36 5526.49   98.36  5526.7  100.36 5526.73  102.22 5526.87
  102.35 5526.88  104.35 5526.75  106.35 5526.66  108.35 5526.58   108.6 5526.58
  110.34 5526.58  112.34 5526.65  114.34 5526.72  116.34 5526.74  118.33 5526.69
  120.33 5526.71  122.33 5526.68  124.33 5526.67  126.32 5526.67  128.32 5526.66
  130.32 5526.64  132.32 5526.63  134.31  5526.6  136.26 5526.66  138.21 5526.67
  140.16  5526.6  142.11  5526.6  144.06 5526.64  146.01 5526.67  147.97 5526.67
  149.92 5526.74  151.87 5526.81  153.82 5526.88  155.77 5526.95  157.72 5526.99
  159.67 5527.06  161.62 5527.08  163.57  5527.1  165.52 5527.13  167.47 5527.16
  169.42  5527.2

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   73.23     .05  102.22     .13

Bank Sta: Left   Right    Coeff Contr.   Expan.
          73.23   98.36             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
  114.59  121.015536.708       F
  123.21  139.035536.659       F
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
    19.6   38.885536.368  121.01  123.215536.661

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .98
Elevation at which weir flow begins         =    5527
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
Selected Low Flow Methods = Highest Energy Answer

High Flow Method
       Energy Only

Additional Bridge Parameters
```

```
       Add Friction component to Momentum
       Do not add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION


RIVER: TCC
REACH: 2                    RS: 8413

INPUT
Description: 8413 Downstream of Private Crossing (L)
Station Elevation Data    num=      91
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5528.14    1.94 5528.09    3.88 5527.98    5.82 5527.87    7.76 5527.82
     9.7 5527.69   11.64 5527.59   13.57 5527.48   15.51 5527.47   17.45 5527.38
   19.39 5527.32   21.33 5527.29   23.27 5527.23   25.21 5527.17   27.15 5527.07
   29.09 5526.94   31.03  5526.8   32.97 5526.68   34.91 5526.58   36.85 5526.49
   38.78 5526.37   40.72 5526.28   42.66 5526.24    44.6 5526.23   46.54 5526.17
   48.48 5526.05   50.42 5525.93   52.42 5525.91   54.41 5525.93   56.41 5525.96
   58.41 5525.89   60.41 5525.97    62.4 5526.04    64.4  5526.1    66.4 5526.22
    68.4 5526.25   70.39 5526.38   72.39 5526.38   73.23  5526.3   74.39 5526.19
   76.39 5525.65   76.46 5525.62   78.38 5524.88   80.38  5524.1   82.38  5523.4
   84.38  5522.8   86.37 5522.66   88.37  5523.4   90.37 5524.46   92.37 5525.27
   94.36 5526.02   96.36 5526.49   98.36  5526.7  100.36 5526.73  102.22 5526.87
  102.35 5526.88  104.35 5526.75  106.35 5526.66  108.35 5526.58   108.6 5526.58
  110.34 5526.58  112.34 5526.65  114.34 5526.72  116.34 5526.74  118.33 5526.69
  120.33 5526.71  122.33 5526.68  124.33 5526.67  126.32 5526.67  128.32 5526.66
  130.32 5526.64  132.32 5526.63  134.31  5526.6  136.26 5526.66  138.21 5526.67
  140.16  5526.6  142.11  5526.6  144.06 5526.64  146.01 5526.67  147.97 5526.67
  149.92 5526.74  151.87 5526.81  153.82 5526.88  155.77 5526.95  157.72 5526.99
  159.67 5527.06  161.62 5527.08  163.57  5527.1  165.52 5527.13  167.47 5527.16
  169.42  5527.2

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   73.23     .05  102.22     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          73.23   98.36            19.78    18.3   15.58             .3       .5
Ineffective Flow     num=        2
   Sta L    Sta R    Elev  Permanent
  114.59  121.015536.708       F
  123.21  139.035536.659       F
Blocked Obstructions      num=       2
    Sta L   Sta R    Elev   Sta L   Sta R    Elev
     19.6   38.885536.368  121.01  123.215536.661

CROSS SECTION


RIVER: TCC
REACH: 2                    RS: 8395

INPUT
Description: 8395
Station Elevation Data    num=      86
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5527.18    1.96 5527.18    3.92 5527.09    5.88 5527.07    7.84 5526.99
     9.8 5526.93   11.77 5526.85   13.73 5526.76   15.69 5526.69   17.65 5526.66
   19.61 5526.62   21.57 5526.57   23.53 5526.52   25.49 5526.48   27.45 5526.44
   29.41 5526.38   31.37 5526.23   33.33 5526.14    35.3 5526.06   37.26 5525.98
   39.22 5525.89   41.18 5525.82   43.14 5525.67    45.1 5525.62   47.06 5525.55
   49.02 5525.44   50.98 5525.27   52.94 5525.15    54.9 5525.01   56.89 5524.92
   58.87 5524.83   60.86 5524.76   62.84 5524.71   64.82 5524.69   66.81 5524.69
   68.79 5524.65   70.78 5524.65   72.76 5524.67   74.75 5524.75   76.73 5524.91
   78.71 5524.82    80.7 5524.65   82.68 5524.47   84.67 5524.28   84.69 5524.28
   84.95 5524.22   86.65 5523.85   88.63 5523.41   90.62 5522.93    92.6 5522.08
   94.59 5521.68   96.57 5522.33   98.55 5523.07  100.54 5523.36  102.52  5523.8
  104.51  5524.4  106.49 5525.14  108.47  5525.9  110.46 5526.46  112.44 5526.75
  114.43 5526.82  116.41 5526.87   118.4 5526.84  120.23 5526.83  120.38 5526.83
  122.36 5526.82  124.35 5526.82  126.33 5526.82  128.32 5526.82   130.3 5526.82
  132.28  5526.8  134.27 5526.76  136.25 5526.71  138.24 5526.67  140.22 5526.62
   142.2 5526.57  144.19 5526.62  146.17 5526.72  148.16 5526.76  150.14 5526.76
  152.12 5526.76  154.11 5526.67  156.09 5526.53  158.08 5526.52  160.06 5526.51
  162.05 5526.46

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   84.95     .05  112.44     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          76.73  110.46            30.53   28.58   25.65             .1       .3
Ineffective Flow     num=        3
   Sta L    Sta R    Elev  Permanent
   31.38   41.375535.812       F
   118.5  120.885536.826       F
  156.39  156.475536.524       F
Blocked Obstructions      num=       1
   Sta L   Sta R    Elev
  120.88  156.395536.523

CROSS SECTION


RIVER: TCC
REACH: 2                    RS: 8367

INPUT
Description: 8367
Station Elevation Data    num=     101
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5525.83    1.98 5525.87    3.97 5525.75    5.95 5525.64    7.94 5525.68
     9.92 5525.73    11.9  5525.7   13.89  5525.6   15.87 5525.56   17.85  5525.5
   19.84 5525.45   21.82 5525.41   23.81 5525.34   25.79 5525.29   27.77  5525.3
   29.76 5525.19   31.74 5525.14   33.72  5525.1   35.71    5525   37.69 5524.88
   39.68 5524.83   41.66 5524.77   43.64 5524.62   45.63  5524.6   47.61 5524.49
   49.59 5524.37   51.58 5524.29   53.56 5524.21   55.55 5524.16   57.53 5524.09
   59.51 5524.03    61.5 5523.93   63.48 5523.84   65.47 5523.79   67.45 5523.75
   69.42 5523.75   71.39 5523.74   73.36 5523.71   75.33 5523.59   77.31 5523.54
   79.28 5523.53   81.25 5523.54   83.22 5523.58   85.19 5523.63   87.16 5523.75
   89.13 5523.76   91.11 5523.82   93.08 5523.74   95.05 5523.56   97.02 5523.39
   98.99 5523.41   99.24 5523.42  100.96 5523.44  102.93 5523.35   104.9 5523.06
  106.88 5522.44   107.4 5522.24  108.85 5521.69  110.82 5521.38  112.79 5521.29
  114.76 5521.34  116.73 5521.33   118.7 5521.16  120.68 5521.47  122.65 5521.76
  124.62 5521.87  126.59 5522.04  128.56 5522.76  130.53 5523.86   132.5 5524.88
  134.47 5525.35  136.06 5525.22  136.45 5525.18  138.42 5524.94  140.39  5524.7
  142.36 5524.49  144.33 5524.23  144.98 5524.18   146.3 5524.06  148.27    5524
  150.25 5524.33  152.22 5524.91  154.19 5525.48  156.16 5525.88  158.13 5526.09
   160.1 5525.85  162.07 5525.49  164.04  5525.3  166.02  5525.4  167.99 5525.47
  169.96 5525.57  171.93 5525.58   173.9 5525.55  175.87 5525.52  177.84 5525.53
  179.82 5525.52  181.79 5525.51  183.76  5525.5  185.73 5525.45   187.7 5525.45
  189.67 5525.43

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   107.4     .05  136.06     .13
```

```
Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        102.93  134.47           100.5   90.58   74.36             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
  146.34  157.365536.097        F
   157.7  165.575535.366        F
Blocked Obstructions      num=       1
   Sta L   Sta R    Elev
  157.36   157.75536.153

CROSS SECTION


RIVER: TCC
REACH: 2                   RS: 8276

INPUT
Description: 8276
Station Elevation Data    num=      54
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5521.97    1.98 5521.88    3.96  5521.9    5.95 5521.99    7.93 5522.01
    9.91 5521.94   11.55  5521.9   11.89 5521.89   13.87 5521.88   15.85 5521.97
   17.84 5521.98   19.82 5521.77   21.65 5521.39    21.8 5521.36   23.78 5519.78
   25.76 5518.04   27.75 5517.13   29.73 5516.24   31.71 5515.63   33.69 5515.47
   35.67 5515.76   37.66 5516.44   39.64 5516.99   41.62 5517.91    43.6 5519.03
   45.58 5520.15   47.57 5520.74   49.55  5520.8   51.53  5520.5   52.31 5520.53
   53.51 5520.58   55.49 5520.67   57.47 5520.74   59.46 5520.87   61.44 5521.12
   63.42 5521.39    65.4 5521.69   65.74 5521.68   67.38 5521.66   69.37 5521.65
   71.35 5521.65   73.33 5521.65   75.31 5521.65   77.29 5521.66   79.28 5521.66
   81.26 5521.66   83.24 5521.66   85.22 5521.66    87.2 5521.64   89.18  5521.6
   91.17 5521.57   93.15 5521.55   95.13 5521.54   97.11 5521.53

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   21.65     .05   52.31     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          21.8   47.57           66.71   61.11   52.72             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
   58.01   58.865530.805        F
Blocked Obstructions      num=       1
   Sta L   Sta R    Elev
   58.86   97.115531.526

CROSS SECTION


RIVER: TCC
REACH: 2                   RS: 8215

INPUT
Description: 8215 Upstream of Kalmia Avenue
Station Elevation Data    num=      88
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5519.93       2 5519.92    3.99 5519.94    5.99 5519.99    7.98 5520.07
    8.73 5520.07    9.98 5520.06   11.98    5520   13.97 5519.99   15.97 5519.94
   17.96 5519.93   19.96 5519.87   21.42 5519.62   21.96 5519.53   23.95 5518.52
   25.95 5516.84   27.94 5515.59   29.94    5514   31.94 5512.93   33.93 5512.93
   35.93 5513.51   37.92 5514.29   39.92 5515.61   41.92 5516.35   43.91 5517.26
   45.91 5517.86    47.9 5517.93   49.43 5518.02    49.9 5518.05    51.9 5518.28
   53.89 5518.47   55.89 5518.53   57.88 5518.55   59.88 5518.54   61.06 5518.47
   61.87 5518.41   63.87  5518.4   65.87 5518.43   67.86 5518.49   69.86 5518.49
   71.85 5518.56   73.85 5518.65   75.85 5518.69   77.84 5518.77   79.84 5518.81
   81.83  5518.9   83.83 5518.88   85.83 5518.97   87.82 5519.03   89.82 5519.02
   91.81 5519.07   93.81 5519.13   95.81 5519.15    97.8 5519.17    99.8 5519.15
  101.79 5519.12  103.79 5519.16  105.79 5519.19  107.78 5519.26  109.78  5519.3
  111.77 5519.37  113.77  5519.4  115.77 5519.43  117.76 5519.38  119.76 5519.41
  121.75 5519.56  123.75 5519.71  125.75 5519.82   126.4 5519.84  127.74 5519.89
  129.74 5519.96  131.73 5520.04  133.73 5520.13  135.73 5520.21  137.72 5520.29
  139.72 5520.39  141.71 5520.47  143.71 5520.51  145.71  5520.6   147.7  5520.7
   149.7 5520.74  151.69 5520.83  153.69  5520.9  155.69 5521.09  157.68 5521.08
  159.68  5521.2  161.67 5521.31  163.67  5521.4

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   21.42     .05   49.43     .13   126.4    .015

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          21.42   53.89           72.69   78.26   85.02             .6       .8
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
    75.1   93.375529.119        F

CULVERT


RIVER: TCC
REACH: 2                   RS: 8201

INPUT
Description: Kalmia Avenue
Distance from Upstream XS =      14
Deck/Roadway Width        =      50
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=       4
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
      17    5516              47    5517              69    5518
      92    5519

Upstream Bridge Cross Section Data
Station Elevation Data    num=      88
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5519.93       2 5519.92    3.99 5519.94    5.99 5519.99    7.98 5520.07
    8.73 5520.07    9.98 5520.06   11.98    5520   13.97 5519.99   15.97 5519.94
   17.96 5519.93   19.96 5519.87   21.42 5519.62   21.96 5519.53   23.95 5518.52
   25.95 5516.84   27.94 5515.59   29.94    5514   31.94 5512.93   33.93 5512.93
   35.93 5513.51   37.92 5514.29   39.92 5515.61   41.92 5516.35   43.91 5517.26
   45.91 5517.86    47.9 5517.93   49.43 5518.02    49.9 5518.05    51.9 5518.28
   53.89 5518.47   55.89 5518.53   57.88 5518.55   59.88 5518.54   61.06 5518.47
   61.87 5518.41   63.87  5518.4   65.87 5518.43   67.86 5518.49   69.86 5518.49
   71.85 5518.56   73.85 5518.65   75.85 5518.69   77.84 5518.77   79.84 5518.81
   81.83  5518.9   83.83 5518.88   85.83 5518.97   87.82 5519.03   89.82 5519.02
   91.81 5519.07   93.81 5519.13   95.81 5519.15    97.8 5519.17    99.8 5519.15
  101.79 5519.12  103.79 5519.16  105.79 5519.19  107.78 5519.26  109.78  5519.3
  111.77 5519.37  113.77  5519.4  115.77 5519.43  117.76 5519.38  119.76 5519.41
  121.75 5519.56  123.75 5519.71  125.75 5519.82   126.4 5519.84  127.74 5519.89
  129.74 5519.96  131.73 5520.04  133.73 5520.13  135.73 5520.21  137.72 5520.29
  139.72 5520.39  141.71 5520.47  143.71 5520.51  145.71  5520.6   147.7  5520.7
   149.7 5520.74  151.69 5520.83  153.69  5520.9  155.69 5521.09  157.68 5521.08
  159.68  5521.2  161.67 5521.31  163.67  5521.4

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   21.42     .05   49.43     .13   126.4    .015

Bank Sta: Left   Right    Coeff Contr.   Expan.
          21.42   53.89             .6       .8
Ineffective Flow     num=       1
```

```
   Sta L   Sta R    Elev  Permanent
    75.1   93.375529.119       F

Downstream  Deck/Roadway Coordinates
    num=        6
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
       0    5515              22    5516              51    5517
      81    5518             106    5519             121    5520

Downstream Bridge Cross Section Data
Station Elevation Data    num=      72
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5513.51    1.94 5513.62    3.88    5514    5.83 5514.36    7.77  5514.6
    9.71 5514.69   10.35 5514.68   11.65 5514.65   13.59 5514.61   15.54 5514.58
   17.48 5514.48   18.05 5514.47   19.42 5514.44   21.36 5514.48    23.3  5514.5
   25.25  5514.4   27.23 5514.19   29.21  5513.7   31.19    5512   33.17 5511.18
   35.15 5510.99   37.13  5510.7   39.11 5510.65   41.09 5511.98   43.07 5513.74
   45.02  5514.2   45.05 5514.21   47.03 5514.33   49.02 5514.37      51 5514.37
   52.98 5514.34   54.48 5514.38   54.96 5514.39   56.94 5514.44   58.92 5514.48
    60.9 5514.53   62.88 5514.63   64.86 5514.77   66.84 5514.89   68.82 5515.03
    70.8 5515.31   72.78 5514.96   74.76 5514.86   76.74 5515.22   78.72 5515.65
   80.71 5515.83   82.69 5515.92   84.67 5515.83   86.65 5515.73   88.63 5515.78
   90.61 5515.83   92.59 5515.83   94.57 5515.85   96.55 5515.93   98.53    5516
  100.51 5516.08  102.49 5516.14  104.47 5516.25  106.45 5516.43  108.43 5516.27
  110.42 5516.26   112.4 5516.42  114.38 5516.45  116.36 5516.54  118.34 5516.62
  120.32  5516.7   122.3 5516.79  124.28  5516.9  126.26 5516.99  128.24 5517.14
  130.22 5517.27   132.2 5517.42

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   18.05     .05   45.02     .13

Bank Sta: Left   Right    Coeff Contr.   Expan.
         27.23   45.05             .6       .8
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
  113.31   132.25527.417

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .98
Elevation at which weir flow begins         = 5516.27
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Culverts =  1

Culvert Name     Shape      Rise    Span
Culvert #1       Ellipse       3       5
FHWA Chart # 29- Horizontal Ellipse; Concrete
FHWA Scale # 1 - Square edge with headwall
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    Top n  Bottom n  Depth Blocked  Entrance Loss Coef   Exit Loss Coef
                 14      50      .02      .02      2.9                   .5                 1
Upstream   Elevation =  5512.93
           Centerline Station =  33
Downstream Elevation =  5511.15
           Centerline Station =  34

CROSS SECTION


RIVER: TCC
REACH: 2                  RS: 8137

INPUT
Description: 8137 Downstream of Kalmia Avenue
Station Elevation Data    num=      72
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5513.51    1.94 5513.62    3.88    5514    5.83 5514.36    7.77  5514.6
    9.71 5514.69   10.35 5514.68   11.65 5514.65   13.59 5514.61   15.54 5514.58
   17.48 5514.48   18.05 5514.47   19.42 5514.44   21.36 5514.48    23.3  5514.5
   25.25  5514.4   27.23 5514.19   29.21  5513.7   31.19    5512   33.17 5511.18
   35.15 5510.99   37.13  5510.7   39.11 5510.65   41.09 5511.98   43.07 5513.74
   45.02  5514.2   45.05 5514.21   47.03 5514.33   49.02 5514.37      51 5514.37
   52.98 5514.34   54.48 5514.38   54.96 5514.39   56.94 5514.44   58.92 5514.48
    60.9 5514.53   62.88 5514.63   64.86 5514.77   66.84 5514.89   68.82 5515.03
    70.8 5515.31   72.78 5514.96   74.76 5514.86   76.74 5515.22   78.72 5515.65
   80.71 5515.83   82.69 5515.92   84.67 5515.83   86.65 5515.73   88.63 5515.78
   90.61 5515.83   92.59 5515.83   94.57 5515.85   96.55 5515.93   98.53    5516
  100.51 5516.08  102.49 5516.14  104.47 5516.25  106.45 5516.43  108.43 5516.27
  110.42 5516.26   112.4 5516.42  114.38 5516.45  116.36 5516.54  118.34 5516.62
  120.32  5516.7   122.3 5516.79  124.28  5516.9  126.26 5516.99  128.24 5517.14
  130.22 5517.27   132.2 5517.42

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   18.05     .05   45.02     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         27.23   45.05             30.36   27.26   24.13             .6       .8
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
  113.31   132.25527.417

CROSS SECTION


RIVER: TCC
REACH: 2                  RS: 8109

INPUT
Description: 8109
Station Elevation Data    num=      73
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5512.59    1.98 5512.66    3.97 5512.69    5.95 5512.72    7.48 5512.81
    7.93 5512.84    9.92 5512.85    11.9 5512.77   12.81 5512.75   13.88 5512.72
   15.86 5512.59   17.85 5512.31   19.83  5511.2   21.81 5510.46    23.8 5510.02
   25.78 5509.92   27.76 5510.07   29.75 5510.42   31.73 5511.03   33.71 5511.99
    34.3 5512.19    35.7 5512.68   37.68 5513.02   39.66 5513.19   41.64 5513.24
   43.47 5513.23   43.63 5513.23   45.61 5513.21   47.59 5513.24   49.58 5513.24
   51.56 5513.29   53.54 5513.35   55.53 5513.31   57.51 5513.32   59.49 5513.37
   61.48 5513.51   63.46 5513.72   65.44 5513.89   67.42 5513.97   69.41 5514.04
   71.39 5514.15   73.37 5514.18   75.36 5514.17   77.34 5514.27   79.32 5514.47
   81.31  5514.7   83.29 5514.48   85.27 5514.87   87.25 5515.26   89.24 5515.44
   91.22 5515.56    93.2 5515.61   95.19 5515.59   97.17 5515.79   99.15 5516.03
  101.14 5516.17  103.12 5516.28   105.1 5516.45  107.09 5516.66  109.07 5516.91
  111.05 5517.05  113.03 5517.08  115.02 5517.15     117 5517.21  118.98 5517.28
  120.97 5517.34  122.95 5517.42  124.93 5517.43  126.92 5517.47   128.9 5517.48
  130.88 5517.49  132.87 5517.49  134.85 5517.49

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   12.81     .05    34.3     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         17.85    35.7             99.23  104.92  112.21             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
```

```
  113.08  134.855527.492

CROSS SECTION


RIVER: TCC
REACH: 2                   RS: 8004

INPUT
Description: 8004
Station Elevation Data    num=      56
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5508.56    1.99 5508.54    3.98 5508.48    5.97 5508.47    7.96 5508.46
    9.96 5508.53   11.95 5508.62   13.94 5508.66   15.93 5508.65   17.92 5508.69
   19.91 5508.73    21.9 5508.92   23.89 5509.44   25.89 5509.37   27.88 5508.69
   28.58 5508.39   29.87 5507.84   31.86 5507.08   33.85 5505.48   35.84 5504.43
   37.83 5504.19   39.82 5504.45   41.81 5505.27   43.81 5506.63    45.8 5507.89
   47.79 5508.78   49.78 5509.21   51.77 5509.34   53.76 5509.46   54.32 5509.49
   55.75 5509.59   57.74 5509.82   59.74    5510   59.81 5510.01   61.73 5510.26
   63.72 5510.73   65.71 5510.95    67.7 5510.95   69.69 5511.08   71.68 5511.08
   73.67 5511.06   75.66 5511.18   77.66 5511.31   79.65 5511.45   81.64 5511.59
   83.63 5511.73   85.62 5511.88   87.61 5511.98    89.6 5511.92   91.59 5511.88
   93.59  5511.9   95.58 5511.97   97.57 5512.04   99.56 5512.11  101.55 5512.18
  103.54 5512.26

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   27.88     .05   54.32     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         25.89   49.78           110.51  106.42   98.25             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
       0    7.75 5518.46       F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
   68.56  103.545522.256

CROSS SECTION


RIVER: TCC
REACH: 2                   RS: 7898

INPUT
Description: 7898
Station Elevation Data    num=     112
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5507.06       2 5507.02       4 5506.93    5.99 5506.93    7.99 5506.92
    9.99 5506.93   11.99 5506.91   13.99  5506.9   15.98 5506.88   17.98  5506.9
   19.98 5506.88   21.98 5506.86   23.97 5506.81   25.97 5506.79   27.97 5506.71
   29.97  5506.6   31.97  5506.5   33.96 5506.45   35.96 5506.49   37.96 5506.52
   39.96 5506.49   41.96 5506.45   43.95  5506.4   45.95 5506.43   47.95 5506.45
   49.95 5506.31   51.95 5506.25   53.94 5506.05   55.94 5506.04   57.94 5506.03
   59.94 5506.05   61.94 5506.05   63.93 5506.06   65.93 5506.07   67.93 5506.07
   69.93 5506.11   71.93 5506.14   73.92 5506.17   75.92 5506.27   77.92 5506.44
   79.92 5506.44   81.91 5506.37   83.91  5506.3   85.91 5506.23    87.9 5506.17
    89.9 5506.12   91.89 5506.15   93.89 5506.12   95.89 5506.08   97.88 5506.02
   99.88 5505.98  101.88 5505.96  103.87 5505.92  105.87  5505.9  107.86 5505.84
  109.86 5505.74  110.09 5505.71  110.26 5505.69  111.86 5505.47  113.85 5504.56
  115.85 5502.98  117.84 5502.04  119.84 5501.66  121.84 5501.68  123.83 5501.92
  125.83  5502.4  127.83 5504.34  129.82 5505.56  130.43 5505.71  131.82 5506.06
  133.81 5506.41  135.81 5506.48  137.15 5506.44  137.81 5506.42   139.8 5506.26
   141.8 5506.16   143.8 5506.33  145.79 5506.67  147.79 5506.93  149.78 5507.06
  151.78 5507.01  153.78 5506.62  155.77 5506.37  157.77    5506  159.77 5506.01
  161.76 5506.14  163.76 5506.27  165.75 5506.43  167.72 5506.96  169.69 5509.01
  171.66 5509.79  173.62 5510.28  175.59 5510.62  177.56 5510.89  179.53 5510.94
   181.5 5510.98  183.46 5511.02  185.43 5510.98   187.4 5510.76  189.37 5510.49
  191.33 5510.26   193.3 5510.19  195.27 5510.21  197.24 5510.24   199.2 5510.18
  201.17 5510.14  203.14 5510.13  205.11 5510.15  207.08  5510.2  209.04 5510.36
  211.01 5510.81  212.98 5511.06

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13  110.09     .05  130.43     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        110.26  133.81           35.01    40.6   51.06             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
  198.72  203.385520.133       F
Blocked Obstructions     num=       3
   Sta L   Sta R    Elev   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0    2.365516.996   76.65  109.085515.776  203.38  212.985521.055

CROSS SECTION


RIVER: TCC
REACH: 2                   RS: 7857

INPUT
Description: 7857 Upstream of Private Crossing (K)
Station Elevation Data    num=      93
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5506.12    1.97 5506.06    3.93 5506.01     5.9 5505.95    7.86 5505.91
    9.83  5505.9   11.79  5505.9   13.76 5505.87   15.72 5505.84   17.69  5505.8
   19.65 5505.76   21.62 5505.72   23.58 5505.68   25.55 5505.64   27.51 5505.56
   29.48 5505.37   31.44 5505.16   33.41 5504.97   35.37 5504.79   37.34 5504.56
   37.46 5504.55   38.35 5504.43    39.3  5504.3   41.27 5502.69   43.23 5501.46
    45.2 5500.83   47.17 5500.32   49.13 5499.88    51.1 5499.92   53.06 5500.74
   55.03 5502.43   56.88 5502.99   56.99 5503.03   58.96 5503.61   60.84 5504.35
   60.92 5504.38   62.89 5504.54   64.85 5504.36   66.82 5503.98   68.78 5504.05
   70.75 5504.19   72.71 5504.28   74.68 5504.44   76.64 5504.59   78.61 5504.79
   80.57 5504.81   82.54 5504.98    84.5 5504.74   86.47 5504.53   88.44 5504.46
    90.4 5504.36   92.37 5504.38   94.33 5504.43    96.3 5504.45   98.26 5504.75
  100.23 5505.26  102.19 5505.33  104.16 5505.36  106.13  5505.4   108.1 5505.36
  110.06 5505.13  112.03 5504.82     114 5504.67  115.97 5504.65  117.93 5504.58
   119.9 5504.69  121.87 5504.85  123.84 5504.92   125.8 5505.07  127.77 5505.13
  129.74 5505.23  131.71 5505.36  133.68 5505.44  135.64 5505.49  137.61 5505.55
  139.58 5505.69  141.55  5505.8  143.51 5505.94  145.48  5506.1  147.45    5506
  149.42 5506.03  151.38 5506.06  153.35 5506.09  155.32 5506.11  157.29 5506.18
  159.25 5506.18  161.22 5506.31  163.19 5506.27  165.16 5506.27  167.12 5506.32
  169.09 5506.43  171.06 5506.49  173.03 5506.51

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   38.35     .05   60.84     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         37.46   60.84           12.62   13.86   15.31             .3       .5
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
  113.81  164.535516.268       F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
       0   31.225515.187

BRIDGE
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RIVER: TCC
REACH: 2                    RS: 7850

INPUT
Description: Private Crossing (K)
Distance from Upstream XS =        7
Deck/Roadway Width        =        6
Weir Coefficient          =      2.6
Upstream  Deck/Roadway Coordinates
    num=        4
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
      20 5505.84              40 5505.84 5503.69      61 5505.75  5503.6
    68.1    5504

Upstream Bridge Cross Section Data
Station Elevation Data    num=      93
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5506.12    1.97 5506.06    3.93 5506.01     5.9 5505.95    7.86 5505.91
    9.83  5505.9   11.79  5505.9   13.76 5505.87   15.72 5505.84   17.69  5505.8
   19.65 5505.76   21.62 5505.72   23.58 5505.68   25.55 5505.64   27.51 5505.56
   29.48 5505.37   31.44 5505.16   33.41 5504.97   35.37 5504.79   37.34 5504.56
   37.46 5504.55   38.35 5504.43    39.3  5504.3   41.27 5502.69   43.23 5501.46
    45.2 5500.83   47.17 5500.32   49.13 5499.88    51.1 5499.92   53.06 5500.74
   55.03 5502.43   56.88 5502.99   56.99 5503.03   58.96 5503.61   60.84 5504.35
   60.92 5504.38   62.89 5504.54   64.85 5504.36   66.82 5503.98   68.78 5504.05
   70.75 5504.19   72.71 5504.28   74.68 5504.44   76.64 5504.59   78.61 5504.79
   80.57 5504.81   82.54 5504.98    84.5 5504.74   86.47 5504.53   88.44 5504.46
    90.4 5504.36   92.37 5504.38   94.33 5504.43    96.3 5504.45   98.26 5504.75
  100.23 5505.26  102.19 5505.33  104.16 5505.36  106.13  5505.4   108.1 5505.36
  110.06 5505.13  112.03 5504.82     114 5504.67  115.97 5504.65  117.93 5504.58
   119.9 5504.69  121.87 5504.85  123.84 5504.92   125.8 5505.07  127.77 5505.13
  129.74 5505.23  131.71 5505.36  133.68 5505.44  135.64 5505.49  137.61 5505.55
  139.58 5505.69  141.55  5505.8  143.51 5505.94  145.48  5506.1  147.45    5506
  149.42 5506.03  151.38 5506.06  153.35 5506.09  155.32 5506.11  157.29 5506.18
  159.25 5506.18  161.22 5506.31  163.19 5506.27  165.16 5506.27  167.12 5506.32
  169.09 5506.43  171.06 5506.49  173.03 5506.51

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   38.35     .05   60.84     .13

Bank Sta: Left   Right    Coeff Contr.   Expan.
          37.46   60.84        .3       .5
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
  113.81  164.535516.268       F
Blocked Obstructions      num=       1
   Sta L   Sta R    Elev
       0   31.225515.187

Downstream  Deck/Roadway Coordinates
    num=        5
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
      20 5505.84              37 5505.84 5504.59      58 5505.75  5504.5
      64  5504.3            69.75 5503.61

Downstream Bridge Cross Section Data
Station Elevation Data    num=      99
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5506.07    1.98 5506.02    3.96 5505.96    5.93 5505.91    7.91 5505.85
    9.89  5505.8   11.87 5505.74   13.84 5505.69   15.82 5505.63    17.8  5505.6
   19.78  5505.6   21.75 5505.59   23.73 5505.59   25.71 5505.57   27.69 5505.55
   29.66 5505.59   31.64 5505.51   33.62 5505.57   34.83 5505.23   35.35 5505.09
    35.6 5505.02   37.57 5503.27   39.55 5501.62   41.53 5500.77   43.51 5500.28
   45.49 5499.91   47.46 5499.64   49.44 5500.35   51.42 5501.62    53.4 5502.78
   53.55 5502.83   55.37 5503.45   55.75 5503.53   57.35  5503.9   59.33 5504.26
   61.31 5504.46   63.28 5504.55   65.26 5504.45   67.24 5503.91   69.22  5503.7
   71.19  5503.7   73.17 5503.64   75.15 5503.61   77.13  5503.6   79.11 5503.64
   81.08 5503.68   83.06 5503.95   85.04 5504.19   87.02    5504   88.99 5503.82
   90.97 5503.89   92.95 5504.01   94.93  5504.1    96.9 5504.16   98.88 5504.16
  100.86 5504.02  102.84 5503.81  104.81 5503.81  106.79 5503.95  108.77 5504.21
  110.75 5504.28  112.73 5504.44  114.71 5504.51  116.69 5504.55  118.66 5504.67
  120.64 5504.81  122.62 5504.94   124.6    5505  126.58 5505.13  128.56 5504.99
  130.54 5504.98  132.52 5505.01  134.49 5505.09  136.47 5505.13  138.45 5505.16
  140.43 5505.23  142.41 5505.21  144.39 5505.25  146.37 5505.36  148.34 5505.43
  150.32 5505.53   152.3  5505.6  154.28  5505.7  156.26 5505.91  158.24 5506.16
  160.22 5506.23   162.2 5506.16  164.17  5506.2  166.15  5506.1  168.13 5506.07
  170.11 5506.29  172.09 5506.43  174.07  5506.4  176.05 5506.36  178.02 5506.42
     180 5506.58  181.98 5506.65  183.96 5506.65  185.94 5506.63

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   35.35     .05   55.75     .13

Bank Sta: Left   Right    Coeff Contr.   Expan.
          34.83   59.33        .3       .5
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
  103.67  169.985516.273       F
Blocked Obstructions      num=       1
   Sta L   Sta R    Elev
       0   32.125515.533

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .98
Elevation at which weir flow begins         =    5504
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
        Energy
Selected Low Flow Methods = Highest Energy Answer

High Flow Method
        Energy Only

Additional Bridge Parameters
        Add Friction component to Momentum
        Do not add Weight component to Momentum
        Class B flow critical depth computations use critical depth
            inside the bridge at the upstream end
        Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION


RIVER: TCC
REACH: 2                    RS: 7844

INPUT
Description: 7844 Downstream of Private Crossing (K)
Station Elevation Data    num=      99
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5506.07    1.98 5506.02    3.96 5505.96    5.93 5505.91    7.91 5505.85
    9.89  5505.8   11.87 5505.74   13.84 5505.69   15.82 5505.63    17.8  5505.6
```

```
   19.78  5505.6   21.75 5505.59   23.73 5505.59   25.71 5505.57   27.69 5505.55
   29.66 5505.59   31.64 5505.51   33.62 5505.57   34.83 5505.23   35.35 5505.09
    35.6 5505.02   37.57 5503.27   39.55 5501.62   41.53 5500.77   43.51 5500.28
   45.49 5499.91   47.46 5499.64   49.44 5500.35   51.42 5501.62    53.4 5502.78
   53.55 5502.83   55.37 5503.45   55.75 5503.53   57.35  5503.9   59.33 5504.26
   61.31 5504.46   63.28 5504.55   65.26 5504.45   67.24 5503.91   69.22  5503.7
   71.19  5503.7   73.17 5503.64   75.15 5503.61   77.13  5503.6   79.11 5503.64
   81.08 5503.68   83.06 5503.95   85.04 5504.19   87.02    5504   88.99 5503.82
   90.97 5503.89   92.95 5504.01   94.93  5504.1    96.9 5504.16   98.88 5504.16
  100.86 5504.02  102.84 5503.81  104.81 5503.81  106.79 5503.95  108.77 5504.21
  110.75 5504.28  112.73 5504.44  114.71 5504.51  116.69 5504.55  118.66 5504.67
  120.64 5504.81  122.62 5504.94   124.6    5505  126.58 5505.13  128.56 5504.99
  130.54 5504.98  132.52 5505.01  134.49 5505.09  136.47 5505.13  138.45 5505.16
  140.43 5505.23  142.41 5505.21  144.39 5505.25  146.37 5505.36  148.34 5505.43
  150.32 5505.53   152.3  5505.6  154.28  5505.7  156.26 5505.91  158.24 5506.16
  160.22 5506.23   162.2 5506.16  164.17  5506.2  166.15  5506.1  168.13 5506.07
  170.11 5506.29  172.09 5506.43  174.07  5506.4  176.05 5506.36  178.02 5506.42
     180 5506.58  181.98 5506.65  183.96 5506.65  185.94 5506.63

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   35.35     .05   55.75     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          34.83   59.33            17.79    21.4   25.75             .3       .5
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
  103.67  169.985516.273       F
Blocked Obstructions      num=       1
   Sta L   Sta R    Elev
       0   32.125515.533

CROSS SECTION


RIVER: TCC
REACH: 2                  RS: 7822

INPUT
Description: 7822
Station Elevation Data    num=      66
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5506.03    1.97 5505.93    3.94 5505.86     5.9 5505.82    7.87 5505.79
    9.84 5505.76   11.81 5505.74   13.77 5505.81   15.74 5505.78   17.71 5505.75
   19.68 5505.76   21.64  5505.8   23.61 5505.76   25.58 5505.43   27.55 5504.59
   29.52 5503.83   31.48 5503.16    32.3 5502.88   33.45 5502.48   34.49 5501.97
   35.42 5501.51   37.39 5500.57   39.35 5499.97   41.32 5499.54   43.29 5499.56
   45.26 5499.85   47.22 5500.51   49.19 5501.29   49.83 5501.59   51.16 5502.21
   51.95 5502.39   53.13 5502.66    55.1  5502.8   57.06 5502.84   59.03 5502.78
      61 5502.75   62.97  5502.8   64.93 5502.84    66.9 5502.97   68.87 5503.45
   70.84  5503.5   72.81 5503.52   74.77 5503.63   76.74 5503.71   78.71 5503.52
   80.68 5503.18   82.64 5502.73   84.61 5501.87   86.58 5502.06   88.55 5502.36
   90.51 5502.59   92.48 5502.61   94.45 5502.52   96.42 5502.51   98.39 5502.49
  100.35 5502.43  102.32 5502.42  104.29 5502.41  106.26 5502.37  108.22 5502.09
  110.19 5502.02  112.16 5501.95  114.13 5502.01  116.09 5502.08  118.06 5502.16
  120.03 5502.23

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   34.49     .05   51.95     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          32.3   53.13              56   55.12   32.47             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
  100.35  107.955512.109       F
   76.74  100.35 5503.71       F
Blocked Obstructions      num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0   30.965513.341  107.96  120.035512.232

CROSS SECTION


RIVER: TCC
REACH: 2                  RS: 7767

INPUT
Description: 7767
Station Elevation Data    num=      65
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5502.33    1.98 5502.25    3.95  5502.2    5.93 5502.18     7.9 5502.18
    9.88 5502.18   11.85 5502.23   13.83 5502.21   15.81 5502.18   17.78 5502.17
   19.76 5502.25   21.73 5502.33   23.71 5502.39   25.68 5502.49   27.66  5502.5
   29.64 5502.45   31.61 5502.28   33.59 5502.15   35.56 5502.12   37.54 5502.11
   39.51 5502.08   41.49 5502.04   43.47  5502.1   45.44 5502.23   47.42 5502.26
   49.39 5502.17   51.37 5502.19   53.34 5502.15   55.32  5502.1    57.3 5502.19
   59.27 5502.26   61.25  5502.4   63.22 5502.52    65.2 5502.58   67.17 5502.55
   69.15 5502.41   71.13 5502.27   72.95 5501.91    73.1 5501.88   75.08 5501.18
   76.45 5500.36   77.05    5500   79.03  5499.2      81 5498.05   82.98  5496.5
   84.88 5498.26   86.79 5498.78   88.69 5499.25    90.6 5499.88    92.5  5500.5
    94.4 5501.14   96.31 5501.71   98.21 5502.12  100.11 5502.38  102.02 5502.57
  102.61 5502.62  103.92 5502.72  105.82 5502.82  107.73  5502.9   108.8 5502.93
  109.63 5502.96  111.54 5503.05  113.44 5503.07  115.34 5503.05  117.25 5502.92

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   76.45     .05   108.8     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          69.15  102.61            13.22   17.09   30.73             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
       0    65.2 5502.58       F

CROSS SECTION


RIVER: TCC
REACH: 2                  RS: 7750

INPUT
Description: 7750 Upstream of Private Crossing (J)
Station Elevation Data    num=     100
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5502.07    1.97 5502.03    3.94 5501.98    5.91  5501.9    7.89 5501.82
    9.86 5501.89   11.83 5501.91    13.8  5501.9   15.77 5501.96   17.74 5502.03
   19.71 5502.06   21.69 5502.07   23.66 5502.06   25.63 5502.09    27.6 5502.05
   29.57 5501.97   31.54 5501.93   33.51 5501.94   35.49 5501.94   37.46 5501.98
   39.43 5501.95    41.4 5501.87   43.37 5501.85   45.34 5501.77   47.31 5501.81
   49.29 5501.85   51.26 5501.99   53.23 5502.11    55.2 5502.14   57.17 5502.14
   59.14 5502.11   61.11 5502.08   63.09 5502.01   65.06 5501.97   67.03 5502.03
      69 5502.03   70.97 5502.06   72.94 5502.11   74.91 5502.15   75.64 5502.13
   76.89  5502.1   78.53 5501.89   78.86 5501.85   80.83 5501.11    82.8 5499.36
   84.77 5497.38   86.74 5496.43   88.71 5496.22   90.71 5496.42   92.71 5497.49
   94.71 5499.84    96.7 5500.72    98.7 5500.99   99.56 5501.01   100.7 5501.04
  101.39 5501.01  102.69 5500.95  104.69 5500.93  106.69 5500.92  108.69 5500.97
  110.68 5500.98  112.68 5500.98  114.68 5500.94  116.67 5500.89  118.67 5500.92
  120.67 5500.95  122.67    5501  124.66 5501.06  126.66 5501.02  128.66 5501.13
  130.65 5501.12  132.65 5501.12  134.65 5501.15  136.65  5501.2  138.64 5501.25
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  140.64 5501.29  142.64 5501.34  144.63 5501.39  146.63 5501.38  148.63 5501.28
  150.63 5501.13  152.62 5501.06  154.62 5501.03  156.62 5501.06  158.61 5500.95
  160.61 5500.72  162.61 5500.58  164.61 5500.42   166.6 5500.41   168.6 5500.46
   170.6 5500.59  172.59 5500.67  174.59 5500.66  176.59 5500.69  178.59 5500.75
  180.58 5500.85  182.58 5501.02  184.58 5501.19  186.57 5501.37  188.57 5501.55

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   78.53     .05  101.39     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         78.53    98.7             11.13    6.92   15.34              .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
   151.4  157.345511.014       F
       0   72.94 5502.11       F
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
  129.14   151.45511.099  171.91  188.575511.548

BRIDGE


RIVER: TCC
REACH: 2                  RS: 7749

INPUT
Description: Private Crossing (J)
Distance from Upstream XS =       1
Deck/Roadway Width        =       1
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=       4
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
      60 5501.15  5498.6      84 5501.15  5498.6     100 5501.37  5498.8
  116.24 5500.75  5498.8

Upstream Bridge Cross Section Data
Station Elevation Data    num=     100
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5502.07    1.97 5502.03    3.94 5501.98    5.91  5501.9    7.89 5501.82
    9.86 5501.89   11.83 5501.91    13.8  5501.9   15.77 5501.96   17.74 5502.03
   19.71 5502.06   21.69 5502.07   23.66 5502.06   25.63 5502.09    27.6 5502.05
   29.57 5501.97   31.54 5501.93   33.51 5501.94   35.49 5501.94   37.46 5501.98
   39.43 5501.95    41.4 5501.87   43.37 5501.85   45.34 5501.77   47.31 5501.81
   49.29 5501.85   51.26 5501.99   53.23 5502.11    55.2 5502.14   57.17 5502.14
   59.14 5502.11   61.11 5502.08   63.09 5502.01   65.06 5501.97   67.03 5502.03
      69 5502.03   70.97 5502.06   72.94 5502.11   74.91 5502.15   75.64 5502.13
   76.89  5502.1   78.53 5501.89   78.86 5501.85   80.83 5501.11    82.8 5499.36
   84.77 5497.38   86.74 5496.43   88.71 5496.22   90.71 5496.42   92.71 5497.49
   94.71 5499.84    96.7 5500.72    98.7 5500.99   99.56 5501.01   100.7 5501.04
  101.39 5501.01  102.69 5500.95  104.69 5500.93  106.69 5500.92  108.69 5500.97
  110.68 5500.98  112.68 5500.98  114.68 5500.94  116.67 5500.89  118.67 5500.92
  120.67 5500.95  122.67    5501  124.66 5501.06  126.66 5501.02  128.66 5501.13
  130.65 5501.12  132.65 5501.12  134.65 5501.15  136.65  5501.2  138.64 5501.25
  140.64 5501.29  142.64 5501.34  144.63 5501.39  146.63 5501.38  148.63 5501.28
  150.63 5501.13  152.62 5501.06  154.62 5501.03  156.62 5501.06  158.61 5500.95
  160.61 5500.72  162.61 5500.58  164.61 5500.42   166.6 5500.41   168.6 5500.46
   170.6 5500.59  172.59 5500.67  174.59 5500.66  176.59 5500.69  178.59 5500.75
  180.58 5500.85  182.58 5501.02  184.58 5501.19  186.57 5501.37  188.57 5501.55

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   78.53     .05  101.39     .13

Bank Sta: Left   Right    Coeff Contr.   Expan.
         78.53    98.7              .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
   151.4  157.345511.014       F
       0   72.94 5502.11       F
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
  129.14   151.45511.099  171.91  188.575511.548

Downstream  Deck/Roadway Coordinates
    num=       3
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
      80 5501.15 5500.05      94 5501.15 5500.05     107 5501.37 5500.27

Downstream Bridge Cross Section Data
Station Elevation Data    num=      84
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5501.82    1.99  5501.9    3.97 5501.89    5.96 5501.83    7.95 5501.72
    9.94 5501.65   11.92 5501.62   13.91  5501.6    15.9 5501.68   17.89 5501.69
   19.87 5501.75   21.86 5501.85   23.85 5501.92   25.83 5502.08   27.82 5502.05
   29.81    5502    31.8 5501.88   33.78  5501.8   35.77 5501.66   37.76 5501.61
   39.75 5501.68   41.73 5501.79   43.72 5501.67   45.71 5501.48   47.69 5501.46
   49.68  5501.5   51.67 5501.54   53.66 5501.54   55.64 5501.58   57.63 5501.58
   59.62 5501.59    61.6 5501.58   63.59 5501.61   65.58 5501.73   67.57  5501.8
   69.55 5501.85   71.54 5501.88   73.53 5501.92   75.52 5501.89   77.51 5501.81
   79.51 5501.82   81.51 5501.87    83.5 5502.01   85.16 5501.81    85.5 5501.77
   87.39 5501.64    87.5 5501.63   89.49  5501.2   91.49 5500.75   93.49 5500.82
   95.48 5499.05   97.48 5496.62   99.48 5496.03  101.47 5496.69  103.47 5499.05
  105.47 5500.69  107.07 5500.75  107.47 5500.77  107.65 5500.77  109.46 5500.78
  111.46 5500.75  113.46 5500.68  115.45 5500.71  117.45 5500.96  119.45 5501.17
  121.44 5501.14  123.44 5501.23  125.44 5501.28  127.43 5501.29  129.43 5501.32
  131.43  5501.4  133.42 5501.37  135.42 5501.32  137.42 5501.27  139.42 5501.22
  141.41 5501.16  143.41 5501.11  145.41 5501.06   147.4 5501.01   149.4 5500.95
   151.4  5500.9  153.39 5500.85  155.39  5500.8  157.39 5500.75

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   87.39     .05  107.65     .13

Bank Sta: Left   Right    Coeff Contr.   Expan.
         93.49  105.47              .3       .5
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
       0    83.5 5502.01       F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
  133.31  157.395510.749

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .98
Elevation at which weir flow begins         = 5500.41
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
Selected Low Flow Methods = Highest Energy Answer

High Flow Method
       Energy Only
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```
Additional Bridge Parameters
       Add Friction component to Momentum
       Do not add Weight component to Momentum
       Class B flow critical depth computations use critical depth
            inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION


RIVER: TCC
REACH: 2                    RS: 7743

INPUT
Description: 7743 Downstream of Private Crossing (J)
Station Elevation Data    num=      84
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5501.82    1.99  5501.9    3.97 5501.89    5.96 5501.83    7.95 5501.72
    9.94 5501.65   11.92 5501.62   13.91  5501.6    15.9 5501.68   17.89 5501.69
   19.87 5501.75   21.86 5501.85   23.85 5501.92   25.83 5502.08   27.82 5502.05
   29.81    5502    31.8 5501.88   33.78  5501.8   35.77 5501.66   37.76 5501.61
   39.75 5501.68   41.73 5501.79   43.72 5501.67   45.71 5501.48   47.69 5501.46
   49.68  5501.5   51.67 5501.54   53.66 5501.54   55.64 5501.58   57.63 5501.58
   59.62 5501.59    61.6 5501.58   63.59 5501.61   65.58 5501.73   67.57  5501.8
   69.55 5501.85   71.54 5501.88   73.53 5501.92   75.52 5501.89   77.51 5501.81
   79.51 5501.82   81.51 5501.87    83.5 5502.01   85.16 5501.81    85.5 5501.77
   87.39 5501.64    87.5 5501.63   89.49  5501.2   91.49 5500.75   93.49 5500.82
   95.48 5499.05   97.48 5496.62   99.48 5496.03  101.47 5496.69  103.47 5499.05
  105.47 5500.69  107.07 5500.75  107.47 5500.77  107.65 5500.77  109.46 5500.78
  111.46 5500.75  113.46 5500.68  115.45 5500.71  117.45 5500.96  119.45 5501.17
  121.44 5501.14  123.44 5501.23  125.44 5501.28  127.43 5501.29  129.43 5501.32
  131.43  5501.4  133.42 5501.37  135.42 5501.32  137.42 5501.27  139.42 5501.22
  141.41 5501.16  143.41 5501.11  145.41 5501.06   147.4 5501.01   149.4 5500.95
   151.4  5500.9  153.39 5500.85  155.39  5500.8  157.39 5500.75

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   87.39     .05  107.65     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          93.49  105.47           16.82   17.31   18.55             .3       .5
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
       0    83.5 5502.01       F
Blocked Obstructions      num=       1
   Sta L   Sta R    Elev
  133.31  157.395510.749

CROSS SECTION


RIVER: TCC
REACH: 2                    RS: 7726

INPUT
Description: 7726 Upstream of Private Crossing (I)
Station Elevation Data    num=      68
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5501.06       2 5501.02       4 5500.88    5.99 5500.77    7.99 5500.77
    9.99 5500.72   11.99 5500.77   13.98 5500.79   15.98 5500.76   17.98 5500.66
   19.98 5500.54   21.97 5500.56   23.97 5500.54   25.97 5500.57   27.97 5500.61
   29.96 5500.73   31.96 5500.82   33.96  5500.9   35.96 5501.03   37.95 5501.05
   39.95 5501.11   41.95 5501.24   43.95 5501.29   45.95 5501.11   47.94 5500.97
   49.94 5500.62   51.94 5500.15   53.94 5499.63   55.93 5499.37   57.93 5499.52
   59.32 5499.33   59.93 5499.25   60.93 5499.29   61.93 5499.34   63.92 5499.22
   65.92  5499.3   67.92 5497.68   69.92 5495.84   71.91 5495.42   73.91 5495.83
   75.91  5498.8   77.91 5500.39   79.91 5500.52   80.74 5500.49   80.99 5500.49
    81.9 5500.46    83.9 5500.44    85.9 5500.42    87.9 5500.45   89.89  5500.5
   91.89 5500.55   93.89 5500.79   95.89 5500.99   97.88 5500.96   99.88 5501.06
  101.88 5501.05  103.88 5500.86  105.87 5500.79  107.87 5500.73  109.87 5500.69
  111.87 5500.63  113.86 5500.63  115.86 5500.62  117.86  5500.6  119.86 5500.59
  121.86 5500.58  123.85 5500.57  125.85 5500.55

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   60.93     .05   80.99     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          65.92   77.91           15.06   12.59   11.37             .3       .5
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
       0   43.95 5501.29       F
Blocked Obstructions      num=       1
   Sta L   Sta R    Elev
  104.11  125.855510.553

BRIDGE


RIVER: TCC
REACH: 2                    RS: 7719

INPUT
Description: Private Crossing (I)
Distance from Upstream XS =       7
Deck/Roadway Width        =       3
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=       4
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
      50  5499.4              63  5499.4              63  5500.7 5498.05
      78  5500.7 5498.05

Upstream Bridge Cross Section Data
Station Elevation Data    num=      68
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5501.06       2 5501.02       4 5500.88    5.99 5500.77    7.99 5500.77
    9.99 5500.72   11.99 5500.77   13.98 5500.79   15.98 5500.76   17.98 5500.66
   19.98 5500.54   21.97 5500.56   23.97 5500.54   25.97 5500.57   27.97 5500.61
   29.96 5500.73   31.96 5500.82   33.96  5500.9   35.96 5501.03   37.95 5501.05
   39.95 5501.11   41.95 5501.24   43.95 5501.29   45.95 5501.11   47.94 5500.97
   49.94 5500.62   51.94 5500.15   53.94 5499.63   55.93 5499.37   57.93 5499.52
   59.32 5499.33   59.93 5499.25   60.93 5499.29   61.93 5499.34   63.92 5499.22
   65.92  5499.3   67.92 5497.68   69.92 5495.84   71.91 5495.42   73.91 5495.83
   75.91  5498.8   77.91 5500.39   79.91 5500.52   80.74 5500.49   80.99 5500.49
    81.9 5500.46    83.9 5500.44    85.9 5500.42    87.9 5500.45   89.89  5500.5
   91.89 5500.55   93.89 5500.79   95.89 5500.99   97.88 5500.96   99.88 5501.06
  101.88 5501.05  103.88 5500.86  105.87 5500.79  107.87 5500.73  109.87 5500.69
  111.87 5500.63  113.86 5500.63  115.86 5500.62  117.86  5500.6  119.86 5500.59
  121.86 5500.58  123.85 5500.57  125.85 5500.55

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   60.93     .05   80.99     .13

Bank Sta: Left   Right    Coeff Contr.   Expan.
          65.92   77.91             .3       .5
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
```

```
       0   43.95 5501.29       F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
  104.11  125.855510.553

Downstream  Deck/Roadway Coordinates
    num=         4
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
      50  5499.4               70  5499.4               70  5500.7 5498.85
      86  5500.7 5498.85

Downstream Bridge Cross Section Data
Station Elevation Data    num=      73
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5500.76     1.9 5500.77     3.8 5500.77     5.7 5500.57    7.61 5500.71
    9.51 5500.68   11.41 5500.65   13.31 5500.64   15.21 5500.55   17.11 5500.47
   19.01 5500.36   20.92 5500.26   22.82 5500.17   24.72 5500.14   26.62 5500.09
   28.52 5500.05   30.42  5500.1    32.4 5500.21   34.37 5500.25   36.34 5500.53
   38.31 5500.61   40.29 5500.51   42.26 5500.33   44.23 5499.86   46.21 5499.57
   48.18  5499.4   50.15 5499.24   52.13 5499.41    54.1 5499.14   56.07 5498.89
   58.04 5498.81   60.02 5498.74   61.99 5498.66   63.96 5498.63   65.94 5498.69
   67.91 5498.73   67.98 5498.72   69.88 5498.67   70.45 5498.67   71.86 5498.67
   73.83 5498.81    75.8 5497.38   77.77 5495.66   79.75 5495.39   81.72 5495.81
   83.69 5497.23   85.67 5499.65   87.64 5499.75   88.69 5499.76   88.78 5499.76
   89.61 5499.76   91.59 5499.83   93.56 5499.91   95.53 5499.95    97.5 5499.98
   99.48 5499.99  101.45 5500.11  103.42 5500.14   105.4 5500.04  107.37 5500.14
  109.34 5500.48  111.32 5500.55  113.29 5500.56  115.26 5500.56  117.23 5500.55
  119.21 5500.53  121.18 5500.51  123.15 5500.48  125.13 5500.46   127.1 5500.43
  129.07 5500.42  131.05  5500.4  133.02  5500.4

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   70.45     .05   88.78     .13

Bank Sta: Left   Right    Coeff Contr.   Expan.
          73.83   85.67             .3       .5
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
  110.17  133.025510.402

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .98
Elevation at which weir flow begins         = 5499.37
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
Selected Low Flow Methods = Highest Energy Answer

High Flow Method
       Energy Only

Additional Bridge Parameters
       Add Friction component to Momentum
       Do not add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION


RIVER: TCC
REACH: 2                  RS: 7713

INPUT
Description: 7713 Downstream of Private Crossing (I)
Station Elevation Data    num=      73
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5500.76     1.9 5500.77     3.8 5500.77     5.7 5500.57    7.61 5500.71
    9.51 5500.68   11.41 5500.65   13.31 5500.64   15.21 5500.55   17.11 5500.47
   19.01 5500.36   20.92 5500.26   22.82 5500.17   24.72 5500.14   26.62 5500.09
   28.52 5500.05   30.42  5500.1    32.4 5500.21   34.37 5500.25   36.34 5500.53
   38.31 5500.61   40.29 5500.51   42.26 5500.33   44.23 5499.86   46.21 5499.57
   48.18  5499.4   50.15 5499.24   52.13 5499.41    54.1 5499.14   56.07 5498.89
   58.04 5498.81   60.02 5498.74   61.99 5498.66   63.96 5498.63   65.94 5498.69
   67.91 5498.73   67.98 5498.72   69.88 5498.67   70.45 5498.67   71.86 5498.67
   73.83 5498.81    75.8 5497.38   77.77 5495.66   79.75 5495.39   81.72 5495.81
   83.69 5497.23   85.67 5499.65   87.64 5499.75   88.69 5499.76   88.78 5499.76
   89.61 5499.76   91.59 5499.83   93.56 5499.91   95.53 5499.95    97.5 5499.98
   99.48 5499.99  101.45 5500.11  103.42 5500.14   105.4 5500.04  107.37 5500.14
  109.34 5500.48  111.32 5500.55  113.29 5500.56  115.26 5500.56  117.23 5500.55
  119.21 5500.53  121.18 5500.51  123.15 5500.48  125.13 5500.46   127.1 5500.43
  129.07 5500.42  131.05  5500.4  133.02  5500.4

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   70.45     .05   88.78     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          73.83   85.67             38.08   32.31   20.42             .3       .5
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
  110.17  133.025510.402

CROSS SECTION


RIVER: TCC
REACH: 2                  RS: 7681

INPUT
Description: 7681
Station Elevation Data    num=      67
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5500.46    1.97 5500.64    3.94 5500.68    5.91 5500.44    7.88 5499.93
    9.85 5499.37   11.82 5498.82   13.78 5499.25   15.75 5499.26   17.72 5499.41
   19.69 5499.44   21.66 5499.16   23.63 5498.97    25.6 5498.75   27.57 5498.61
   29.54 5498.44   31.51 5498.38   33.48 5498.26   35.44 5498.18   37.41 5498.17
   39.38 5498.17   41.35 5498.14   43.32 5498.21   45.29 5498.25   47.26 5498.18
   49.23 5498.22    51.2 5498.27   53.17 5498.29   55.14  5498.2   57.08 5498.15
   59.02 5498.38   59.41 5498.28   60.97 5497.86   62.91 5495.49   64.85 5494.94
    66.8 5494.89   68.74  5494.9   70.68 5495.41   72.63 5497.38   74.24 5499.02
   74.57 5499.36   74.69 5499.36   76.52 5499.34   78.46 5499.24    80.4 5499.25
   82.35 5499.12   84.29 5499.37   86.23 5499.55   88.18  5499.6   90.12 5499.56
   92.06 5499.54   94.01 5499.71   95.95    5500   97.89 5500.18   99.84 5500.05
  101.78 5499.96  103.72 5500.06  105.67 5500.23  107.61 5500.07  109.55 5500.01
   111.5 5500.14  113.44 5500.31  115.39 5500.38  117.33 5500.38  119.27 5500.37
  121.22 5500.35  123.16 5500.34

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   59.02     .05   74.24     .13

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

```
         59.02   74.69            75.92   72.66   60.74             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
   96.41  123.165510.341

CROSS SECTION


RIVER: TCC
REACH: 2                   RS: 7608

INPUT
Description: 7608
Station Elevation Data    num=      55
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5495.85    1.98 5495.91    3.97 5495.96    5.95 5496.01    7.93 5496.06
    9.91 5496.12    11.9 5496.17   13.88 5496.22   15.86 5496.26   17.84 5496.24
   19.83 5496.24   21.81 5496.23   23.79 5496.23   25.77 5496.23   27.76 5496.35
   29.74 5496.48   31.72  5496.4   33.71  5496.5   35.69 5496.55   37.67 5496.46
   39.65 5496.49   41.64 5496.52   43.62 5496.68    45.6 5496.88   47.58 5497.31
   49.57 5497.48   51.55 5497.72   53.32 5497.43   53.53  5497.4   54.34 5497.04
   55.51 5496.52    57.5 5495.64   59.48 5495.21   61.46 5494.17   63.45 5493.54
   65.43 5493.23   67.41 5493.56   69.39 5494.34   71.38 5495.73   72.41 5496.03
   73.36  5496.3   75.04  5496.5   75.34 5496.53   77.32 5496.74   79.31 5496.93
   81.29 5496.97   83.27   5497   85.25 5496.97   87.24 5496.92   89.22 5496.84
    91.2 5496.75   93.19 5496.64   95.17 5496.53   97.15 5496.47   99.13 5496.44

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   53.32     .05   72.41     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         51.55   75.04          101.48   104.1  113.77             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
   14.17   27.175506.311       F
   27.17   51.55 5497.72       F
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0   14.175506.229   77.97   99.135506.442

CROSS SECTION


RIVER: TCC
REACH: 2                   RS: 7504

INPUT
Description: 7504
Station Elevation Data    num=      40
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5493.93    1.36 5493.98    1.41 5493.99    1.97 5494.01    3.94  5493.6
    5.91 5491.54    7.88 5490.13    9.85 5490.09   11.82 5490.21   13.79 5490.32
   15.77 5490.98   17.74 5491.91   18.44 5492.22   19.07 5492.49   19.71 5492.77
   21.68 5493.44   23.65 5493.51   25.62 5493.25   27.59 5492.72   29.56 5492.27
   31.53 5492.24    33.5 5492.24   35.47 5492.24   37.44 5492.29   39.41 5492.48
   41.38 5492.77   43.35 5492.94   45.32 5493.01   47.29 5493.06   49.27 5493.08
   51.24 5493.12   53.21 5493.16   55.18 5493.19   57.15 5493.23   59.12 5493.27
   61.09 5493.31   63.06 5493.35   65.03 5493.39      67 5493.43   68.97 5493.46

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13    1.41     .05   19.07     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          3.94   21.68           73.01   73.92   74.54             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
   23.65   68.97 5493.51       F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
    38.6   68.975503.462

CROSS SECTION


RIVER: TCC
REACH: 2                   RS: 7430

INPUT
Description: 7430 Upstream of Juniper Avenue
Station Elevation Data    num=      85
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5491.78    1.99 5491.75    3.98 5491.75    5.97 5491.68    7.96 5491.57
    9.95 5491.47   11.94 5491.31   13.93 5491.25   15.93  5491.3   17.92  5491.3
   19.91 5491.18    21.9 5491.07   23.89 5491.05   25.88 5490.99   27.87 5491.03
   29.85 5491.03   31.84 5491.07   33.82 5491.09   35.81 5491.03   37.49 5491.12
   37.79 5491.14   39.77    5492   41.37 5492.59   41.76 5492.73   43.74  5492.9
   45.73 5492.82   47.71 5492.57   49.69 5490.71   51.68 5489.25   53.66    5488
   55.65 5488.06   57.63 5488.66   59.61 5489.98    61.6  5491.5   62.95 5492.15
   63.58 5492.45   65.57 5492.49   66.98 5492.48   67.55 5492.48   69.54 5492.54
   71.52 5492.66    73.5 5492.53   75.49 5492.59   77.47 5492.55   79.46 5492.49
   81.44 5492.54   83.42 5492.62   85.41 5492.67   87.39 5492.76   89.38 5492.84
   91.36 5492.93   93.35 5493.08   95.33 5493.15   97.31  5493.1    99.3 5492.71
  101.28 5492.28  103.27 5491.99  105.25 5491.92  107.23 5491.69  109.22 5491.34
   111.2 5491.36  113.19 5491.57  115.17 5491.63  117.15 5492.09  118.45 5492.37
  119.14 5492.51  121.12 5492.74  123.11    5493  125.09 5493.09  127.07 5493.06
  129.06 5492.99  131.04 5492.93  133.03 5492.94  135.01 5492.97     137 5492.99
  138.98 5493.04  140.96 5493.09  142.95 5493.15  144.93 5493.22  146.92 5493.29
   148.9 5493.28  150.88 5493.31  152.87 5493.35  154.85 5493.36  156.84 5493.39

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   37.49     .05   66.98     .13  118.45    .015

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         45.73   63.58           53.78   59.12   56.16             .6       .8
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0   43.74  5492.9       F
   95.33  156.84 5493.15       F

CULVERT


RIVER: TCC
REACH: 2                   RS: 7426

INPUT
Description: Juniper Avenue
Distance from Upstream XS =       4
Deck/Roadway Width        =      53
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
     num=       3
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
      40    5491              83    5492             154    5493

Upstream Bridge Cross Section Data
Station Elevation Data    num=      85
```

```
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5491.78    1.99 5491.75    3.98 5491.75    5.97 5491.68    7.96 5491.57
    9.95 5491.47   11.94 5491.31   13.93 5491.25   15.93  5491.3   17.92  5491.3
   19.91 5491.18    21.9 5491.07   23.89 5491.05   25.88 5490.99   27.87 5491.03
   29.85 5491.03   31.84 5491.07   33.82 5491.09   35.81 5491.03   37.49 5491.12
   37.79 5491.14   39.77    5492   41.37 5492.59   41.76 5492.73   43.74  5492.9
   45.73 5492.82   47.71 5492.57   49.69 5490.71   51.68 5489.25   53.66    5488
   55.65 5488.06   57.63 5488.66   59.61 5489.98    61.6  5491.5   62.95 5492.15
   63.58 5492.45   65.57 5492.49   66.98 5492.48   67.55 5492.48   69.54 5492.54
   71.52 5492.66    73.5 5492.53   75.49 5492.59   77.47 5492.55   79.46 5492.49
   81.44 5492.54   83.42 5492.62   85.41 5492.67   87.39 5492.76   89.38 5492.84
   91.36 5492.93   93.35 5493.08   95.33 5493.15   97.31  5493.1    99.3 5492.71
  101.28 5492.28  103.27 5491.99  105.25 5491.92  107.23 5491.69  109.22 5491.34
   111.2 5491.36  113.19 5491.57  115.17 5491.63  117.15 5492.09  118.45 5492.37
  119.14 5492.51  121.12 5492.74  123.11    5493  125.09 5493.09  127.07 5493.06
  129.06 5492.99  131.04 5492.93  133.03 5492.94  135.01 5492.97     137 5492.99
  138.98 5493.04  140.96 5493.09  142.95 5493.15  144.93 5493.22  146.92 5493.29
   148.9 5493.28  150.88 5493.31  152.87 5493.35  154.85 5493.36  156.84 5493.39

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   37.49     .05   66.98     .13  118.45    .015

Bank Sta: Left   Right    Coeff Contr.   Expan.
         45.73   63.58          .6       .8
Ineffective Flow      num=       2
   Sta L   Sta R    Elev  Permanent
       0   43.74  5492.9        F
   95.33  156.84 5493.15        F

Downstream  Deck/Roadway Coordinates
    num=       5
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
    2.43 5490.85               30    5491               82    5492
     162    5493          165.75    5493

Downstream Bridge Cross Section Data
Station Elevation Data    num=      92
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5490.69    1.94 5490.75    3.87 5490.68    5.81 5490.68    7.74  5490.7
    9.68 5490.66   11.61 5490.67   13.55 5490.66   15.48 5490.69    16.4 5490.67
    16.5 5490.67   17.42 5490.65   19.36 5490.44   21.29 5490.01   23.23 5489.84
    23.3 5489.85   25.16 5490.23    27.1 5490.28   29.05 5490.33   31.01 5489.99
   32.96 5489.19   34.92 5488.04   36.87  5486.7   38.83 5486.49   40.78  5486.7
   42.73 5487.77   44.69 5488.77   46.64 5489.46    48.6 5489.69   50.55 5489.73
    52.4 5489.74   52.51 5489.74   53.38 5489.74   54.46 5489.74   56.42 5489.82
   58.37  5489.9   60.33 5489.91   62.28 5489.97   64.24 5489.95   66.19 5489.95
   68.14 5490.01    70.1 5490.04   72.08 5490.07   74.07 5490.15   76.05 5490.22
   78.04 5490.31   80.02 5490.36   82.01 5490.47   83.99  5490.6   85.98 5490.69
   87.96 5490.82   89.95 5491.01   91.94 5491.15   93.92 5491.18   95.91 5491.18
   97.89 5491.18   99.88 5491.23  101.86 5491.27  103.85  5491.3  105.83 5491.29
  107.82 5491.38   109.8 5491.38  111.79 5491.48  113.77 5491.56  115.76 5491.62
  117.74 5491.71  119.73 5491.82  121.71 5491.69   123.7 5491.79  125.68 5491.97
  127.67 5492.25  129.65  5492.4  131.64 5492.49  132.39 5492.52  133.62 5492.57
  135.61 5492.63  137.59 5492.68  139.58 5492.71  141.56 5492.82  143.55 5492.85
  145.53 5492.88  147.52 5492.91   149.5 5492.98  151.49 5493.07  153.47 5493.12
  155.46 5493.13  157.44 5493.21  159.43 5493.26  161.41 5493.33   163.4 5493.31
  165.38 5493.36  167.37 5493.38

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0    .015    16.4     .13    16.5     .04   53.38     .13  132.39    .015

Bank Sta: Left   Right    Coeff Contr.   Expan.
         29.05    48.6          .6       .8
Ineffective Flow      num=       1
   Sta L   Sta R    Elev  Permanent
   96.94   99.045501.235        F

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .98
Elevation at which weir flow begins         =    5491
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Culverts =  1

Culvert Name     Shape      Rise    Span
Culvert #1       Ellipse     3      4.5
FHWA Chart # 29- Horizontal Ellipse; Concrete
FHWA Scale # 1 - Square edge with headwall
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    Top n  Bottom n  Depth Blocked  Entrance Loss Coef   Exit Loss Coef
                 4      53      .02      .02      2.9                   .5                 1
Upstream   Elevation =  5488.03
           Centerline Station =  55
Downstream Elevation =  5486.49
           Centerline Station =  39

CROSS SECTION


RIVER: TCC
REACH: 2                   RS: 7371

INPUT
Description: 7371 Downstream of Juniper Avenue
Station Elevation Data    num=      92
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5490.69    1.94 5490.75    3.87 5490.68    5.81 5490.68    7.74  5490.7
    9.68 5490.66   11.61 5490.67   13.55 5490.66   15.48 5490.69    16.4 5490.67
    16.5 5490.67   17.42 5490.65   19.36 5490.44   21.29 5490.01   23.23 5489.84
    23.3 5489.85   25.16 5490.23    27.1 5490.28   29.05 5490.33   31.01 5489.99
   32.96 5489.19   34.92 5488.04   36.87  5486.7   38.83 5486.49   40.78  5486.7
   42.73 5487.77   44.69 5488.77   46.64 5489.46    48.6 5489.69   50.55 5489.73
    52.4 5489.74   52.51 5489.74   53.38 5489.74   54.46 5489.74   56.42 5489.82
   58.37  5489.9   60.33 5489.91   62.28 5489.97   64.24 5489.95   66.19 5489.95
   68.14 5490.01    70.1 5490.04   72.08 5490.07   74.07 5490.15   76.05 5490.22
   78.04 5490.31   80.02 5490.36   82.01 5490.47   83.99  5490.6   85.98 5490.69
   87.96 5490.82   89.95 5491.01   91.94 5491.15   93.92 5491.18   95.91 5491.18
   97.89 5491.18   99.88 5491.23  101.86 5491.27  103.85  5491.3  105.83 5491.29
  107.82 5491.38   109.8 5491.38  111.79 5491.48  113.77 5491.56  115.76 5491.62
  117.74 5491.71  119.73 5491.82  121.71 5491.69   123.7 5491.79  125.68 5491.97
  127.67 5492.25  129.65  5492.4  131.64 5492.49  132.39 5492.52  133.62 5492.57
  135.61 5492.63  137.59 5492.68  139.58 5492.71  141.56 5492.82  143.55 5492.85
  145.53 5492.88  147.52 5492.91   149.5 5492.98  151.49 5493.07  153.47 5493.12
  155.46 5493.13  157.44 5493.21  159.43 5493.26  161.41 5493.33   163.4 5493.31
  165.38 5493.36  167.37 5493.38

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0    .015    16.4     .13    16.5     .04   53.38     .13  132.39    .015

Bank Sta: Left   Right    Lengths: Left Channel   Right    Coeff Contr.   Expan.
         29.05    48.6            13.49   11.56    19.3              .6       .8
Ineffective Flow      num=       1
   Sta L   Sta R    Elev  Permanent
   96.94   99.045501.235        F
```

```
CROSS SECTION


RIVER: TCC
REACH: 2                    RS: 7359

INPUT
Description: 7359
Station Elevation Data    num=      60
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  5490.5    1.93 5490.44    3.86 5490.41    5.79 5490.38    7.73 5490.37
    9.66  5490.3   11.59 5490.23   13.52 5490.15    14.2 5489.97   15.45 5489.65
   17.38 5488.74   19.31 5488.44   21.25 5489.09   23.18 5489.56   25.11 5489.63
   27.04 5489.66   28.76 5489.56   28.97 5489.54   30.96 5489.75   31.67 5489.74
   32.95 5489.73   34.94 5489.59   36.93 5489.28   38.91 5488.49    40.9 5487.58
   42.89  5486.6   44.88  5485.7   46.87 5485.53   48.86 5485.62   50.84 5486.07
   52.83    5487   54.82  5488.3   56.81 5489.19    58.8 5489.46   60.79 5489.55
   61.46 5489.57    61.9 5489.58   62.77  5489.6   64.76  5489.7   66.75 5489.74
   68.74 5489.78   70.73 5489.82   72.72 5489.82   74.71 5489.85   76.69 5489.85
   78.68 5489.88   80.67 5489.89   82.66 5489.86   84.65  5489.9   86.64 5489.95
   88.62 5489.96   90.61 5489.89    92.6 5489.78   94.59 5489.77   96.58 5489.78
   98.57 5489.76  100.55 5489.75  102.54 5489.73  104.53 5489.72  106.52  5489.7

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0    .015    14.2     .13   28.76     .04    61.9     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         34.94   61.46             64.46   61.45    57.1              .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
      10   31.67 5489.74       F
   78.39   96.97 5499.77       F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
   96.97  106.525499.703

CROSS SECTION


RIVER: TCC
REACH: 2                    RS: 7298

INPUT
Description: 7298 - Private Crossing (A)
Station Elevation Data    num=      96
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5487.42    1.98 5487.51    3.95 5487.59    5.93 5487.68    7.91 5487.76
    9.89 5487.85   11.86 5487.93   13.84 5488.02   15.82  5488.1    17.8 5488.19
   19.77 5488.28   21.75 5488.37   23.73  5488.5   25.71 5488.62   27.68 5488.75
   29.66 5488.88   31.64    5489   33.62  5489.1   35.59  5489.2   37.57 5489.29
   39.55 5489.38   41.53 5489.47    43.5 5489.41   45.48 5489.09   47.46 5488.68
   49.08 5488.38   49.44 5488.32   51.41 5487.62   53.24 5486.95   53.39 5486.89
   55.37 5486.68   57.34 5486.54   59.32 5486.56    61.3 5486.14   63.28 5485.38
   65.25 5484.71   67.23 5484.01   69.21 5483.55   71.19  5483.1   73.16 5483.08
   75.14 5483.78   77.12 5484.72    79.1 5485.77   81.07 5486.72   83.05 5487.28
   84.16 5487.46   85.03 5487.61   85.24 5487.63   87.01 5487.85   88.98 5487.97
   90.96 5488.06   92.94 5488.16   94.92 5488.22   96.89 5488.25   98.86 5488.33
  100.84 5488.35  102.81  5488.4  104.79 5488.46  106.76 5488.64  108.73 5488.65
  110.71  5488.7  112.68 5488.76  114.66 5488.81  116.63  5488.9   118.6    5489
  120.58 5489.05  122.55 5489.32  124.53  5489.5   126.5 5489.43  128.47 5489.54
  130.45 5489.58  132.42 5489.51   134.4 5489.51  136.37 5489.54  138.34 5489.57
  140.32  5489.6  142.29 5489.63  144.27 5489.69  146.24 5489.88  148.21 5490.07
  150.19 5490.19  152.16 5490.25  154.14  5490.2  156.11 5490.11  158.08 5490.02
  160.06 5489.93  162.03 5489.84  164.01 5489.75  165.98 5489.67  167.96 5489.68
  169.93 5489.75   171.9  5489.8  173.88 5489.86  175.85 5489.88  177.83 5489.83
   179.8 5489.76

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   53.24     .04   84.16     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         49.08   85.24             69.88   71.95   76.49              .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
   97.81  148.695500.105       F
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0   40.595499.432  148.69   179.85499.763
Cross Section Lid
    num=       2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
      45  5488.9    5488     100  5488.9    5488

CROSS SECTION


RIVER: TCC
REACH: 2                    RS: 7226

INPUT
Description: 7226
Station Elevation Data    num=      38
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5485.94    1.96 5486.09    3.92 5486.04    5.89 5486.01    7.85 5486.04
    9.81 5486.08   11.67  5486.1   11.77  5486.1   13.74 5486.07    15.7 5486.02
   17.66 5485.71   19.62 5484.75   20.11 5484.66   21.59 5484.38   23.55 5484.29
   25.51 5483.26   27.47 5481.64   29.44 5480.87    31.4 5480.54   33.36  5479.6
   37.29 5480.53   39.25 5481.63   41.21 5482.79   43.01 5483.35   43.17  5483.4
   45.12 5483.57   45.13 5483.57    47.1 5483.76   49.06 5483.65   51.02 5483.66
   52.98 5483.73   54.95 5483.81   56.91 5483.96   58.87 5484.08   60.83 5483.96
    62.8 5483.88   64.76 5483.84   66.72 5483.82

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   20.11     .04   43.01     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         23.55   43.17             22.78   23.42   24.11              .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
   62.07   66.725493.824

CROSS SECTION


RIVER: TCC
REACH: 2                    RS: 7203

INPUT
Description: 7203
Station Elevation Data    num=      48
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5486.01    1.85 5485.96    3.69 5485.91    5.54 5485.88    7.38 5485.88
    9.23 5485.88   11.08 5485.89   12.92 5485.75   14.77 5485.11   16.61 5484.16
   18.46 5483.31   20.31 5483.24   22.28  5483.2   23.89  5483.2   24.25  5483.2
   26.22 5483.21   28.19 5483.21   30.16 5483.17   32.13 5483.03    34.1 5482.85
   34.52 5482.81   36.08 5482.69   38.05 5482.47   40.02 5481.67   41.99 5480.59
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   43.96 5479.65   45.93 5479.37    47.9 5480.06   49.87 5480.34   51.85 5480.97
   53.82 5481.74   54.91 5482.19   55.79 5482.55    57.4 5482.82   57.76 5482.87
   59.73 5482.96    61.7 5482.97   63.67 5482.99   65.64 5482.97   67.61 5482.88
   69.59 5482.78   71.56 5482.71   73.53 5482.68    75.5 5482.63   77.47 5482.69
   79.44 5482.75   81.41 5482.85   83.38 5482.84

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   34.52     .04   54.91     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         38.05   55.79               5.1   29.47   30.24             .1       .3

CROSS SECTION


RIVER: TCC
REACH: 2                   RS: 7173

INPUT
Description: 7173 - Private Crossing (B)
Station Elevation Data    num=      63
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5485.98    1.96 5485.95    3.91 5485.93    5.87 5485.91    7.83 5485.87
    9.78 5485.78   11.74 5485.46   13.7 5484.51   15.65 5483.54   17.61 5483.27
   19.57 5483.14   21.52 5483.01   23.48 5482.93   25.44 5482.85    27.4 5482.79
   29.35 5482.81   31.31 5482.77   33.27 5482.68   33.75 5482.66   35.22 5482.59
   37.18 5482.57   39.14 5482.44   41.09 5482.31   43.05 5482.23   45.01 5482.13
   46.96 5482.08   48.92 5482.01   50.88 5481.84   52.81 5481.81   53.27 5481.77
   54.74 5481.64   56.68 5481.13   58.61 5479.55   60.55 5478.79   62.48  5478.6
   64.41 5478.34   66.35 5478.22   68.28 5478.63   70.21 5479.02   72.15 5479.88
   73.98 5480.93   74.08 5480.99   76.02  5481.8   76.62 5481.82   77.95 5481.85
   79.88  5481.8   81.82 5481.78   83.75 5481.81   85.68 5481.81   87.62 5481.76
   89.55  5481.7   91.49 5481.62   93.42 5481.57   95.35 5481.53   97.29  5481.5
   99.05 5481.49  100.81 5481.51  102.57 5481.52  104.33 5481.56  106.09 5481.61
  107.85 5481.72  109.61 5481.79  111.37 5481.85

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   53.27     .04   73.98     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         54.74   76.02              15.64   15.34   16.42             .1       .3
Cross Section Lid
    num=       3
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
      37    5482  5481.2      63 5482.46 5481.66      89    5482  5481.2

CROSS SECTION


RIVER: TCC
REACH: 2                   RS: 7158

INPUT
Description: 7158
Station Elevation Data    num=      73
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5485.43    1.99 5485.71    3.99 5485.87    5.98 5485.67    7.97 5485.12
    9.96 5484.27   11.96 5483.53   13.95 5483.27   15.94 5483.22   17.93 5483.08
   19.93 5482.93   21.92 5482.87   23.91 5482.82   25.91  5482.8    27.9 5482.81
   29.89 5482.76   31.88 5482.59   33.88 5482.35   35.87 5482.17   37.86 5481.97
   39.85 5481.74   41.85 5481.53   43.84 5481.28   45.83 5481.18   47.83 5481.19
   49.82 5481.13   51.81 5481.11   53.84 5481.09   53.8 5481.07    55.8 5481.07
   57.79 5481.05   59.78 5480.99   61.77 5480.99   63.77 5481.04   65.73 5481.29
   67.69  5481.4   67.73 5481.39   69.65 5481.12   71.61  5479.5   73.57 5478.89
   75.53 5478.56   77.49 5478.44   79.45 5478.55   81.41 5478.48   83.37 5478.65
   85.33  5479.1    87.3 5479.94    88.9 5480.77   89.26 5480.96   91.22 5481.36
   91.59 5481.34   93.18 5481.29   95.14 5481.15    97.1 5480.98   99.06 5480.94
  101.02 5480.93  102.98 5480.92  104.94 5480.99   106.9 5481.02  108.86 5481.04
  110.82 5481.06  112.73 5481.08  114.64  5481.1  116.55 5481.07  118.46 5481.03
  120.36 5481.06  122.27 5481.05  124.18 5481.08  126.09 5481.22  127.99 5481.38
   129.9 5481.48  131.81 5481.58  133.72 5481.66

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   67.73     .04    88.9     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         67.69   91.59              39.42   19.72   22.58             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R     Elev  Permanent
       0   67.69  5481.4       F
   91.22  133.72 5481.36       F

CROSS SECTION


RIVER: TCC
REACH: 2                   RS: 7138

INPUT
Description: 7138
Station Elevation Data    num=      92
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5481.57       2 5481.53       4 5481.52       6 5481.51       8 5481.43
      10 5481.32      12 5481.25   13.99 5481.19   15.99 5481.14   17.99 5481.05
   19.99 5480.92   21.99 5480.88   23.99 5480.78   25.99 5480.67   27.99 5480.51
   29.99 5480.35   31.99 5480.16   33.99 5480.02   35.99 5479.93   37.98 5479.82
   39.98  5479.7   41.98 5479.57   43.98 5479.48   45.98 5479.43   47.98  5479.4
   49.98 5479.34   51.98 5479.27   53.98 5479.29   55.98 5479.28   57.98 5479.26
   59.98 5479.24   61.97 5479.27   63.97 5479.31   65.97 5479.36   67.97 5479.36
   69.97 5479.39   71.97 5479.49   73.97 5479.54   75.97 5479.61   77.97 5479.74
   79.97  5479.9   81.97 5479.92   83.97 5479.94   85.97 5480.07   87.96 5480.24
   89.96 5480.37   91.96 5480.48   93.96 5480.49   95.96  5480.5   97.96 5480.55
   99.96 5480.52  101.96 5480.45  103.96 5480.42  105.96 5480.45  107.96 5480.48
  109.96 5480.53  111.95 5480.56  113.95 5480.57  115.95 5480.57  117.95 5480.54
  119.95 5480.51  121.95 5480.48  123.95 5480.52  124.62 5480.52  125.95 5480.53
  127.95 5480.77  129.95 5480.87  130.36  5480.8  131.95 5480.53  133.95 5479.35
  135.95 5478.51  137.94 5478.03  139.94 5477.75  141.94 5477.58  143.94 5477.89
  145.94 5478.29  147.94 5478.69  149.94 5479.33  151.94 5480.07  153.02 5480.29
  153.94 5480.47  155.57 5480.84  155.94 5480.93  157.94 5480.93  159.94  5480.4
  161.93 5480.39  163.93 5480.37  165.93 5480.37  167.93 5480.38  169.93 5480.37
  171.93 5480.27  173.93 5480.24

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13  130.36     .04  153.02     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        130.36  155.57             122.51     134  112.71             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R     Elev  Permanent
       0  129.95 5480.87       F
  155.94  173.93 5480.93       F
Blocked Obstructions      num=       1
   Sta L   Sta R    Elev
       0    7.465491.468

CROSS SECTION
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RIVER: TCC
REACH: 2                    RS: 7004

INPUT
Description: 7004
Station Elevation Data    num=     129
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
        0 5481.23    1.99 5481.14    3.98 5481.04    5.96 5481.01    7.95 5480.93
     9.94 5480.88   11.93 5480.79   13.92 5480.66    15.9 5480.51   17.89 5480.36
    19.88  5480.1   21.87 5479.89   23.86 5479.66   25.84 5479.33   27.83 5478.64
    29.82 5478.11   31.81 5477.92    33.8 5477.96   35.78    5478   37.77 5478.01
    39.76    5478   41.75 5477.99   43.74 5477.98   45.72 5477.97   47.71 5477.98
     49.7 5478.01   51.69 5477.98   53.68 5477.96   55.67 5477.97   57.65 5477.94
    59.64 5477.95   61.63 5477.88   63.62 5477.85   65.61 5477.83   67.59 5477.77
    69.58 5477.69   71.57 5477.69   73.56 5477.64   75.55 5477.58   77.53 5477.49
    79.52 5477.34   81.51 5477.13    83.5 5476.86   85.49 5476.46   87.47 5476.24
    89.46 5476.11   91.45 5476.06   93.44 5476.03   95.43 5476.01   97.41 5476.02
     99.4 5476.01  101.39 5476.01  103.38 5476.01  105.37 5475.99  107.35 5475.95
   109.34 5475.92  111.33 5475.88  113.32  5475.9  115.31 5475.97  117.29 5476.03
   119.28    5476  121.27 5475.86  123.26 5475.77  125.25 5475.78  127.23 5475.72
   129.22 5475.76  131.21 5475.91   133.2 5476.04  135.19 5475.87  137.17 5475.87
   139.16 5475.94  141.15    5476  143.14 5475.99  145.13 5476.03  147.11 5475.94
    149.1 5475.95  151.09 5476.03  153.08  5476.1  155.07 5476.11  157.05 5476.12
   159.04 5476.18  161.03 5476.18  161.87 5476.11  162.83 5476.04  163.02 5476.02
   165.01 5475.46     167 5474.68  168.98 5474.05  169.34 5473.95  170.97 5473.52
   172.96 5473.14  174.95 5473.53  176.94 5474.36  178.92 5475.09  180.91 5476.04
    182.9 5477.03  183.82 5477.33  184.89 5477.68  186.07 5477.83  186.88 5477.93
   188.83 5477.87  190.79 5477.88  192.75 5478.06  194.71    5478  196.67 5478.13
   198.63 5478.41  200.59 5478.46  202.55 5478.34  204.51 5478.38  206.47 5478.47
   208.43 5478.51  210.39 5478.43  212.35 5478.46  214.31 5478.61  216.27 5478.71
   218.22 5478.91  220.18    5479  222.14 5478.86   224.1 5478.58  226.06  5478.1
   228.02 5477.62  229.98 5477.42  231.94 5477.68   233.9 5478.22  235.86 5478.41
   237.82 5478.37  239.78 5478.38  241.74 5478.29   243.7 5478.24

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13  161.87     .08  169.34     .04  183.82     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        162.83  186.07            122.09  124.01  159.38             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
     1.7   40.525488.001      F
Blocked Obstructions      num=       1
   Sta L   Sta R    Elev
       0     1.75491.149

CROSS SECTION


RIVER: TCC
REACH: 2                    RS: 6880

INPUT
Description: 6880
Station Elevation Data    num=      93
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5475.28    1.98 5475.25    3.96 5475.22    5.95 5475.19    7.93 5475.15
    9.91 5475.12   11.89 5475.09   13.87 5475.06   15.85 5475.13   17.84 5475.16
   19.82 5475.19    21.8 5475.22   23.78 5475.27   25.76 5475.29   27.74 5475.21
   29.73 5475.11   31.71 5475.04   33.69  5474.8   35.67 5474.61   37.65 5474.41
   39.63 5474.22   41.62    5474    43.6 5473.79   45.58 5473.58   47.56 5473.45
   49.54 5473.31   51.52 5473.15   53.51  5473.1   55.49 5473.06   57.47 5472.99
   59.45 5472.99   61.43 5473.06   63.42 5473.17    65.4 5473.17   65.51 5473.17
   67.38 5473.12   69.36 5473.04   70.44 5472.82   71.34 5472.64   73.32 5472.09
   75.31 5471.45   77.29 5470.56   79.27 5469.73   81.25  5469.1   83.23 5470.39
   85.21 5471.28    87.2 5472.41   89.18 5473.72   91.16 5474.51   93.14 5474.41
      94 5474.12   94.19 5474.05   95.12 5473.73    97.1 5472.82   99.09 5471.72
  101.07 5470.66  103.05 5470.32  105.03 5470.34  107.01 5470.43  108.99 5470.39
  110.98 5470.47  112.96 5470.44  114.94 5470.48  116.92  5470.5   118.9 5470.56
  120.89 5470.58  122.87 5470.63  124.85 5470.69  126.83 5470.73  128.81 5470.52
  130.79  5470.5  132.78 5470.49  134.76 5470.48  136.74 5470.55  138.72 5470.44
   140.7 5470.12  142.68 5469.68  144.67 5469.66  146.65 5469.62  148.63 5469.63
  150.61 5469.58  152.59 5469.57  154.57  5469.6  156.56 5469.55  158.54 5469.62
  160.52  5469.7   162.5  5469.7  164.48 5469.71  166.46 5469.74  168.45 5469.79
  170.43 5469.83  172.41 5469.82  174.39 5469.79

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   70.44     .08      94     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         69.36   91.16             98.33  103.46  102.58             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
   91.16  174.39    5480       F
Blocked Obstructions      num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0   19.385485.187     165  174.395479.788

CROSS SECTION


RIVER: TCC
REACH: 2                    RS: 6777

INPUT
Description: 6777 - Private Crossing (C)
Station Elevation Data    num=     134
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5471.58    1.99 5471.52    3.99 5471.47    5.98 5471.39    7.98  5471.3
    9.97 5471.25   11.97 5471.21   13.96 5471.18   15.96 5471.12   17.95 5471.08
   19.95    5471   21.94 5470.98   23.94 5471.01   25.93 5470.96   27.93  5470.9
   29.92 5470.89   31.92 5470.91   33.91 5470.89    35.9 5470.89    37.9 5470.89
   39.89 5470.87   41.89 5470.85   43.88 5470.82   45.88 5470.88   47.87 5470.93
   49.87 5470.93   51.86 5470.89   53.86 5470.88   55.85 5470.88   57.85 5470.83
   59.84 5470.78   61.84 5470.76   63.83  5470.8   65.83 5470.85   67.82 5470.85
   69.82 5470.85   71.81 5470.82    73.8 5470.81    75.8 5470.83   77.79 5470.87
   79.79 5470.89   81.78 5470.93   83.78  5470.9   85.77 5470.92   87.77 5470.89
   89.76  5470.9   91.76 5470.91   93.75 5470.86   95.75 5470.85   97.74 5470.91
   99.07 5470.94   99.74 5470.95  101.73 5470.99  103.73 5471.05  105.72 5471.08
  107.72  5471.5  109.71 5471.73   111.7 5470.72   113.7 5469.36  115.69 5468.02
  117.69 5466.71  119.68 5465.81  121.68 5465.21  123.67  5465.5  125.67 5466.79
  127.66 5468.55  129.66  5469.9  131.65  5470.6  133.65 5470.91  135.64 5470.92
  137.64 5470.81     139 5470.64  139.43 5470.59  139.63 5470.56  141.63 5470.14
  143.62 5469.81  145.62 5469.38  147.61 5468.85   149.6 5468.41   151.6 5468.01
  153.59 5467.63  155.59 5467.28  157.58 5467.01  159.58 5466.74  161.57 5466.29
  163.57 5466.04  165.56 5465.99  167.56 5465.78  168.03 5465.74  169.55 5465.59
  171.55 5465.61  173.54 5465.59  175.54 5465.61  177.53 5465.57  179.53 5465.56
  181.52 5465.59  183.51 5465.53  185.51 5465.48   187.5 5465.46   189.5 5465.39
  191.49 5465.79  193.49 5465.93  195.44  5465.9   197.4 5465.73  199.35 5465.81
   201.3  5465.9  203.26 5465.94  205.21 5466.02  207.16  5466.1  209.12 5466.16
  211.07 5466.25  213.03 5466.37  214.98 5466.42  216.93 5466.38  218.89 5466.67
  219.22 5466.69  220.84 5466.79  222.79 5466.92  224.75 5467.35   226.7 5467.88
  228.66 5468.35  230.61 5468.49  232.56 5468.59  234.52 5468.73  236.47 5468.84
  238.42 5469.05  240.38 5469.24  242.33 5469.32  244.28 5469.33  246.24 5469.33
  248.19 5469.32  250.15 5469.31   252.1 5469.33  254.05 5469.37
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Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   95.75     .08     139     .13  168.03    .015  219.22     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        109.71  133.65            16.15   16.24   16.49             .1       .3
Ineffective Flow     num=        1
   Sta L   Sta R    Elev  Permanent
  135.64  254.05    5475        F
Blocked Obstructions      num=       1
   Sta L   Sta R    Elev
  245.22  254.055479.367
Cross Section Lid
    num=       2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
     108 5471.54 5470.54  135.64 5471.54 5470.54

CROSS SECTION


RIVER: TCC
REACH: 2                  RS: 6760

INPUT
Description: 6760
Station Elevation Data    num=     148
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5471.17    1.99 5471.04    3.99 5471.07    5.98 5471.09    7.98 5471.09
    9.97 5471.13   11.97 5471.01   13.96 5470.92   15.95 5470.83   17.95 5470.79
   19.94 5470.77   21.94 5470.71   23.93 5470.66   25.93 5470.68   27.92 5470.71
   29.91 5470.68   31.91 5470.69    33.9  5470.7    35.9 5470.65   37.89 5470.68
   39.89 5470.62   41.88 5470.62   43.88 5470.62   45.87 5470.61   47.86 5470.55
   49.86 5470.54   51.85 5470.49   53.85 5470.54   55.84 5470.54   57.84 5470.57
   59.83 5470.53   61.82 5470.55   63.82 5470.59   65.81  5470.6   67.81 5470.62
    69.8 5470.63    71.8 5470.65   73.79 5470.68   75.78 5470.66   77.78 5470.68
   79.77 5470.71   81.77 5470.68   83.76  5470.7   85.76 5470.69   87.75 5470.65
   89.74 5470.64   91.74 5470.58   93.73 5470.54   95.73 5470.53   97.72 5470.45
   99.72 5470.42   99.81 5470.42  101.71 5470.46  102.07 5470.47   103.7 5470.52
   105.7 5470.54  107.69  5470.4  109.69 5470.18  111.68 5469.25  113.68 5468.09
  115.67 5467.03  117.66 5466.04  119.66 5465.36  121.65 5465.18  123.65  5465.6
  125.64 5466.23  127.64 5467.23  129.63 5468.23  131.62 5469.39  133.62 5470.08
  135.61 5470.22  137.61 5470.13  138.32 5470.05   139.6 5469.91  141.53 5469.58
   141.6 5469.57  143.59 5469.18  145.59 5468.73  147.58 5468.36  149.57 5468.08
  151.57 5467.82  153.56  5467.4  155.56 5466.65  157.55 5465.96  159.55  5465.5
  161.54 5465.41  163.53 5465.32   164.9 5465.25  165.53 5465.21  167.52 5465.17
  169.52 5465.16  171.51 5465.16  173.51 5465.09   175.5 5465.08  177.49 5465.06
  179.49 5465.04  181.48 5464.99  183.48 5464.93  185.47  5464.9  187.47 5464.82
  189.46 5464.94  191.45 5465.12  193.45 5465.18  195.44 5464.94  197.44 5464.76
  199.43 5464.58  201.43 5464.51  203.42 5464.46  205.41 5464.45  207.39 5464.78
  209.38 5465.57  211.37 5466.04  213.35 5466.09  215.34 5466.14  217.33 5466.18
  219.31 5466.24   221.3 5466.32  223.29 5466.21  225.27 5465.92  227.26 5465.97
  229.25 5466.02  231.23 5466.12  233.22 5466.21  235.21 5466.33  237.19 5466.38
  239.18 5466.43  241.16 5466.45  243.15 5466.47  245.14  5466.6  246.32 5466.78
  247.12 5466.91  249.11 5467.01   251.1 5467.21  253.08 5467.71  255.07 5468.05
  257.06 5468.34  259.04 5468.53  261.03 5468.72  263.02 5468.83     265 5468.95
  266.99 5469.11  268.98 5469.09  270.96  5469.2  272.95 5469.33  274.94 5469.44
  276.92 5469.47  278.91 5469.43   280.9  5469.4

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   99.81     .08  141.53     .06   164.9    .015  246.32     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        107.69  135.61            28.54   29.58   28.82             .1       .3
Ineffective Flow     num=        1
   Sta L   Sta R    Elev  Permanent
  135.61   280.9    5475        F
Blocked Obstructions      num=       1
   Sta L   Sta R    Elev
  271.18   280.95479.397

CROSS SECTION


RIVER: TCC
REACH: 2                  RS: 6731

INPUT
Description: 6731
Station Elevation Data    num=     128
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  5471.2       2  5471.1       4 5470.99       6 5470.91    7.99 5470.87
    9.99 5470.72   11.99 5470.52   13.99 5470.33   15.99 5470.18   17.99 5470.17
   19.99 5470.21   21.99 5470.28   23.98 5470.21   25.98 5470.14   27.98 5470.12
   29.98  5470.1   31.98 5469.98   33.98 5469.87   35.98 5469.77   37.97 5469.53
   39.97 5469.41   41.97 5469.43   43.97 5469.63   45.97 5469.84   47.97 5469.88
   49.97 5469.86   51.97 5469.83   53.96 5469.72   55.96 5469.72   57.96 5469.65
   59.96 5469.64   61.96 5469.73   63.96 5469.67   65.96  5469.6   67.95 5469.53
   69.95 5469.47   71.95 5469.47   73.95 5469.47   75.95 5469.41   77.95 5469.51
   79.95 5469.49   81.94 5469.39   83.94  5469.4   85.94 5469.37   87.94  5469.4
   89.94  5469.4   91.94 5469.32   93.94  5469.1    95.6 5468.88   95.94 5468.83
   97.93 5468.87   98.19 5468.92   99.93 5469.26  101.93 5468.95  103.93 5468.07
  105.93    5467  107.93 5466.06  109.47 5465.44  109.93 5465.26  111.92 5464.36
  113.92 5464.83  115.92  5465.4  117.92 5466.29  119.92 5467.32  121.92 5467.92
  123.92 5467.75  124.63 5467.51  125.92 5467.06  127.88 5466.71  127.91  5466.7
  129.91 5466.63  131.91 5466.58  133.91 5466.58  135.91 5466.73  137.91 5467.13
  139.91 5467.28   141.9 5467.17   143.9 5466.94   145.9 5466.74   147.9  5466.5
   149.9 5466.22   151.9 5466.06   153.9 5465.84   155.9 5465.72  157.89 5465.43
  159.89 5465.15  161.89 5465.07  163.89 5465.02  165.77 5464.96  165.89 5464.96
  167.89  5464.9  169.89 5464.68  171.88 5464.43  173.88 5464.35  175.88  5464.3
  177.88 5464.24  179.88 5464.15  181.88 5464.08  183.88 5464.03  185.88 5464.01
  187.87 5463.97  189.87 5463.93  191.87  5463.9  193.87 5463.87  195.87 5463.84
  197.87 5463.79  199.87 5463.78  201.86 5463.77  203.86 5463.72  205.86 5463.66
  207.86 5463.61  209.86 5463.57  211.86  5463.5  213.86 5463.46  215.86 5463.42
  217.85 5463.37  219.85 5463.32  221.85 5463.28  223.85 5463.23  225.85 5463.18
  227.85 5463.14  229.85  5463.1  231.84 5463.05  233.84 5462.96  235.84 5462.89
  237.84  5462.8  239.84 5462.75  241.84 5462.72

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   98.19     .05  109.47     .08  127.88     .06  165.77    .015

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         99.93  121.92            93.52   93.46   93.51             .1       .3
Ineffective Flow     num=       3
   Sta L   Sta R    Elev  Permanent
  121.92   215.1    5470        F
   215.1  241.845472.718        F
      80   99.93 5469.26        F

CROSS SECTION


RIVER: TCC
REACH: 2                  RS: 6637

INPUT
Description: 6637 - Private Crossing (D)
Station Elevation Data    num=     114
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
```

```
       0 5467.72    1.99 5467.75    3.99 5467.91    5.98 5467.91    7.98 5467.81
    9.97 5467.73   11.96 5467.67   13.96 5467.74   15.95  5467.6   17.95 5467.51
   19.94 5467.56   21.93 5467.49   23.93 5467.37   25.92 5467.34   27.92 5467.29
   29.91 5467.33    31.9 5467.24    33.9  5467.1   35.89 5467.07   37.89 5467.06
   39.88 5466.97   41.88 5467.04   43.87    5467   45.86 5466.94   47.86 5466.93
   49.85 5467.04   51.85 5466.95   53.84 5466.93   55.83 5466.89   57.83 5466.84
   59.82 5466.89   61.82 5466.95   63.81 5466.95    65.8 5466.88    67.8 5466.98
   69.79 5466.99   71.79 5466.92   73.78 5466.88   75.77 5466.91   77.77 5467.09
   79.76 5467.15   81.76 5467.22   83.75 5467.16   85.74 5467.01   87.74 5466.93
   89.73 5466.82   91.73 5466.74   93.72 5466.78   95.71 5466.71   97.71 5466.82
   99.14    5467    99.7 5467.08  100.32 5467.09   101.7 5467.11  103.69 5466.49
  105.68 5465.68  107.68 5464.95  109.67 5464.33  111.67 5463.86  113.66 5462.87
  115.65 5463.81  117.65 5464.27  119.64 5464.89  121.64 5465.44  123.63 5465.49
  125.63 5465.12  126.74 5464.92  126.97 5464.88  127.62 5464.77  129.61 5464.63
  131.61 5464.56   133.6  5464.5   135.6 5464.62  137.59 5464.57  139.58 5464.17
  141.58 5463.84  143.57 5463.74  145.57 5463.72  147.56 5463.66  149.55  5463.6
  151.55 5463.57  153.54 5463.47  155.54 5463.38  157.53 5463.21  159.52 5462.95
  161.52 5462.22  163.51  5461.4  165.51 5461.16   167.5 5461.17  169.49 5461.19
  171.49 5461.21  173.48  5461.2  175.48 5461.16  177.47 5461.11  179.46 5461.08
  181.46 5461.11  183.45  5461.2  185.45 5461.31  187.44 5461.34  189.43 5461.43
  191.43 5461.59  193.42 5461.62  195.42 5461.56  197.41  5461.5  199.41 5461.45
   201.4 5461.39  203.39 5461.33  205.39 5461.27  207.38 5461.21  209.38 5461.15
  211.37 5461.09  213.36 5461.03  215.36 5460.97  217.35 5460.91

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13  100.32     .05  126.74     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         101.7  121.64              8.55    8.63    8.72              .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0   101.7 5467.11       F
   123.7  217.35    5470       F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
  188.95  217.355470.908
Cross Section Lid
    num=       2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
      75 5465.85 5464.79   123.7 5465.85 5464.79

CROSS SECTION


RIVER: TCC
REACH: 2                  RS: 6629

INPUT
Description: 6629
Station Elevation Data    num=     113
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5467.72       2 5467.72       4 5467.76       6 5467.57       8 5467.59
      10 5467.59   11.99  5467.6   13.99 5467.64   15.99 5467.56   17.99  5467.5
   19.99 5467.51   21.99 5467.45   23.99 5467.42   25.99  5467.3   27.99 5467.21
   29.99 5467.15   31.99 5467.27   33.99 5467.25   35.98  5467.2   37.98 5467.05
   39.98 5466.98   41.98 5466.99   43.98 5466.98   45.98 5466.99   47.98 5466.91
   49.98 5466.91   51.98 5466.82   53.98 5466.81   55.98 5466.82   57.97 5466.79
   59.97 5466.74   61.97 5466.72   63.97 5466.75   65.97 5466.78   67.97 5466.82
   69.97 5466.83   71.97 5466.82   73.97 5466.92   75.97 5466.93   77.97 5466.94
   79.97 5466.98   81.96 5467.08   83.96 5467.14   85.96 5467.02   87.96 5466.86
   89.96 5466.73   91.96 5466.74   93.96 5466.76   95.96 5466.93   97.56 5466.99
   97.96    5467    98.6    5467   99.96 5466.99  101.96 5466.44  103.95 5465.46
  105.95 5464.56  107.95 5464.06  109.95 5463.52  111.95 5462.93  113.95 5463.49
  115.95 5464.34  117.95 5464.92  119.95 5465.36  121.95 5465.31  123.95 5464.87
  124.76 5464.75  125.24 5464.68  125.95 5464.57  127.94 5464.46  129.94 5464.41
  131.94  5464.4  133.94 5464.64  135.94 5464.52  137.94 5464.16  139.94 5463.84
  141.94 5463.65  143.94 5463.42  145.94 5463.23  147.94 5463.12  149.94 5463.08
  151.93  5462.9  153.93 5462.87  155.93  5462.8  157.93 5462.76  159.93 5462.36
  161.93 5461.36  163.93    5461  165.93    5461  167.93    5461  169.93    5461
  171.93 5461.04  173.92  5461.1  175.92 5461.18  177.92 5461.21  179.92  5461.3
  181.92 5461.36  183.92 5461.45  185.92 5461.51  187.92 5461.48  189.92 5461.43
  191.92 5461.37  193.92 5461.31  195.92 5461.25  197.91 5461.19  199.91 5461.13
  201.91 5461.07  203.91 5461.01  205.91 5460.95  207.91 5460.89  209.91 5460.83
  211.91 5460.77  213.91 5460.71  215.91 5460.65

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13    98.6     .05  124.76     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          99.96  119.95             33.67   33.88   34.11              .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
  120.05  215.91    5470       F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
  183.76  215.915470.651

CROSS SECTION


RIVER: TCC
REACH: 2                  RS: 6595

INPUT
Description: 6595
Station Elevation Data    num=     119
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5466.75    1.98 5466.73    3.97 5466.69    5.95 5466.68    7.94 5466.62
    9.92 5466.57    11.9 5466.54   13.89 5466.62   15.87 5466.68   17.85 5466.76
   19.84 5466.87   21.82 5466.93   23.81 5466.91   25.79 5466.87   27.77 5466.82
   29.76 5466.75   31.74 5466.68   33.72 5466.58   35.71 5466.47   37.69 5466.24
   39.68 5466.08   41.66 5466.18   43.64 5466.28   45.63  5466.3   47.61 5466.28
    49.6 5466.28   51.58  5466.2   53.56 5466.12   55.55 5466.15   57.53 5466.17
   59.51 5466.17    61.5 5466.16   63.48 5466.15   65.47 5466.16   67.45 5466.18
   69.43 5466.18   71.42 5466.17    73.4  5466.2   75.38 5466.28   77.37 5466.37
   79.35 5466.34   81.34 5466.29   83.32 5466.36    85.3 5466.39   87.29  5466.4
   89.27  5466.4   91.26 5466.43   93.24 5466.47   95.22 5466.48   97.21 5466.44
   99.19 5466.52  101.17 5466.54  103.16 5466.57  105.14 5466.59  107.13 5466.59
  108.68 5466.48  109.11 5466.46  109.18 5466.44  111.09 5466.05  113.08 5464.74
  115.06 5463.68  117.04 5463.03  119.03 5462.45  121.01 5462.11     123 5461.62
  124.98 5462.31  126.96    5463  128.95 5464.06  130.93 5464.79  132.92 5464.93
  134.34 5464.49   134.9 5464.31  135.79 5464.17  136.88 5464.01  138.87 5463.98
  140.85 5463.96  142.83 5464.02  144.82 5464.22   146.8 5463.94  148.79 5463.46
  150.77 5462.99  152.75 5462.43  154.74 5462.02  156.72 5461.56   158.7 5461.02
  160.69 5460.77  162.67 5460.63  164.66 5460.52  166.64 5460.46  168.62 5460.42
  170.61 5460.45  172.59 5460.58  174.57  5460.6  176.56 5460.62  178.54  5460.6
  180.53 5460.62  182.51 5460.63  184.49 5460.64  186.48 5460.68  188.46 5460.63
  190.45 5460.78  192.43 5460.84  194.41 5460.81   196.4 5460.76  198.38 5460.71
  200.36 5460.67  202.35 5460.62  204.33 5460.57  206.32 5460.53   208.3 5460.48
  210.28 5460.43  212.27 5460.38  214.25 5460.34  216.23 5460.29  218.22 5460.24
   220.2  5460.2  222.19 5460.15  224.17  5460.1  226.15 5460.06

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13  109.18     .05  134.34     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        113.08  132.92             70.88   71.24   71.72              .1       .3
```

```
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
  132.92  226.15    5470       F
Blocked Obstructions      num=       1
   Sta L   Sta R    Elev
  184.77  226.155470.056

CROSS SECTION


RIVER: TCC
REACH: 2                    RS: 6524

INPUT
Description: 6524
Station Elevation Data    num=     117
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5464.47    1.99 5464.48    3.98 5464.46    5.97 5464.44    7.95 5464.33
    9.94 5464.24   11.93 5464.23   13.92 5464.31   15.91 5464.26    17.9  5464.2
   19.88 5464.19   21.87 5464.15   23.86 5463.91   25.85 5463.84   27.84 5463.77
   29.83 5463.75   31.81 5463.73    33.8 5463.69   35.79 5463.63   37.78 5463.58
   39.77  5463.6   41.76 5463.63   43.74 5463.64   45.73 5463.64   47.72 5463.63
   49.71 5463.63    51.7 5463.51   53.69 5463.53   55.67 5463.57   57.66 5463.62
   59.65 5463.71   61.64 5463.82   63.63 5463.87   65.62 5463.81    67.6  5463.7
   69.59 5463.57   71.58 5463.51   73.57 5463.58   75.56 5463.66   77.55 5463.64
   79.54 5463.62   81.52 5463.67   83.51  5463.7   84.45 5463.75    85.5  5463.8
   87.49 5463.98   89.48 5464.05   89.82 5464.01   91.47 5463.81   93.45 5463.08
   95.44 5462.05   97.43 5461.26   99.42 5460.71  101.41 5459.97   103.4 5460.33
  105.38 5460.92  107.37 5461.78  109.36  5462.7  111.35  5463.2  113.23 5463.03
  113.34 5463.02  113.37 5463.01  115.33 5462.68  117.31  5462.6   119.3 5462.56
  121.29 5462.54  123.28 5462.51  125.27 5462.24  127.26 5461.71  129.24 5461.46
  131.23 5461.48  133.22 5461.44  135.21 5461.37   137.2 5461.38  139.19 5461.43
  141.18 5461.47  143.16 5461.46  145.15 5461.52  147.14 5461.58  149.13  5461.5
  151.12  5461.5  153.11 5461.63  155.09 5461.69  157.08 5461.61  159.07 5461.54
  161.06 5461.46  163.05  5461.4  165.04 5461.39  167.02 5461.45  169.01  5461.5
     171 5461.55  172.99 5461.58  174.98 5461.61  176.97 5461.64  178.95 5461.63
  180.94 5461.62  182.93 5461.62  184.92 5461.61  186.91  5461.6   188.9 5461.59
  190.88 5461.58  192.87 5461.58  194.86 5461.57  196.85 5461.56  198.84 5461.55
  200.83 5461.54  202.81 5461.54   204.8 5461.53  206.79 5461.52  208.78 5461.51
  210.77  5461.5  212.76  5461.5  214.75 5461.49  216.73 5461.48  218.72 5461.47
  220.71 5461.47   222.7 5461.46

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   89.82     .05  113.23     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          91.47  111.35            8.83    8.78    8.72              .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0   89.48 5464.05       F
  111.46   222.7    5465       F
Blocked Obstructions      num=       1
   Sta L   Sta R    Elev
  150.11   222.75471.458

CROSS SECTION


RIVER: TCC
REACH: 2                    RS: 6515

INPUT
Description: 6515
Station Elevation Data    num=     118
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5463.88    1.98 5463.84    3.97 5463.83    5.95 5463.78    7.93 5463.73
    9.92 5463.66    11.9 5463.61   13.88 5463.59   15.87 5463.62   17.85 5463.67
   19.83 5463.68   21.82 5463.66    23.8  5463.6   25.78 5463.49   27.77 5463.48
   29.75 5463.39   31.73 5463.31   33.71 5463.25    35.7 5463.22   37.68 5463.19
   39.66 5463.19   41.65 5463.24   43.63 5463.22   45.61 5463.18    47.6 5463.13
   49.58 5463.12   51.56 5463.09   53.55 5463.03   55.53 5463.07   57.51 5463.11
    59.5  5463.2   61.48  5463.3   63.46 5463.33   65.45 5463.33   67.43  5463.3
   69.41  5463.2    71.4 5463.05   73.38  5463.1   75.36 5463.13   77.35  5463.1
   79.33 5463.07   81.31 5463.05    83.3 5463.12   84.97 5463.13   85.28 5463.13
   87.26 5463.21   89.24 5463.38   90.63  5463.5   91.23 5463.55   93.21 5462.97
   95.19 5461.42   97.18 5460.09   99.16 5459.18  101.14 5458.35  103.13 5458.09
  105.11 5458.38  107.09 5458.94  109.08 5460.22  111.06 5461.96  113.04 5462.67
  113.84 5462.56  113.93 5462.55  115.03  5462.4  117.01 5462.34  118.99 5462.33
  120.98 5462.29  122.96 5462.28  124.94 5462.15  126.93 5461.53  128.91 5461.32
  130.89 5461.32  132.88 5461.26  134.86 5461.23  136.84 5461.29  138.83 5461.25
  140.81  5461.2  142.79 5461.08  144.77 5461.14  146.76 5461.19  148.74  5461.2
  150.72 5461.39  152.71 5461.48  154.69 5461.57  156.67  5461.6  158.66 5461.55
  160.64 5461.47  162.62  5461.4  164.61 5461.35  166.59 5461.38  168.57 5461.43
  170.56 5461.48  172.54 5461.52  174.52 5461.56  176.51 5461.59  178.49 5461.61
  180.47 5461.61  182.46  5461.6  184.44  5461.6  186.42 5461.59  188.41 5461.58
  190.39 5461.57  192.37 5461.56  194.36 5461.56  196.34 5461.55  198.32 5461.54
   200.3 5461.53  202.29 5461.52  204.27 5461.52  206.25 5461.51  208.24  5461.5
  210.22 5461.49   212.2 5461.49  214.19 5461.48  216.17 5461.47  218.15 5461.46
  220.14 5461.45  222.12 5461.45   224.1 5461.44

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   90.63     .05  113.84     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          91.23  113.04           48.37   48.52    48.7              .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0   91.23    5465       F
  113.28   224.1    5465       F
Blocked Obstructions      num=       1
   Sta L   Sta R    Elev
  159.12   224.15471.438

CROSS SECTION


RIVER: TCC
REACH: 2                    RS: 6466

INPUT
Description: 6466 - Private Crossing (E)
Station Elevation Data    num=     125
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5462.61       2 5462.62    3.99 5462.61    5.99 5462.57    7.98 5462.54
    9.98 5462.51   11.97 5462.49   13.97 5462.46   15.96 5462.44   17.96 5462.41
   19.96 5462.38   21.95 5462.44   23.95 5462.44   25.94 5462.38   27.94 5462.32
   29.93 5462.27   31.93 5462.24   33.93 5462.14   35.92 5462.14   37.92 5462.12
   39.91 5462.09   41.91 5462.01    43.9 5461.97    45.9  5461.9   47.89 5461.92
   49.89 5461.89   51.89 5461.86   53.88 5461.92   55.88 5461.84   57.87 5461.89
   59.87  5461.9   61.86 5461.96   63.86 5462.16   65.85 5462.38   67.85 5462.56
   69.85 5462.54   71.84 5462.43   73.84 5462.41   74.56 5462.34   75.83 5462.21
   77.83 5461.99   79.82 5462.01   81.81 5461.69   81.82 5461.68   83.82 5460.99
   85.81 5460.11   87.81 5459.28    89.8 5458.68    91.8 5457.73   93.79 5457.42
   95.79 5458.05   97.78 5459.07   99.78 5460.25  101.78 5461.25  103.71 5461.37
  103.77 5461.37  103.88 5461.35  105.77 5460.98  107.76 5460.95  109.76 5460.92
  111.75 5460.89  113.75 5460.91  115.75  5460.6  117.74 5460.27  119.74 5460.05
  121.73 5460.06  123.73    5460  125.72 5459.92  127.72 5459.88  129.71 5459.84
  131.71  5459.8  133.71 5459.75   135.7 5459.72   137.7 5459.68  139.69 5459.66
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  141.69 5459.62  143.68 5459.65  145.68 5459.54  147.67 5459.54  149.67 5459.52
  151.67 5459.53  153.66 5459.46  155.66 5459.45  157.65 5459.46  159.65 5459.42
  161.64  5459.4  163.64 5459.38  165.64 5459.32  167.63 5459.24  169.63 5459.15
  171.62 5459.13  173.62 5459.17  175.61 5459.21  177.61 5459.26   179.6 5459.36
   181.6 5459.39   183.6 5459.54  185.59 5459.82  187.59 5460.09  189.58 5460.34
  191.58 5460.68  193.57 5460.91  195.57    5461  197.56 5460.96  199.56 5460.94
  201.56 5460.91  203.55 5460.88  205.55 5460.85  207.54 5460.82  209.54  5460.8
  211.53 5460.77  213.53 5460.74  215.53 5460.73  217.52 5460.73  219.52 5460.75
  221.51 5460.77  223.51 5460.79   225.5 5460.81   227.5 5460.81  229.49 5460.83
  231.49 5460.85  233.49 5460.85  235.48 5460.86  237.48 5460.86  239.47 5460.86

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   81.81     .05  103.88     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         79.82  103.71            12.47   12.18   11.89              .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0   67.85 5462.56       F
  103.91  239.47    5465       F
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
  197.42   211.35470.772   211.3  239.475470.857
Cross Section Lid
    num=       2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
      82 5461.47 5460.41     103 5461.45 5460.39

CROSS SECTION


RIVER: TCC
REACH: 2                  RS: 6454

INPUT
Description: 6454
Station Elevation Data    num=     126
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  5461.9    1.99 5461.87    3.97 5461.83    5.96 5461.82    7.94 5461.83
    9.93 5461.79   11.91 5461.77   13.9 5461.79   15.88 5461.73   17.87  5461.7
   19.85 5461.69   21.84 5461.61   23.82 5461.62   25.81 5461.64   27.79 5461.63
   29.78 5461.58   31.76 5461.63   33.75  5461.7   35.73  5461.7   37.72 5461.69
    39.7 5461.57   41.69 5461.53   43.67 5461.53   45.66 5461.56   47.64 5461.56
   49.63 5461.54   51.62 5461.56    53.6  5461.6   55.59 5461.62   57.57 5461.64
   59.56 5461.64   61.54 5461.59   63.53 5461.58   65.51 5461.55    67.5 5461.57
   69.48  5461.8   71.47 5462.07   73.45  5462.2   75.02 5462.12   75.44  5462.1
   77.42 5461.94   79.41 5461.83   81.39 5461.65   82.68 5461.39   83.38 5461.24
   85.36 5460.27   87.35 5459.21   89.33 5458.56   91.32  5457.9    93.3 5457.32
   95.29 5457.36   97.27 5458.16   99.26  5459.4  101.24 5460.59  103.23 5461.13
  104.24 5461.05  104.47 5461.03  105.21 5460.98   107.2 5460.77  109.19  5460.7
  111.17 5460.66  113.16 5460.63  115.14 5460.57  117.13 5460.33  119.11 5459.92
   121.1 5459.79  123.08 5459.73  125.07 5459.68  127.05 5459.63  129.04 5459.57
  131.02 5459.54  133.01 5459.48  134.99 5459.43  136.98 5459.39  138.96 5459.35
  140.95 5459.31  142.93 5459.31  144.92 5459.32   146.9 5459.29  148.89 5459.23
  150.87 5459.23  152.86 5459.23  154.84 5459.22  156.83  5459.2  158.82 5459.17
   160.8 5459.18  162.79 5459.18  164.77 5459.13  166.76  5459.1  168.74 5459.07
  170.73 5459.04  172.71  5459.1   174.7 5459.15  176.68 5459.18  178.67 5459.26
  180.65 5459.34  182.64 5459.43  184.62 5459.45  186.61 5459.56  188.59 5459.66
  190.58 5459.75  192.56 5459.89  194.55 5460.03  196.53 5460.07  198.52  5460.2
   200.5 5460.31  202.49 5460.47  204.47  5460.5  206.46 5460.48  208.45 5460.49
  210.43 5460.49  212.42 5460.49   214.4 5460.49  216.39 5460.49  218.37 5460.49
  220.36  5460.5  222.34 5460.49  224.33 5460.48  226.31 5460.47   228.3 5460.46
  230.28 5460.45  232.27 5460.44  234.25 5460.44  236.24 5460.43  238.22 5460.42
  240.21 5460.41

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   82.68     .05  104.47     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         81.39  103.23            31.11   31.43   31.79              .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
  103.39  240.21    5465       F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
  210.52  240.215470.411

CROSS SECTION


RIVER: TCC
REACH: 2                  RS: 6423

INPUT
Description: 6423
Station Elevation Data    num=     126
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5461.96    1.99 5461.96    3.98 5461.97    5.96 5461.97    7.95 5461.97
    9.94 5461.98   11.93 5461.98   13.91 5461.98    15.9 5461.97   17.89 5461.96
   19.87 5461.94   21.86 5461.89   23.85 5461.81   25.84 5461.72   27.83 5461.62
   29.81 5461.52    31.8 5461.42   33.79 5461.31   35.78 5461.25   37.76 5461.17
   39.75 5461.03   41.74 5460.85   43.73 5460.52   45.71 5460.21    47.7 5460.15
   49.69 5460.21   51.68 5460.24   53.66 5460.27   55.65 5460.35   57.64 5460.39
   59.63 5460.36   61.61 5460.33    63.6 5460.36   65.59 5460.41   67.58 5460.42
   69.56 5460.44   71.55 5460.65   72.71 5460.86   73.54 5461.01   75.53 5461.19
   77.51 5461.17    79.5 5460.95   81.13 5460.49   81.49 5460.38   83.48 5459.42
   85.46 5458.47   87.45  5457.7   89.44 5457.12   91.43 5456.81   93.41 5457.07
    95.4 5457.54   97.39 5458.27   99.38 5459.32  101.36 5460.06  102.04 5460.06
  102.44 5460.06  103.35 5460.06  105.34 5459.84  107.33 5459.78  109.31 5459.74
   111.3 5459.74  113.29  5459.8  115.28  5459.6  117.26 5459.13  119.25 5459.02
  121.24 5459.01  123.23 5458.97  125.21  5458.9   127.2 5458.84  129.19 5458.78
  131.18  5458.7  133.16 5458.61  135.15 5458.56  137.14 5458.51  139.13 5458.46
  141.11 5458.44   143.1  5458.4  145.09 5458.34  147.08  5458.3  149.06 5458.26
  151.05 5458.24  153.04 5458.24  155.03 5458.21  157.01 5458.24     159 5458.23
  160.99 5458.23  162.98  5458.2  164.96 5458.26  166.95 5458.27  168.94 5458.27
  170.93  5458.3  172.91  5458.3   174.9 5458.29  176.89 5458.31  178.88 5458.32
  180.86 5458.33  182.85 5458.36  184.84 5458.38  186.83 5458.33  188.81 5458.34
   190.8 5458.38  192.79 5458.41  194.78 5458.47  196.76 5458.84  198.75    5459
  200.74 5459.18  202.73 5459.03  204.71 5459.02   206.7 5459.13  208.69 5459.24
  210.68 5459.36  212.66 5459.48  214.65 5459.59  216.64 5459.71  218.63 5459.83
  220.61 5459.94   222.6 5460.06  224.59 5460.18  226.58 5460.29  228.56 5460.41
  230.55 5460.53  232.54 5460.65  234.53 5460.76  236.51 5460.88   238.5    5461
  240.49 5461.11

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   81.13     .05  102.44     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         77.51  102.04            50.83   50.48   50.29              .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0   75.53    5462       F
  103.65  240.49    5465       F
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0   25.95471.713  191.94  240.495471.113
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CROSS SECTION


RIVER: TCC
REACH: 2                    RS: 6372

INPUT
Description: 6372
Station Elevation Data    num=     120
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
        0 5460.97    1.99 5460.96    3.98 5460.89    5.96  5460.8    7.95 5460.79
     9.94 5460.81   11.93 5460.84   13.92 5460.87    15.9 5460.91   17.89 5460.92
    19.88 5460.95   21.87    5461   23.86 5460.91   25.85 5460.64   27.83 5460.44
    29.82 5460.12   31.81 5459.76    33.8 5459.67   35.79 5459.59   37.77  5459.4
    39.76 5459.25   41.75  5459.1   43.74 5458.96   45.73 5458.84   47.71 5458.67
     49.7 5458.57   51.69 5458.51   53.68 5458.49   55.67 5458.43   57.65 5458.49
    59.64 5458.43   61.63 5458.42   63.62 5458.39   65.61 5458.35   67.59 5458.32
    69.58 5458.41   71.57 5458.46   73.03 5458.49   73.56  5458.5   75.55 5458.62
    77.54 5458.78   79.52 5458.65   80.37 5458.38   81.51 5458.02    83.5 5457.26
    85.49  5456.7   87.48  5456.3   91.45 5455.23   93.44 5456.26   95.43 5456.63
    97.42 5457.31    99.4 5458.11  100.96 5458.23  101.29 5458.25  101.39 5458.26
   103.38 5458.14  105.37 5458.01  107.36 5458.01  109.34    5458  111.33 5458.01
   113.32 5458.01  115.31 5457.81   117.3 5457.64  119.28 5457.52  121.27 5457.45
   123.26 5457.45  125.25  5457.4  127.24 5457.39  129.23 5457.28  131.21 5457.21
    133.2  5457.2  135.19 5457.22  137.18 5457.11  139.17 5457.03  141.15    5457
   143.14 5456.95  145.13 5456.93  147.12  5456.8  149.11 5456.85  151.09 5456.79
   153.08 5456.76  155.07  5456.8  157.06 5456.76  159.05 5456.78  161.03 5456.72
   163.02 5456.68  165.01 5456.74     167 5456.74  168.99 5456.68  170.98 5456.85
   172.96 5456.93  174.95    5457  176.94 5457.02  178.93 5457.07  180.92 5457.07
    182.9 5457.06  184.89 5457.08  186.88 5457.08  188.87 5457.11  190.86 5457.14
   192.84 5457.14  194.83 5457.18  196.82  5457.2  198.81 5457.24   200.8 5457.26
   202.78 5457.33  204.77 5457.37  206.76 5457.44  208.75 5457.52  210.74 5457.52
   212.72 5457.56  214.71 5457.62   216.7 5457.69  218.69 5457.72  220.68 5457.74
   222.67 5457.76  224.65 5457.82  226.64 5457.76  228.63 5457.71  230.62 5457.86

Manning's n Values        num=       3
      Sta   n Val     Sta   n Val     Sta   n Val
        0     .13   80.37     .05  101.29     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          79.52  100.96           10.92   11.01   11.09             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0   77.54    5460       F
  101.82  230.62    5460       F
Blocked Obstructions      num=       1
   Sta L   Sta R    Elev
       0   24.785470.761

CROSS SECTION


RIVER: TCC
REACH: 2                    RS: 6361

INPUT
Description: 6361
Station Elevation Data    num=     120
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
        0 5459.92      2  5459.9    3.99 5459.84    5.99 5459.84    7.98 5459.83
     9.98  5459.8   11.97 5459.77   13.97 5459.79   15.96 5459.81   17.96 5459.74
    19.95  5459.7   21.95 5459.52   23.94 5459.23   25.94 5459.11   27.93 5458.96
    29.93  5458.8   31.92 5458.76   33.92 5458.66   35.91 5458.51   37.91  5458.4
     39.9 5458.36    41.9 5458.29   43.89 5458.23   45.89 5458.19   47.88  5458.2
    49.88 5458.19   51.87 5458.12   53.87 5458.09   55.86 5458.11   57.86 5458.15
    59.85  5458.1   61.85 5458.14   63.84 5458.18   65.84 5458.22   67.83 5458.29
    69.83 5458.27   71.82 5458.27      72 5458.27   73.82 5458.25   75.81 5458.24
    77.81 5458.17    79.1 5457.81    79.8 5457.62    81.8 5456.66   83.79 5455.99
    85.79  5455.3   87.78 5454.67   89.78  5454.5   91.77 5454.99   93.77 5455.68
    95.76 5456.54   97.76 5457.56   99.59 5457.83   99.75 5457.86   99.84 5457.85
   101.75 5457.67  103.74 5457.56  105.74 5457.51  107.73 5457.51  109.73 5457.52
   111.72 5457.57  113.72 5457.56  115.71 5457.43  117.71 5457.29   119.7  5457.2
    121.7 5457.16  123.69 5457.16  125.69 5457.09  127.68 5457.04  129.68 5456.99
   131.67 5456.95  133.67 5456.92  135.66 5456.93  137.66 5456.92  139.65 5456.86
   141.65 5456.85  143.64 5456.81  145.64 5456.75  147.63 5456.66  149.63  5456.6
   151.62 5456.62  153.62 5456.64  155.61 5456.72  157.61 5456.79   159.6 5456.83
    161.6 5456.86   163.6 5456.87  165.59 5456.85  167.59 5456.77  169.58 5456.67
   171.58 5456.62  173.57 5456.57  175.57 5456.53  177.56  5456.5  179.56 5456.52
   181.55 5456.61  183.55 5456.71  185.54 5456.76  187.54 5456.77  189.53 5456.78
   191.53  5456.8  193.52 5456.82  195.52 5456.88  197.51 5456.93  199.51 5456.96
    201.5    5457   203.5 5457.05  205.49 5457.11  207.49 5457.16  209.48 5457.21
   211.48 5457.25  213.47 5457.24  215.47  5457.2  217.46 5457.15  219.46 5457.07
   221.45 5457.07  223.45 5457.22  225.44 5457.35  227.44 5457.42  229.43 5457.49

Manning's n Values        num=       3
      Sta   n Val     Sta   n Val     Sta   n Val
        0     .13    79.1     .05   99.84     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          77.81   99.59           58.22   58.18   58.17             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0   67.83    5460       F
     100  229.43    5460       F

CROSS SECTION


RIVER: TCC
REACH: 2                    RS: 6303

INPUT
Description: 6303 - Private Crossing (E')
Station Elevation Data    num=     120
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
        0    5459    1.98 5458.96    3.97 5458.91    5.95 5458.84    7.93 5458.73
     9.91 5458.66    11.9 5458.59   13.88 5458.52   15.86 5458.44   17.85 5458.34
    19.83 5458.28   21.81 5458.32   23.79 5458.32   25.78 5458.32   27.76 5458.27
    29.74 5458.21   31.73 5458.15   33.71    5458   35.69 5457.96   37.67 5457.93
    39.66 5457.95   41.64  5457.9   43.62 5457.81   45.61  5457.8   47.59 5457.84
    49.57  5457.7   51.55 5457.71   53.54 5457.64   55.52 5457.62    57.5 5457.58
    59.48 5457.55   61.47  5457.5   63.45 5457.39   65.43 5457.31   67.42 5457.27
     69.4 5457.25   71.38 5457.24   73.36 5457.28   75.35 5457.22   77.33 5457.23
    79.31  5457.1    81.3 5457.12   83.28  5457.1   85.26  5457.1   87.24 5457.06
    89.23 5456.97   91.21 5456.96   93.19 5456.98   95.18 5456.96   97.16 5456.93
    99.14 5456.93  101.13 5456.92  103.11 5456.88   105.1 5456.83  107.08 5456.79
   109.06 5456.78  111.05  5456.8  113.03 5456.85  115.01 5456.85     117 5456.85
   118.98 5456.83  120.97 5456.81  122.95 5456.86  124.93 5456.99  126.92 5457.12
    128.9  5457.1  130.79 5456.91  130.89  5456.9  132.87 5456.53  134.85 5456.07
   136.84 5455.51  137.06  5455.4  138.82 5454.53   140.8 5453.72  142.79 5453.22
   144.77 5453.24  146.76 5453.71  148.74 5454.25  150.72 5454.89  152.71 5455.37
   154.69 5455.44  156.54 5455.21  156.67 5455.19  156.75 5455.19  158.66 5454.98
   160.64 5454.94  162.63 5454.91  164.61 5454.89  166.59 5455.05  168.58 5455.25
   170.56 5455.24  172.55 5454.99  174.53 5454.77  176.51 5454.72   178.5 5454.66
   180.48 5454.58  182.47  5454.5  184.45 5454.49  186.43 5454.55  188.42 5454.57
    190.4 5454.56  192.38 5454.54  194.37  5454.5  196.35 5454.54  198.34 5454.82
   200.32 5455.22   202.3 5455.79  204.29 5456.35  206.27 5456.95  208.25 5457.18
   210.24 5457.29  212.22 5457.37  214.21 5457.43  216.19 5457.49  218.17 5457.55
   220.16 5457.55  222.14 5457.58  224.13 5457.64  226.11 5457.65  228.09 5457.63
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Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13  137.06     .05  156.54     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        130.79  152.71             24.78   24.85    24.9             .1       .3
Blocked Obstructions      num=       1
   Sta L    Sta R    Elev
       0   21.915468.324
Cross Section Lid
    num=       2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
     125 5455.87 5455.14  156.75 5455.87 5455.14

CROSS SECTION


RIVER: TCC
REACH: 2                  RS: 6278

INPUT
Description: 6278
Station Elevation Data    num=     124
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5457.44    1.99 5457.14     3.97 5456.98    5.96 5456.99    7.95 5456.94
    9.94 5456.89   11.92 5456.91    13.91 5456.94    15.9 5456.94   17.88 5456.95
   19.87 5456.91   21.86 5456.86    23.85 5456.88   25.83 5456.88   27.82 5456.83
   29.81 5456.85    31.8 5456.85    33.78 5456.86   35.77 5456.91   37.76 5456.91
   39.74 5456.93   41.73  5456.9    43.72 5456.84   45.71 5456.85   47.69 5456.84
   49.68 5456.83   51.67 5456.78    53.65  5456.7   55.64 5456.67   57.63 5456.64
   59.62 5456.64    61.6 5456.65    63.59 5456.65   65.58 5456.64   67.56  5456.6
   69.55 5456.55   71.54  5456.5    73.53 5456.45   75.51 5456.39    77.5 5456.35
   79.49 5456.32   81.48  5456.3    83.46 5456.26   85.45 5456.19   87.44 5456.15
   89.42 5456.13   91.41 5456.09     93.4 5456.06   95.39 5456.03   97.37 5456.02
   99.36 5456.07  101.35 5456.06   103.33 5456.07  105.32 5456.05  107.31 5455.96
   109.3 5455.91  111.28 5455.85   113.27  5455.8  115.26 5455.76  117.24 5455.75
  119.23  5455.8  121.22 5455.84   123.21 5455.76  125.19  5455.7  127.18 5455.68
  129.17 5455.64  131.16  5455.7   133.14 5455.75  134.09  5455.7  135.13 5455.65
  137.12 5455.35   139.1 5454.57   141.09 5453.67  141.34 5453.59  143.08 5453.03
  145.07 5452.56  147.05 5452.19   149.04 5452.01  151.03 5452.45  153.01 5453.35
     155 5454.09  156.99 5454.41   158.98  5454.3  159.79 5454.23  160.96 5454.13
  161.08 5454.13  162.95 5454.08   164.94 5454.05  166.93 5454.11  168.91 5454.24
   170.9 5454.69  172.89 5454.67   174.87 5454.65  176.86 5454.57  178.85 5454.54
  180.84 5454.49  182.83 5454.53   184.82  5454.5  186.81 5454.44   188.8 5454.39
  190.79 5454.38  192.78 5454.33   194.77 5454.31  196.76 5454.36  198.75 5454.42
  200.74 5454.36  202.73 5454.35   204.72 5454.35  206.71 5454.26   208.7 5454.18
  210.69 5454.17  212.68 5454.23   214.67 5454.28  216.66 5454.27  218.65 5454.25
  220.64 5454.23  222.63 5454.23   224.62 5454.68  226.61 5455.89   228.6  5457.1
  230.59 5457.15  232.58 5457.22   234.57 5457.41  236.56  5457.5

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13  141.34     .05  159.79     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        134.09  156.99             13.88   13.57    8.95             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
  170.83  236.56 5454.69       F

CROSS SECTION


RIVER: TCC
REACH: 2                  RS: 6265

INPUT
Description: 6265 - Private Crossing (F)
Station Elevation Data    num=     125
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5457.22    1.99 5457.17     3.97 5457.11    5.96 5456.85    7.94  5456.8
    9.93 5456.83   11.92 5456.85     13.9 5456.85   15.89 5456.84   17.87 5456.78
   19.86 5456.81   21.84 5456.79    23.83 5456.77   25.82  5456.7    27.8 5456.64
   29.79 5456.59   31.77 5456.58    33.76 5456.57   35.75  5456.6   37.73 5456.57
   39.72 5456.55    41.7 5456.56    43.69 5456.56   45.68 5456.49   47.66 5456.51
   49.65 5456.47   51.63 5456.47    53.62 5456.47   55.61 5456.43   57.59 5456.41
   59.58 5456.43   61.56 5456.44    63.55 5456.35   65.54 5456.35   67.52 5456.33
   69.51 5456.29   71.49 5456.19    73.48 5456.13   75.46 5456.05   77.45 5455.98
   79.44 5455.92   81.42 5455.89    83.41 5455.84   85.39  5455.8   87.38 5455.78
   89.37 5455.74   91.35 5455.74    93.34 5455.73   95.32 5455.68   97.31 5455.72
    99.3  5455.7  101.28 5455.63   103.27 5455.57  105.25 5455.51  107.24 5455.47
  109.23 5455.41  111.21 5455.37   113.2 5455.32  115.18 5455.26  117.17 5455.26
  119.15 5455.25  121.14  5455.2   123.13 5455.19  125.11  5455.2   127.1 5455.11
  129.08 5455.13  131.07 5455.22   132.49 5455.22  133.06 5455.22  135.04 5455.15
  137.03 5454.79  139.01 5454.13    140.4 5453.62     141 5453.41  142.99 5452.77
  144.97 5452.22  146.96 5451.97   148.94 5452.18  150.93 5452.65  152.92 5453.44
   154.9 5454.14  156.89  5454.3   158.53 5454.12  158.88 5454.08  160.61 5453.86
  160.88 5453.83  162.88 5453.78   164.88 5453.82  166.87 5453.84  168.87 5453.98
  170.87 5454.26  172.87 5454.35   174.86 5454.47  176.86 5454.59  178.86 5454.54
  180.86  5454.5  182.85 5454.44   184.85 5454.43  186.85 5454.43  188.85 5454.36
  190.84 5454.25  192.84 5454.13   194.84  5454.2  196.83  5454.3  198.83 5454.33
  200.83 5454.33  202.83 5454.32   204.82 5454.35  206.82 5454.31  208.82 5454.19
  210.82 5454.11  212.81 5454.13   214.81 5454.13  216.81 5454.19   218.8 5454.26
   220.8 5454.23   222.8 5454.21    224.8 5454.16  226.79 5454.14  228.79 5454.22
  230.79 5455.01  232.79 5456.25   234.78 5456.99  236.78 5457.12  238.78 5457.37

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   140.4     .05  158.53     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        135.04  156.89             77.02    36.2    7.71             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
  156.77  238.78 5454.31       F
Cross Section Lid
    num=       2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
     125 5453.55 5452.97     160 5453.55 5452.97

CROSS SECTION


RIVER: TCC
REACH: 2                  RS: 6228

INPUT
Description: 6228 Upstream of Mulit-Use Trail (G)
Station Elevation Data    num=     190
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  5454.4       2 5454.59     3.99 5454.75    5.99 5454.87    7.99 5454.75
    9.99 5454.59   11.98  5454.6    13.98 5454.65   15.98 5454.69   17.97 5454.61
   19.97 5454.26   21.97 5453.75    23.96 5453.31   25.96 5453.07   27.96    5453
   29.96 5452.97   31.95 5452.97    33.95 5452.96   35.95 5452.96   37.94 5452.91
   39.94  5452.9   41.94 5453.01    43.93 5453.07   45.93 5452.95   47.93 5452.78
   49.93 5452.54   51.92 5452.24    53.92 5452.09   55.92 5452.07   57.91 5452.05
   59.91 5452.01   61.91 5452.06    63.91 5452.26    65.9  5452.4    67.9 5452.53
    69.9 5452.66   71.89  5452.8    73.89 5453.24   75.89 5453.29   77.88 5453.43
   79.88  5453.6   81.88 5453.76    83.88 5453.93   85.87 5454.09   87.87 5454.25
   89.87 5454.33   91.86 5454.28    93.86 5454.23   95.86 5454.26   97.85 5454.27
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   99.85 5454.15  101.85 5454.09  103.85 5454.09  105.84  5454.1  107.84 5454.11
  109.84 5454.12  111.83 5454.17  113.83 5454.27  115.83 5454.36  117.82 5454.39
  119.82 5454.39  121.82 5454.36  123.82 5454.34  125.81  5454.3  127.81 5454.28
  129.81 5454.26   131.8 5454.18   133.8 5454.07   135.8 5453.94   137.8  5453.8
  139.79  5453.6  141.79 5453.39  143.79 5453.22  145.78 5453.11  147.78 5453.04
  149.78 5453.02  151.77 5453.01  153.77 5452.92  155.77  5452.9  157.77 5452.86
  159.76 5452.83  161.76 5452.76  163.76 5452.69  165.75  5452.7  167.75 5452.89
  169.75 5453.23  171.74 5453.34  173.74 5453.46  175.74 5453.75  177.74 5453.99
  179.73 5454.16  181.73 5454.14  183.73 5454.33  185.72 5454.46  187.72 5454.35
  189.72 5453.86  191.71 5453.34  193.71 5453.11  195.71 5452.85   197.7 5452.85
   199.7 5452.85   201.7  5452.9   203.7 5453.02  205.69  5453.2  207.69  5453.3
  209.69 5453.38  211.57 5453.44  211.68 5453.45  213.68 5453.54  215.68 5453.66
  217.67 5453.59  219.67 5453.58  221.67 5453.54  223.66 5453.46  225.66 5453.41
  227.66  5453.3  229.65 5452.96  231.65 5452.62  233.65  5452.2  235.64 5451.78
  236.42 5451.62  237.64 5451.38  239.64 5451.06  241.63  5450.8  243.63 5450.67
  245.63 5450.86  247.62 5451.14  249.62 5451.11  251.62 5451.05  253.61 5451.12
  255.61  5451.3  257.61 5451.79   259.6 5452.38   261.6 5452.92   263.6 5453.43
  265.59  5453.7  267.59  5454.1  269.59 5454.13  271.58 5454.23  273.58 5454.22
  273.82 5454.21  275.58  5454.1  277.57 5453.97  279.57 5453.79  279.72 5453.78
  281.57 5453.66  283.56 5453.62  285.56 5453.61  287.56 5453.64  289.55  5453.7
  291.55 5453.79  293.55  5453.8  295.54 5453.91  297.54 5454.02  299.49 5454.25
  301.44 5454.24  303.39 5454.42  305.35 5454.54   307.3  5454.5  309.25 5454.47
   311.2 5454.43  313.15 5454.42   315.1 5454.39  317.05 5454.43     319 5454.41
  320.95 5454.29  322.91 5454.25  324.86 5454.31  326.81 5454.37  328.76 5454.34
  330.71  5454.4  332.66 5454.38  334.61 5454.32  336.56 5454.25  338.51 5454.13
  340.46 5454.08  342.42 5454.19  344.37  5454.1  346.32 5454.19  348.27 5454.24
  350.22 5454.23  352.17 5454.19  354.12 5454.12  356.07 5454.09  358.02 5454.05
  359.98 5454.23  361.93  5454.6  363.88 5455.48  365.83 5456.52  367.78 5457.19

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13  236.42     .05  273.82     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        219.67  267.59            35.83   53.75   49.54             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0  185.83 5454.49       F
  273.33  367.78 5454.27       F
Blocked Obstructions     num=       3
   Sta L   Sta R    Elev   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0    15.45464.676   29.85   37.815462.917   61.37  137.545463.819

BRIDGE


RIVER: TCC
REACH: 2                  RS: 6209

INPUT
Description: Mulit-Use Trail (G)
Distance from Upstream XS =      19
Deck/Roadway Width        =      11
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=       6
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
  180.18    5453             192 5454.35             192 5458.35 5453.37
     262 5458.35 5453.37     262 5454.35          279.72    5454

Upstream Bridge Cross Section Data
Station Elevation Data    num=     190
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  5454.4       2 5454.59    3.99 5454.75    5.99 5454.87    7.99 5454.75
    9.99 5454.59   11.98  5454.6   13.98 5454.65   15.98 5454.69   17.97 5454.61
   19.97 5454.26   21.97 5453.75   23.96 5453.31   25.96 5453.07   27.96    5453
   29.96 5452.97   31.95 5452.97   33.95 5452.96   35.95 5452.96   37.94 5452.91
   39.94  5452.9   41.94 5453.01   43.93 5453.07   45.93 5452.95   47.93 5452.78
   49.93 5452.54   51.92 5452.24   53.92 5452.09   55.92 5452.07   57.91 5452.05
   59.91 5452.01   61.91 5452.06   63.91 5452.26    65.9  5452.4    67.9 5452.53
    69.9 5452.66   71.89  5452.8   73.89 5453.24   75.89 5453.29   77.88 5453.43
   79.88  5453.6   81.88 5453.76   83.88 5453.93   85.87 5454.09   87.87 5454.25
   89.87 5454.33   91.86 5454.28   93.86 5454.23   95.86 5454.26   97.85 5454.27
   99.85 5454.15  101.85 5454.09  103.85 5454.09  105.84  5454.1  107.84 5454.11
  109.84 5454.12  111.83 5454.17  113.83 5454.27  115.83 5454.36  117.82 5454.39
  119.82 5454.39  121.82 5454.36  123.82 5454.34  125.81  5454.3  127.81 5454.28
  129.81 5454.26   131.8 5454.18   133.8 5454.07   135.8 5453.94   137.8  5453.8
  139.79  5453.6  141.79 5453.39  143.79 5453.22  145.78 5453.11  147.78 5453.04
  149.78 5453.02  151.77 5453.01  153.77 5452.92  155.77  5452.9  157.77 5452.86
  159.76 5452.83  161.76 5452.76  163.76 5452.69  165.75  5452.7  167.75 5452.89
  169.75 5453.23  171.74 5453.34  173.74 5453.46  175.74 5453.75  177.74 5453.99
  179.73 5454.16  181.73 5454.14  183.73 5454.33  185.72 5454.46  187.72 5454.35
  189.72 5453.86  191.71 5453.34  193.71 5453.11  195.71 5452.85   197.7 5452.85
   199.7 5452.85   201.7  5452.9   203.7 5453.02  205.69  5453.2  207.69  5453.3
  209.69 5453.38  211.57 5453.44  211.68 5453.45  213.68 5453.54  215.68 5453.66
  217.67 5453.59  219.67 5453.58  221.67 5453.54  223.66 5453.46  225.66 5453.41
  227.66  5453.3  229.65 5452.96  231.65 5452.62  233.65  5452.2  235.64 5451.78
  236.42 5451.62  237.64 5451.38  239.64 5451.06  241.63  5450.8  243.63 5450.67
  245.63 5450.86  247.62 5451.14  249.62 5451.11  251.62 5451.05  253.61 5451.12
  255.61  5451.3  257.61 5451.79   259.6 5452.38   261.6 5452.92   263.6 5453.43
  265.59  5453.7  267.59  5454.1  269.59 5454.13  271.58 5454.23  273.58 5454.22
  273.82 5454.21  275.58  5454.1  277.57 5453.97  279.57 5453.79  279.72 5453.78
  281.57 5453.66  283.56 5453.62  285.56 5453.61  287.56 5453.64  289.55  5453.7
  291.55 5453.79  293.55  5453.8  295.54 5453.91  297.54 5454.02  299.49 5454.25
  301.44 5454.24  303.39 5454.42  305.35 5454.54   307.3  5454.5  309.25 5454.47
   311.2 5454.43  313.15 5454.42   315.1 5454.39  317.05 5454.43     319 5454.41
  320.95 5454.29  322.91 5454.25  324.86 5454.31  326.81 5454.37  328.76 5454.34
  330.71  5454.4  332.66 5454.38  334.61 5454.32  336.56 5454.25  338.51 5454.13
  340.46 5454.08  342.42 5454.19  344.37  5454.1  346.32 5454.19  348.27 5454.24
  350.22 5454.23  352.17 5454.19  354.12 5454.12  356.07 5454.09  358.02 5454.05
  359.98 5454.23  361.93  5454.6  363.88 5455.48  365.83 5456.52  367.78 5457.19

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13  236.42     .05  273.82     .06

Bank Sta: Left   Right    Coeff Contr.   Expan.
        219.67  267.59             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0  185.83 5454.49       F
  273.33  367.78 5454.27       F
Blocked Obstructions     num=       3
   Sta L   Sta R    Elev   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0    15.45464.676   29.85   37.815462.917   61.37  137.545463.819

Downstream  Deck/Roadway Coordinates
    num=       6
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
   189.1    5453             199 5454.35             199 5458.35 5453.77
     269 5458.35 5453.77     269 5454.35             293 5453.78

Downstream Bridge Cross Section Data
Station Elevation Data    num=     193
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5453.62    1.98 5453.63    3.97 5453.72    5.95 5453.68    7.93 5453.47
    9.92 5453.25    11.9 5453.09   13.88  5452.9   15.87 5452.85   17.85 5452.72
   19.83  5452.7   21.82 5452.66    23.8 5452.59   25.78 5452.52   27.77 5452.47
   29.75 5452.46   31.73 5452.46   33.72  5452.7    35.7 5452.83   37.68 5452.74
   39.67 5452.52   41.65 5452.23   43.63 5452.08   45.62 5452.01    47.6  5451.9
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   49.59 5451.85   51.57 5451.83   53.55 5451.82   55.54 5451.83   57.52 5451.88
    59.5 5451.92   61.49 5451.96   63.47 5452.06   65.45 5452.26   67.44 5452.61
   69.42 5452.84    71.4 5452.98   73.39 5453.19   75.37 5453.38   77.35 5453.58
   79.34 5453.83   81.32 5453.75    83.3 5453.83   85.29 5453.79   87.27 5453.81
   89.25 5453.71   91.24 5453.64   93.22 5453.74    95.2 5453.87   97.19 5453.99
   99.17 5454.12  101.15 5454.25  103.14 5454.36  105.12 5454.38   107.1 5454.39
  109.09 5454.41  111.07  5454.4  113.05 5454.38  115.04 5454.35  117.02 5454.32
     119 5454.24  120.99 5454.21  122.97 5454.21  124.95 5454.22  126.94 5454.22
  128.92 5454.22   130.9 5454.17  132.89 5454.12  134.87 5454.04  136.85 5453.98
  138.84 5453.88  140.82 5453.55  142.81 5453.09  144.79 5452.68  146.77 5452.46
  148.76 5452.37  150.74 5452.31  152.72 5452.26  154.71 5452.22  156.69  5452.2
  158.67 5452.15  160.66 5452.16  162.64  5452.1  164.62 5452.07  166.61 5452.05
  168.59 5452.01  170.57 5452.15  172.56 5452.59  174.54 5452.84  176.52 5453.13
  178.51 5453.27  180.49 5453.35  182.47 5453.39  184.46 5453.17  186.44 5453.04
  188.42 5452.97   189.1    5453  190.41 5453.05  192.39  5453.1  194.37  5453.2
  196.36 5453.22  198.34 5451.62  200.32 5450.11   202.3 5449.99  204.28 5450.17
  206.26  5450.3  206.95 5450.25  208.24 5450.15  210.22 5449.87   212.2  5449.5
  214.18 5449.34  216.16 5449.18  218.14 5449.18  220.12 5449.16   222.1 5449.35
  224.08 5449.46  226.07 5449.59  228.05 5449.95  230.03 5450.38  232.01 5451.07
  233.99 5451.52  235.97    5452  237.95 5452.25  239.93 5452.57  241.62 5452.99
  241.91 5453.06  243.89 5453.53  245.87 5453.87  247.85 5454.09  249.83  5454.1
  251.81 5453.87  253.48 5453.52  253.79 5453.46  255.77 5453.35  257.75 5453.29
  259.73 5453.31  261.71 5453.32  263.69 5453.31  265.67 5453.21  267.65 5453.27
  269.63 5453.27  271.61 5453.41  273.59 5453.48  275.57 5453.49  277.55 5453.52
  279.53 5453.55  281.52 5453.58   283.5 5453.63  285.48 5453.64  287.46 5453.73
  289.44  5453.8  291.42 5453.84   293.4 5453.92  295.38 5453.95  297.36 5453.99
  299.34 5454.24  301.32 5454.65   303.3 5454.69  305.28 5454.59  307.26 5454.54
  309.24 5454.47  311.22 5454.45   313.2 5454.45  315.18 5454.43  317.16 5454.34
  319.14 5454.25  321.12 5454.26   323.1 5454.33  325.07 5454.37  327.04 5454.44
     329 5454.45  330.97 5454.42  332.93 5454.33   334.9 5454.28  336.87 5454.19
  338.83 5454.14   340.8 5454.08  342.76 5454.06  344.73 5454.12   346.7  5454.1
  348.66  5454.1  350.63  5454.1   352.6 5454.23  354.56 5454.29  356.53  5454.2
  358.49 5454.19  360.46 5454.21  362.43 5454.19  364.39 5454.12  366.36 5454.07
  368.32 5454.04  370.29    5454  372.26 5454.05

Manning's n Values        num=        3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13  206.95     .05  241.62     .06

Bank Sta: Left   Right    Coeff Contr.   Expan.
        196.36  247.85          .3       .5
Ineffective Flow     num=        2
   Sta L   Sta R    Elev  Permanent
       0  180.49 5453.35       F
  247.85  372.26 5454.09       F
Blocked Obstructions     num=       2
   Sta L    Sta R    Elev   Sta L   Sta R    Elev
       0    7.065463.565   67.91  139.485463.813

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .98
Elevation at which weir flow begins         = 5452.69
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
Selected Low Flow Methods = Highest Energy Answer

High Flow Method
       Energy Only

Additional Bridge Parameters
       Add Friction component to Momentum
       Do not add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION


RIVER: TCC
REACH: 2                  RS: 6175

INPUT
Description: 6175 Downstream of Mulit-Use Trail (G)
Station Elevation Data     num=     193
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5453.62    1.98 5453.63    3.97 5453.72    5.95 5453.68    7.93 5453.47
    9.92 5453.25    11.9 5453.09   13.88  5452.9   15.87 5452.85   17.85 5452.72
   19.83  5452.7   21.82 5452.66    23.8 5452.59   25.78 5452.52   27.77 5452.47
   29.75 5452.46   31.73 5452.46   33.72  5452.7    35.7 5452.83   37.68 5452.74
   39.67 5452.52   41.65 5452.23   43.63 5452.08   45.62 5452.01    47.6  5451.9
   49.59 5451.85   51.57 5451.83   53.55 5451.82   55.54 5451.83   57.52 5451.88
    59.5 5451.92   61.49 5451.96   63.47 5452.06   65.45 5452.26   67.44 5452.61
   69.42 5452.84    71.4 5452.98   73.39 5453.19   75.37 5453.38   77.35 5453.58
   79.34 5453.83   81.32 5453.75    83.3 5453.83   85.29 5453.79   87.27 5453.81
   89.25 5453.71   91.24 5453.64   93.22 5453.74    95.2 5453.87   97.19 5453.99
   99.17 5454.12  101.15 5454.25  103.14 5454.36  105.12 5454.38   107.1 5454.39
  109.09 5454.41  111.07  5454.4  113.05 5454.38  115.04 5454.35  117.02 5454.32
     119 5454.24  120.99 5454.21  122.97 5454.21  124.95 5454.22  126.94 5454.22
  128.92 5454.22   130.9 5454.17  132.89 5454.12  134.87 5454.04  136.85 5453.98
  138.84 5453.88  140.82 5453.55  142.81 5453.09  144.79 5452.68  146.77 5452.46
  148.76 5452.37  150.74 5452.31  152.72 5452.26  154.71 5452.22  156.69  5452.2
  158.67 5452.15  160.66 5452.16  162.64  5452.1  164.62 5452.07  166.61 5452.05
  168.59 5452.01  170.57 5452.15  172.56 5452.59  174.54 5452.84  176.52 5453.13
  178.51 5453.27  180.49 5453.35  182.47 5453.39  184.46 5453.17  186.44 5453.04
  188.42 5452.97   189.1    5453  190.41 5453.05  192.39  5453.1  194.37  5453.2
  196.36 5453.22  198.34 5451.62  200.32 5450.11   202.3 5449.99  204.28 5450.17
  206.26  5450.3  206.95 5450.25  208.24 5450.15  210.22 5449.87   212.2  5449.5
  214.18 5449.34  216.16 5449.18  218.14 5449.18  220.12 5449.16   222.1 5449.35
  224.08 5449.46  226.07 5449.59  228.05 5449.95  230.03 5450.38  232.01 5451.07
  233.99 5451.52  235.97    5452  237.95 5452.25  239.93 5452.57  241.62 5452.99
  241.91 5453.06  243.89 5453.53  245.87 5453.87  247.85 5454.09  249.83  5454.1
  251.81 5453.87  253.48 5453.52  253.79 5453.46  255.77 5453.35  257.75 5453.29
  259.73 5453.31  261.71 5453.32  263.69 5453.31  265.67 5453.21  267.65 5453.27
  269.63 5453.27  271.61 5453.41  273.59 5453.48  275.57 5453.49  277.55 5453.52
  279.53 5453.55  281.52 5453.58   283.5 5453.63  285.48 5453.64  287.46 5453.73
  289.44  5453.8  291.42 5453.84   293.4 5453.92  295.38 5453.95  297.36 5453.99
  299.34 5454.24  301.32 5454.65   303.3 5454.69  305.28 5454.59  307.26 5454.54
  309.24 5454.47  311.22 5454.45   313.2 5454.45  315.18 5454.43  317.16 5454.34
  319.14 5454.25  321.12 5454.26   323.1 5454.33  325.07 5454.37  327.04 5454.44
     329 5454.45  330.97 5454.42  332.93 5454.33   334.9 5454.28  336.87 5454.19
  338.83 5454.14   340.8 5454.08  342.76 5454.06  344.73 5454.12   346.7  5454.1
  348.66  5454.1  350.63  5454.1   352.6 5454.23  354.56 5454.29  356.53  5454.2
  358.49 5454.19  360.46 5454.21  362.43 5454.19  364.39 5454.12  366.36 5454.07
  368.32 5454.04  370.29    5454  372.26 5454.05

Manning's n Values        num=        3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13  206.95     .05  241.62     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        196.36  247.85             70.5   92.89  130.25             .3       .5
Ineffective Flow     num=       2
```

```
   Sta L   Sta R    Elev  Permanent
       0  180.49 5453.35       F
  247.85  372.26 5454.09       F
Blocked Obstructions      num=      2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0    7.065463.565   67.91  139.485463.813

CROSS SECTION


RIVER: TCC
REACH: 2                   RS: 6082

INPUT
Description: 6082
Station Elevation Data    num=      77
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5451.41    1.98 5451.41    3.96 5451.42    5.94 5451.43    7.92 5451.44
     9.9 5451.46   11.87 5451.48   13.85  5451.5   15.83 5451.52   17.81 5451.54
   19.79 5451.56   21.77 5451.59   23.75  5451.6   25.73 5451.52   27.71 5451.51
   29.69 5451.51   31.67 5451.47   33.64 5451.38   35.62 5451.02    37.6 5450.63
   39.58 5450.58   41.56 5450.68   43.54 5451.46   45.52 5451.77   46.24 5451.85
    47.5    5452   49.48 5451.63   51.46 5450.96   53.44 5448.78   55.41 5448.57
   57.39 5448.58   59.37 5448.55   61.35 5448.58   63.33 5448.58   63.39 5448.58
   65.31 5448.48   67.29 5447.68   69.27 5447.25   71.25  5447.6   73.23 5448.55
   75.21 5449.45   77.18 5450.24   78.16 5450.47   79.16  5450.7   79.77 5450.78
   81.14 5450.97   83.12 5450.86    85.1 5450.37   87.08 5449.79   89.06 5449.57
   91.04 5449.53   93.02 5449.52      95 5449.51   96.98 5449.48   98.95 5449.55
  100.93 5449.68  102.91 5449.74  104.89 5449.82  106.87 5449.88  108.85 5449.95
  110.83 5450.05  112.81 5450.09  114.79 5449.89  116.77 5449.71  118.75 5449.71
  120.72 5449.79   122.7 5449.89  124.68 5449.98  126.66 5449.99  128.64 5449.82
  130.62 5449.66   132.6 5449.65  134.58 5449.67  136.56 5449.69  138.54 5449.69
  140.52 5449.66  142.49 5449.65

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   63.39     .05   78.16     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          47.5   81.14            86.97   86.27   86.28             .1       .3
Ineffective Flow     num=      3
   Sta L   Sta R    Elev  Permanent
   99.13   130.45459.668       F
      20    47.5    5452       F
   81.14   99.13 5450.97       F
Blocked Obstructions      num=      2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0   27.595461.511  126.09  142.495459.649

CROSS SECTION


RIVER: TCC
REACH: 2                   RS: 5996

INPUT
Description: 5996
Station Elevation Data    num=      75
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5448.87    1.99 5448.89    3.98 5448.79    5.97 5448.83    7.97 5448.85
    9.96 5448.93   11.95 5448.95   13.94 5448.99   15.93 5448.94   17.92 5448.97
   19.91 5449.01   21.91 5449.03    23.9 5448.98   25.89 5448.99   27.88 5448.96
   29.87 5448.92   31.86 5448.86   33.85 5448.87   35.85  5448.8   37.84 5448.85
   39.83 5448.92   41.82 5448.99   43.81 5449.06    45.8 5449.07   47.79 5449.08
   49.79 5449.06   51.78 5449.03   53.77 5448.88   55.76 5448.76   57.13 5448.98
   57.75 5449.07   59.74    5450   61.73 5449.98   63.73 5448.46   65.72 5447.42
   67.71 5447.28    69.7 5447.22   71.69 5447.18   72.55 5447.18   73.68 5447.18
   75.67 5447.26   77.67 5446.91   79.66 5446.36   81.65 5445.51   83.64 5445.17
   85.63 5445.38   87.62  5446.1   89.61 5447.06      91 5447.56   91.61 5447.78
   92.21 5447.96    93.6 5448.38   95.59 5448.28   97.58 5447.84   99.57 5447.58
  101.56 5447.52  103.55 5447.49  105.55 5447.43  107.54 5447.37  109.53 5447.44
  111.52 5447.39  113.51 5447.36   115.5  5447.5  117.49 5447.61  119.49 5447.57
  121.48 5447.48  123.47 5447.38  125.46 5447.28  127.45 5447.18  129.44 5447.08
  131.43 5446.98  133.43 5446.88  135.42 5446.79  137.41 5446.69   139.4 5446.59

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   72.55     .05   92.21     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          75.67   93.6             37.03   36.68   37.4              .1       .3
Ineffective Flow     num=      2
   Sta L   Sta R    Elev  Permanent
       0   61.73 5449.98       F
    93.6   139.4 5448.38       F
Blocked Obstructions      num=      1
   Sta L   Sta R    Elev
  117.72   139.45456.589

CROSS SECTION


RIVER: TCC
REACH: 2                   RS: 5959

INPUT
Description: 5959
Station Elevation Data    num=      88
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5446.19       2 5446.19       4 5446.21    5.99 5446.24    7.99 5446.23
    9.99 5446.24   11.99 5446.27   13.98 5446.29   15.98 5446.28   17.98 5446.27
   19.98 5446.29   21.98 5446.26   23.97 5446.22   25.97  5446.2   27.97 5446.17
   29.97 5446.16   31.97 5446.16   33.96 5446.15   35.96 5446.16   37.96 5446.18
   39.96 5446.27   41.95 5446.32   43.95 5446.31   45.95 5446.35   47.95 5446.45
   49.95  5446.6   51.94 5446.71   53.94 5446.79   55.94 5446.86   57.94 5446.96
   59.94 5447.11   61.93  5447.3   63.93 5447.45   65.93 5447.41   67.93 5447.27
   69.92 5447.22   71.92 5447.16   73.92 5447.16   75.92 5447.21   75.93 5447.21
   76.24 5447.22   77.92 5447.27   79.91 5447.33   81.91 5447.42   83.91 5447.46
   85.91 5447.25    87.9  5446.5    89.9 5445.57    91.9 5445.11    93.9 5445.11
    95.9 5445.76   97.89 5446.62   99.89 5447.52  100.27 5447.57  100.48  5447.6
  101.89 5447.78  103.89 5447.36  105.89 5447.17  107.88    5447  109.88 5446.93
  111.88 5446.82  113.88 5446.72  115.87 5446.58  117.87 5446.51  119.83  5446.6
  121.78 5446.63  123.73 5446.66  125.69 5446.63  127.64 5446.61   129.6 5446.58
  131.55 5446.54   133.5  5446.5  135.46 5446.45  137.41 5446.39  139.37 5446.31
  141.32 5446.25  143.28 5446.22  145.23 5446.34  147.18 5446.42  149.14 5446.56
  151.09  5446.6  153.05  5446.6     155 5446.58  156.95 5446.57  158.91 5446.56
  160.86 5446.57  162.82 5446.56  164.77 5446.57

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   75.93     .05  100.27     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          83.91  100.48            60.74   58.73   57.45             .1       .3
Ineffective Flow     num=      2
   Sta L   Sta R    Elev  Permanent
       0   63.93 5447.45       F
  101.89  164.77 5447.78       F
Blocked Obstructions      num=      1
   Sta L   Sta R    Elev
```

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  161.86  164.775456.566

CROSS SECTION


RIVER: TCC
REACH: 2                  RS: 5900

INPUT
Description: 5900
Station Elevation Data    num=      94
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  5447.7    1.98 5447.68    3.95 5447.67    5.93 5447.59     7.9  5447.6
    9.88 5447.54   11.85 5447.54   13.83 5447.54    15.8 5447.51   17.78 5447.47
   19.75 5447.44   21.73 5447.42    23.7  5447.4   25.68 5447.39   27.65 5447.36
   29.63 5447.31   31.61 5447.29   33.58 5447.27   35.56 5447.24   37.53 5447.21
   39.51 5447.18   41.48 5447.13   43.46 5447.14   45.43 5447.06   47.41 5447.04
   49.38 5447.01   51.36 5447.01   53.33 5446.93   55.31 5446.91   57.29 5446.88
    58.1 5446.87   59.26 5446.86   61.24 5446.76   63.21 5446.72   65.19  5446.7
   67.16 5446.65   68.82 5446.62   69.14 5446.61   71.11 5446.54   73.09 5446.45
   75.06 5446.42   77.04  5446.4   79.01 5446.33   80.98 5446.26   82.94 5446.22
    84.9 5446.17   86.86 5446.15   88.82 5446.08   90.78 5446.02   92.74 5445.98
    94.7 5445.93   96.66 5445.87   98.62  5445.8  100.58 5445.82  102.54 5445.99
  104.51 5446.15  106.47 5446.22   106.8 5446.23  108.43 5446.25  110.39  5446.3
  112.35 5446.28  114.31 5446.28  116.27 5446.28  118.23 5446.27  120.19 5446.27
  122.15 5446.19  124.11 5446.06  126.08 5446.06  128.04 5446.07    130 5446.11
  131.96 5446.16  133.92 5446.18  135.88 5446.18  137.84 5446.21   139.8 5446.24
  141.76 5446.22  143.72 5446.13  145.68 5446.08  147.64 5446.07  149.61 5446.01
  151.57 5445.99  153.53 5445.98  155.49 5445.97  157.45 5445.97  159.41 5446.08
  161.37 5446.18  163.33 5446.29  165.29 5446.63  167.25 5446.67  169.21 5446.61
  171.17 5446.66  173.14 5446.65   175.1 5446.63  177.06 5446.64

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0    .015   106.8     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          58.1  165.29             44.45   39.24   34.12             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
  175.43  177.065456.636

CROSS SECTION


RIVER: TCC
REACH: 2                  RS: 5861

INPUT
Description: 5861
Station Elevation Data    num=     100
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5445.45    1.96 5445.45    3.93 5445.43    5.89 5445.39    7.85 5445.37
    9.81 5445.36   11.78 5445.33   13.74 5445.32    15.7 5445.31   17.66  5445.3
   19.63 5445.29   21.59 5445.29   23.55 5445.28   25.52 5445.28   27.48 5445.25
   29.44 5445.27    31.4 5445.24   33.37 5445.23   35.33 5445.21   37.29  5445.2
   39.26  5445.2   41.22 5445.21   43.18 5445.18   44.29 5445.18   45.14 5445.18
   47.11 5445.19   49.07 5445.16   51.03 5445.16   52.99 5445.16   54.56 5445.13
   54.96 5445.12   56.92 5445.12   58.88 5445.08   60.85 5445.05   62.81 5445.06
   64.77 5445.09   66.73 5445.07    68.7 5445.04   70.66 5445.06   72.65 5445.13
   74.64 5445.18   76.63 5445.25   78.62 5445.33   80.61 5445.39   82.59 5445.47
   84.58 5445.54   86.57 5445.58   88.56 5445.63   90.55 5445.67   92.54 5445.72
   94.53 5445.71   96.52 5445.65   98.51 5445.62   100.5 5445.55  102.49 5445.56
  104.48 5445.53  106.47  5445.5  108.45 5445.49  110.44 5445.44  112.43 5445.39
  114.42 5445.41  116.41 5445.66   118.4 5445.86   119.7 5445.94  120.39 5445.98
  122.38 5445.98  124.37 5446.02  126.36 5446.05  128.35  5446.2  130.34 5446.24
  132.32 5446.23  134.31 5446.05   136.3 5446.01  138.29 5445.84  140.28 5445.69
  142.27 5445.72  144.26 5445.72  146.25 5445.79  148.24 5445.83  150.23 5445.83
  152.22 5445.79  154.21 5445.81  156.19 5445.91  158.18 5445.87  160.17 5445.85
  162.16 5445.81  164.15 5445.84  166.14 5445.84  168.13  5445.9  170.12 5446.06
  172.11 5446.34   174.1  5446.4  176.09 5446.48  178.08 5446.55  180.06 5446.58
  182.05 5446.58  184.04 5446.63  186.03 5446.68  188.02 5446.67  190.01 5446.65

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0    .015   119.7     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           5.89  172.11            99.21   97.96   96.72             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
  186.39  190.015456.645

CROSS SECTION


RIVER: TCC
REACH: 2                  RS: 5763

INPUT
Description: 5763
Station Elevation Data    num=     113
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5439.57    1.99 5439.55    3.97 5439.53    5.96 5439.52    7.94 5439.56
    9.93 5439.58   11.91  5439.6    13.9 5439.59   15.88 5439.61   17.87 5439.63
   19.85 5439.63   21.84 5439.65   23.82 5439.67   25.81 5439.68    27.8  5439.7
   29.78 5439.74   31.77 5439.73   32.55 5439.73   33.75 5439.75   35.74 5440.03
   37.72 5440.43   39.71 5440.51   41.69 5440.58   43.68 5440.65   45.66 5440.67
   47.65 5440.74   49.63 5440.83   51.62 5440.87   53.61 5440.94   55.59 5440.95
   57.58 5440.88   59.56  5440.7   61.55 5440.54   63.53 5440.39   65.52 5440.47
    67.5 5440.34   69.49  5440.1   71.47 5440.05   73.46 5440.08   75.44 5440.16
   77.43 5440.14   79.41 5440.15    81.4  5440.1   83.39 5439.97   85.37 5440.08
   87.36 5440.01   89.34 5439.88   91.33 5439.94   93.31    5440    95.3    5440
   97.28 5439.95   99.27  5439.9  101.25 5439.81  103.24 5439.67  105.22 5439.56
  107.21 5439.47   109.2 5439.51  111.18 5439.62  113.17 5439.83  115.15 5440.05
  116.82 5440.18  117.14 5440.21  119.12 5440.37  121.11 5440.49  123.09 5440.65
  125.08 5440.83  126.93 5440.99  127.06    5441  129.05 5441.06  131.03 5441.12
  133.02 5441.07     135 5441.07  136.99 5441.16  138.98 5441.23  140.96 5441.26
  142.95 5441.31  144.93 5441.37  146.92 5441.43   148.9 5441.49  150.89 5441.55
  152.87  5441.6  154.86 5441.65  156.84 5441.71  158.83 5441.76  160.81 5441.81
   162.8 5441.85  164.79 5441.89  166.77 5441.93  168.76 5441.98  170.74 5441.96
  172.73 5441.86  174.71 5441.65   176.7  5441.8  178.68 5441.99  180.67 5442.18
  182.65  5442.2  184.64 5442.21  186.62 5442.26  188.61 5442.04   190.6 5441.96
  192.58 5442.08  194.57 5442.18  196.55 5442.18  198.54 5442.16  200.52 5442.19
  202.51 5442.15  204.49  5442.2  206.48 5442.19  208.46 5442.59  210.45  5443.2
  212.43 5443.27  214.42 5443.36   216.4  5443.3

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0    .015   32.55     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           67.5  126.93           136.35  138.57  140.79             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
  135.16  139.715451.241        F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
  139.71  166.175451.922
```

CROSS SECTION

RIVER: TCC
REACH: 2 RS: 5624

INPUT
Description: 5624
Station Elevation Data num= 170

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	5436.74	1.98	5436.69	3.97	5436.69	5.95	5436.68	7.93	5436.65
9.91	5436.56	11.9	5436.47	13.88	5436.39	15.86	5436.19	17.84	5436.11
19.83	5435.91	21.64	5435.83	21.81	5435.82	23.79	5435.96	25.77	5436.44
27.76	5436.42	29.74	5436.26	31.72	5436.26	33.7	5436.27	35.69	5436.49
37.67	5436.59	39.65	5436.71	41.63	5436.76	43.62	5436.78	45.6	5436.79
47.58	5436.73	49.56	5436.53	51.55	5436.49	53.53	5436.5	55.51	5436.21
57.49	5436.13	59.49	5436.12	61.49	5436.1	63.49	5436.05	65.48	5436
67.48	5435.92	69.48	5435.96	71.48	5435.96	73.47	5435.91	75.47	5435.92
77.47	5435.93	79.47	5435.93	81.46	5435.98	83.46	5435.96	85.46	5436.08
87.46	5436.25	89.45	5436.37	91.45	5436.44	93.45	5436.52	95.45	5436.64
97.44	5436.68	99.44	5436.72	101.44	5436.77	103.44	5436.84	105.43	5436.88
107.43	5436.86	109.43	5436.88	111.43	5436.85	113.42	5436.79	115.42	5436.74
117.42	5436.69	119.42	5436.64	121.41	5436.6	123.41	5436.56	125.41	5436.49
127.41	5436.46	129.4	5436.35	131.4	5436.2	133.4	5436.16	135.4	5436.07
137.39	5436.09	139.39	5436.17	141.39	5435.94	143.39	5435.82	145.38	5435.71
147.38	5435.67	149.38	5435.64	151.38	5435.58	153.37	5435.59	155.37	5435.52
157.37	5435.51	159.37	5435.53	161.36	5435.53	163.36	5435.44	165.36	5435.43
167.36	5435.4	169.35	5435.41	171.35	5435.4	173.35	5435.4	175.35	5435.41
177.34	5435.41	179.34	5435.37	181.34	5435.49	183.34	5435.48	185.33	5435.43
187.33	5435.42	189.33	5435.43	191.33	5435.41	193.32	5435.43	195.32	5435.41
197.32	5435.4	199.32	5435.39	199.68	5435.38	201.31	5435.37	203.31	5435.36
205.31	5435.36	207.31	5435.36	209.3	5435.32	209.69	5435.28	211.3	5435.14
213.3	5435.24	215.3	5435.64	217.29	5435.92	219.29	5435.8	221.29	5436.04
223.29	5435.93	225.28	5435.8	227.28	5435.87	229.28	5435.93	231.28	5436.04
233.27	5436.12	235.27	5436.28	237.27	5436.22	239.27	5436.22	241.26	5436.48
243.26	5436.62	245.26	5436.46	247.26	5436.34	249.25	5436.26	251.25	5436.21
253.25	5436.09	255.25	5436.03	257.24	5436.01	259.23	5436.16	261.22	5436.12
263.21	5436.02	265.19	5436.06	267.18	5436.12	269.17	5436.19	271.16	5436.24
273.14	5436.42	275.13	5436.62	277.12	5436.66	279.11	5436.78	281.09	5436.99
283.08	5437.07	285.07	5437.11	287.06	5437.31	289.04	5437.62	291.03	5437.71
293.02	5437.7	295.01	5437.73	296.99	5437.74	298.98	5437.74	300.97	5437.67
302.96	5437.59	304.94	5437.65	306.93	5437.72	308.92	5437.81	310.91	5437.88
312.89	5437.95	314.88	5438.04	316.87	5438.12	318.86	5438.18	320.84	5438.24
322.83	5438.29	324.82	5438.35	326.81	5438.41	328.79	5438.46	330.78	5438.48

Manning's n Values num= 2

Sta	n Val	Sta	n Val
0	.015	21.64	.13

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
187.33 217.29 168.47 185.16 190.51 .1 .3
Ineffective Flow num= 3

Sta L	Sta R	Elev	Permanent
102.08	112.88	5446.81	F
130.57	142.75	5446.846	F
168.39	180.195	5446.416	F

Blocked Obstructions num= 3

Sta L	Sta R	Elev	Sta L	Sta R	Elev	Sta L	Sta R	Elev
99.82	102.085	5446.777	112.88	130.575	5446.257	307.53	330.785	5448.485

CROSS SECTION

RIVER: TCC
REACH: 2 RS: 5439

INPUT
Description: 5439
Station Elevation Data num= 222

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	5433.97	1.99	5433.97	3.99	5433.96	5.98	5433.94	7.97	5433.89
9.97	5433.85	11.96	5433.78	13.96	5433.71	15.95	5433.68	17.94	5433.63
19.94	5433.6	21.93	5433.52	23.92	5433.45	25.92	5433.41	27.91	5433.39
29.9	5433.31	31.9	5433.28	33.89	5433.25	35.88	5433.2	37.88	5433.2
39.87	5433.17	41.87	5433.14	43.86	5433.09	45.85	5433.04	47.85	5433.01
49.84	5432.98	51.83	5432.97	53.83	5432.95	55.82	5432.94	57.81	5432.88
59.81	5432.86	61.8	5432.81	63.8	5432.78	65.79	5432.76	67.78	5432.75
69.78	5432.77	71.77	5432.79	73.76	5432.77	75.76	5432.74	77.75	5432.7
79.74	5432.68	81.74	5432.67	83.73	5432.66	85.73	5432.63	87.72	5432.62
89.71	5432.59	91.71	5432.54	93.7	5432.53	95.69	5432.55	97.69	5432.51
99.68	5432.48	101.67	5432.42	103.67	5432.38	105.66	5432.33	107.66	5432.3
109.65	5432.3	111.64	5432.29	113.64	5432.27	115.63	5432.26	117.62	5432.22
119.62	5432.16	121.61	5432.14	123.6	5432.14	125.6	5432.13	127.59	5432.09
129.58	5432.07	131.58	5432.04	133.57	5432.06	135.57	5432.03	137.56	5431.99
139.55	5431.96	141.55	5431.94	143.54	5431.9	145.53	5431.87	147.53	5431.85
149.52	5431.8	151.51	5431.76	153.51	5431.75	155.5	5431.74	157.5	5431.69
159.49	5431.67	161.48	5431.64	163.48	5431.6	165.47	5431.58	167.46	5431.56
169.46	5431.54	171.45	5431.51	173.44	5431.48	175.44	5431.46	177.43	5431.44
179.43	5431.41	181.42	5431.35	183.41	5431.31	185.41	5431.34	187.4	5431.35
189.39	5431.32	191.39	5431.31	193.38	5431.29	195.37	5431.27	197.37	5431.28
199.36	5431.27	201.36	5431.24	203.35	5431.26	205.34	5431.25	207.34	5431.22
209.33	5431.2	211.32	5431.16	211.68	5431.16	213.32	5431.15	215.31	5431.15
217.3	5431.13	219.3	5431.11	221.29	5431.08	223.28	5431.07	225.28	5431.06
227.27	5431.05	229.27	5431.06	231.26	5431.03	233.08	5431.02	233.25	5431.02
235.25	5431.03	237.24	5430.99	239.23	5430.94	241.23	5430.9	243.22	5430.91
245.21	5430.91	247.21	5430.91	249.2	5430.89	251.2	5430.86	253.19	5430.85
255.18	5430.84	257.18	5430.83	259.17	5430.81	261.16	5430.8	263.16	5430.78
265.15	5430.76	267.14	5430.73	269.14	5430.73	271.13	5430.72	273.12	5430.7
275.12	5430.69	277.11	5430.67	279.11	5430.65	281.1	5430.66	283.09	5430.55
285.08	5430.58	287.07	5430.53	288.08	5430.54	289.06	5430.55	291.05	5430.56
293.05	5430.6	295.04	5430.62	297.03	5430.69	299.02	5430.66	301.01	5430.59
303	5430.6	304.99	5430.65	306.98	5430.69	308.98	5430.73	310.97	5430.83
312.96	5430.93	314.95	5431.08	316.94	5431.14	318.93	5431.13	320.92	5431.22
322.91	5431.36	324.91	5431.46	326.9	5431.57	328.89	5431.5	330.88	5431.34
332.87	5431.36	334.86	5431.42	336.85	5431.57	338.84	5431.7	340.84	5431.78
342.83	5431.91	344.82	5432.04	346.81	5432.15	348.8	5432.24	350.79	5432.22
352.78	5432.2	354.78	5432.2	356.77	5432.23	358.76	5432.31	360.75	5432.38
362.74	5432.41	364.73	5432.47	366.72	5432.53	368.71	5432.63	370.71	5432.73
372.7	5432.75	374.69	5432.73	376.68	5432.67	378.67	5432.64	380.66	5432.65
382.65	5432.69	384.65	5432.73	386.64	5432.76	388.63	5432.8	390.62	5432.88
392.61	5432.89	394.6	5432.92	396.59	5432.93	398.58	5432.94	400.58	5433.7
402.57	5434.19	404.56	5434.45	406.55	5434.62	408.54	5434.83	410.53	5434.88
412.52	5434.97	414.51	5435.07	416.51	5435.17	418.5	5435.27	420.49	5435.31
422.48	5435.34	424.47	5435.36	426.46	5435.38	428.45	5435.4	430.45	5435.41
432.44	5435.4	434.43	5435.4						

Manning's n Values num= 2

Sta	n Val	Sta	n Val
0	.015	288.08	.13

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
211.68 314.95 88.42 75.77 74.47 .1 .3
Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
350.82	364.455	442.456	F

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
367.38	394.775	442.927	410.84	434.435	445.401

CROSS SECTION

```
RIVER: TCC
REACH: 2                    RS: 5363

INPUT
Description: 5363
Station Elevation Data    num=     233
      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
        0 5432.56        2 5432.55     3.99 5432.56     5.99 5432.59     7.99 5432.63
     9.99 5432.67    11.98  5432.7    13.98 5432.74    15.98  5432.8    17.98 5432.86
    19.97 5432.92    21.97 5432.97    23.97 5432.98    25.97 5432.98    27.96 5432.98
    29.96 5432.98    31.96 5432.98    33.96 5432.98    35.95  5432.9    37.95 5432.88
    39.95 5432.83    41.95 5432.83    43.94 5432.77    45.94 5432.68    47.94 5432.53
    49.94  5432.4    51.93 5432.32    53.93 5432.29    55.93 5432.34    57.92 5432.28
    59.92 5432.26    61.92 5432.17    63.92  5432.2    65.91 5432.25    67.91  5432.2
    69.91 5432.15    71.91  5432.1     73.9 5432.06     75.9 5432.01     77.9 5431.96
     79.9 5431.92    81.89 5431.87    83.89 5431.82    85.89 5431.77    87.89 5431.72
    89.88 5431.66    91.88  5431.6    93.88 5431.53    95.88 5431.46    97.87 5431.38
    99.87 5431.31   101.87 5431.19   103.86 5430.98   105.86 5430.93   107.86 5430.91
   109.86 5430.93   111.85 5431.02   113.85 5431.06   115.85 5431.35   117.85 5431.58
   119.84 5431.75   121.84 5431.75   123.84 5431.71   125.84 5431.67   127.83 5431.62
   129.83 5431.58   131.83 5431.54   133.83  5431.5   135.82 5431.45   137.82 5431.41
   139.82 5431.37   141.82 5431.33   143.81 5431.28   145.81 5431.24   147.81  5431.2
   149.81 5431.15    151.8 5431.11    153.8 5431.07    155.8 5431.03   157.79 5430.97
   159.79 5430.89   161.79  5430.8   163.79 5430.78   165.78 5430.78   167.78  5430.7
   169.78 5430.57   171.78 5430.32   173.77 5430.17   175.77 5430.08   177.77 5430.11
   179.77 5430.13   181.76 5430.12   183.76 5430.09   185.76 5430.06   187.76 5430.03
   189.75    5430   191.75 5429.97   193.75 5429.94   195.75 5429.91   197.74 5429.88
   199.74 5429.83   201.74 5429.74   203.74 5429.68   205.73 5429.65   207.73 5429.59
   209.73 5429.51   211.72 5429.42   213.72 5429.34   215.72 5429.25   217.72 5429.17
   219.71 5429.18   221.71 5429.05   223.71    5429   225.24 5428.94   225.71 5428.92
    227.7 5429.02    229.7 5429.17    231.7 5429.28    233.7  5429.4   235.25 5429.44
   235.69 5429.45   237.69 5429.72   239.69 5429.82   241.69  5429.9   243.68 5430.01
   245.68 5430.11   247.68 5430.18   249.68 5430.24   251.67  5430.3   253.67 5430.36
   255.67 5430.42   257.66 5430.47   259.66 5430.53   261.66 5430.59   263.66 5430.65
   265.65 5430.71   267.65 5430.77   269.65 5430.83   271.65 5430.88   273.64 5430.94
   275.64 5430.98   277.64 5430.98   279.64 5430.97   281.63 5430.95   283.63  5430.9
   285.63 5430.81   287.63 5430.73   289.62 5430.71   291.62 5430.21   293.62 5429.58
   295.62 5429.34   297.61 5429.36   299.61 5429.51   301.61 5429.71    303.6 5429.83
    305.6 5429.89    307.6 5429.93    309.6    5430   311.59 5430.08   313.59 5430.15
   315.59 5430.23   317.59 5430.31   319.58 5430.39   321.58 5430.47   323.58 5430.56
   325.57 5430.53   327.57 5430.49   329.56 5430.46   331.56 5430.44   333.55 5430.39
   335.55 5430.38   337.54 5430.36   339.54 5430.38   341.53 5430.34   343.53 5430.22
   345.52 5430.21   347.52 5430.23   349.51 5430.19   351.51 5430.15   353.5 5430.07
    355.5 5429.98   357.49 5430.09   359.48 5430.12   361.48 5430.13   363.47 5430.13
   365.47 5430.12   367.46 5430.01   369.46 5430.02   371.45 5430.03   373.45 5430.04
   373.99 5430.04   375.44 5430.04   377.44 5429.99   379.43  5429.9   381.43 5429.79
   383.42 5429.74   385.42 5429.73   387.41 5429.82   389.41 5429.86    391.4  5429.9
    393.4 5429.94   395.39 5429.96   397.39 5429.98   399.38 5430.02   401.38 5430.08
   403.37 5430.14   403.81 5430.15   405.37 5430.19   407.36 5430.28   409.36  5430.4
   411.35 5430.51   413.35 5430.63   415.34 5430.84   417.34 5430.99   419.33  5431.1
   421.33 5431.16   423.32 5431.26   425.32 5431.25   427.31 5431.33   429.31  5431.4
    431.3 5431.54    433.3 5431.55   435.29 5431.63   437.29 5431.75   439.28 5431.87
   441.28 5432.06   443.27 5432.07   445.27 5432.35   447.26 5432.48   449.26 5432.62
   451.25  5432.7   453.25 5432.78   455.24 5432.97

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13  373.99    .015  403.81     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        199.74  253.67             78.03   75.61   74.86             .1       .3
Blocked Obstructions      num=       6
   Sta L    Sta R    Elev   Sta L    Sta R    Elev   Sta L    Sta R    Elev
       0   44.07 5442.77   68.94  104.885440.942  121.05  159.985440.886
  179.95  221.115439.111  241.15  286.345440.767  300.18  335.685440.379

CROSS SECTION


RIVER: TCC
REACH: 2                    RS: 5288

INPUT
Description: 5288
Station Elevation Data    num=     201
      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
        0 5431.78        2 5431.79        4 5431.77        6 5431.64        8  5431.5
     9.99 5431.38    11.99 5431.24    13.99 5431.08    15.99 5430.94    17.99  5430.8
    19.99 5430.65    21.99 5430.52    23.99 5430.45    25.98 5430.42    27.98  5430.4
    29.98 5430.38    31.98 5430.28    33.98 5430.17    35.98 5430.14    37.98  5430.1
    39.98 5430.12    41.97 5430.17    43.97 5430.17    45.97 5430.15    47.97  5430.1
    49.97 5430.06    51.97 5430.04    53.97 5430.02    55.97    5430    57.96    5430
    59.96    5430    61.96 5429.99    63.96 5430.05    65.96 5429.98    67.96 5429.98
    69.96 5430.15    71.96 5430.17    73.95 5430.12    75.95 5430.08    77.95    5430
    79.95 5429.93    81.95 5429.93    83.95  5429.9    85.95 5429.85    87.95 5429.85
    89.94 5429.85    91.94 5429.79    93.94 5429.64    95.94 5429.52    97.94 5429.53
    99.94 5429.56   101.94 5429.55   103.94 5429.53   105.93 5429.51   107.93 5429.49
   109.93 5429.48   111.93 5429.44   113.93 5429.39   115.93  5429.3   117.93 5429.28
   119.93 5429.27   121.92 5429.15   123.92 5429.03   125.92 5428.96   127.92 5428.93
   129.92 5428.99   131.92 5429.01   133.92 5429.02   135.92 5429.05   137.91 5429.02
   139.91 5428.95   141.91 5428.94   143.91 5428.87   145.91 5428.78   147.91 5428.74
   149.91 5428.69   151.91 5428.67    153.9 5428.73    155.9 5428.83    157.9 5428.93
    159.9 5428.91    161.9 5428.86    163.9 5428.81    165.9 5428.76    167.9 5428.71
   169.89 5428.66   171.89 5428.61   173.89 5428.57   175.89 5428.51   177.89  5428.3
   179.89 5428.05   181.89 5427.92   183.89 5427.85   185.88 5427.76   187.88 5427.67
   189.88 5427.61   191.88 5427.55   193.88 5427.45   195.88 5427.41   197.88 5427.41
   199.88 5427.43   201.87 5427.48   203.87 5427.52   205.87 5427.52   207.87 5427.49
   209.87 5427.47   211.87 5427.45   213.87 5427.38   215.87 5427.31   217.86 5427.35
   219.86 5427.48   221.86 5427.56   223.86 5427.55   225.86 5427.55   227.86  5427.5
   229.86  5427.4   231.86 5427.31   233.85 5427.19   235.85 5427.12   237.85 5427.22
   239.83 5427.41   241.81 5427.49   243.78 5427.44   245.76 5427.56   247.73  5427.5
   249.71 5427.56   250.46 5427.63   251.69 5427.74   253.66  5427.9   255.64 5428.01
   257.62 5428.02   259.59 5427.98   261.57    5428   263.55 5427.98   265.52 5427.95
    267.5 5427.95   268.69 5427.93   269.48 5427.92   271.45 5427.87   273.43 5427.87
    275.4 5427.87   277.38 5427.82   279.36 5427.74   281.33 5427.68   283.31 5427.71
   285.29 5427.75   287.26  5427.7   289.24 5427.74   291.22 5427.77   293.19 5427.58
   295.17 5427.39   297.15 5427.28   299.12 5426.99    301.1 5426.84   303.08 5426.82
   305.05 5426.75   307.03 5426.77   309.01 5426.75   310.98  5426.7   312.96 5426.69
   314.93  5426.7   316.91 5426.68   318.89 5426.79   320.86 5426.97   322.84 5427.15
   324.82 5427.26   326.79 5427.25   328.77 5427.14   330.75 5426.95   332.72  5426.8
    334.7 5426.74   336.68 5426.68   338.65 5426.67   340.63 5426.76   342.61 5426.89
   344.58 5427.04   346.56 5427.17   348.53 5427.27   350.51 5427.36   352.49 5427.44
   354.46 5427.52   356.44 5427.99   358.42 5428.12   360.39 5428.27   362.37 5428.41
   364.35 5428.55   366.32 5428.62    368.3 5428.74   370.28 5428.84   372.25 5428.87
   374.23 5428.91   376.21 5428.94   378.18 5428.98   380.16 5429.02   382.13 5429.06
   384.11 5429.11   386.09 5429.16   388.06 5429.19   390.04 5429.21   392.02 5429.21
   393.99  5429.2

Manning's n Values        num=       1
     Sta   n Val
       0     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        225.86  257.62            117.68  120.73  130.53             .1       .3
Ineffective Flow     num=       1
   Sta L    Sta R    Elev  Permanent
   13.71   33.645440.182       F
Blocked Obstructions     num=       9
```

```
   Sta L   Sta R    Elev   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0    13.15441.151   41.25   67.555439.925   99.92  118.24 5439.29
   159.1  177.535438.354  188.98  198.575437.404  202.07  218.785437.403
  220.65  236.36 5437.13  338.46  356.615438.028  370.88  393.995439.199

CROSS SECTION


RIVER: TCC
REACH: 2                    RS: 5167

INPUT
Description: 5167
Station Elevation Data    num=     167
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5425.68    1.98 5425.66    3.96 5425.65    5.95 5425.64    7.93 5425.62
    9.91 5425.61   11.89 5425.64   13.88 5425.64   15.86 5425.67   17.84  5425.7
   19.82 5425.72    21.8 5425.77   23.79 5425.83   25.77  5425.9   27.75 5425.98
   29.73 5426.05   31.72  5426.1    33.7 5426.12   35.68 5426.12   37.66 5426.12
   39.64 5426.12   41.63 5426.03   43.61 5425.58   45.59 5425.05   47.57 5424.67
   49.56  5424.5   51.54 5424.42   53.52 5424.39    55.5 5424.42   57.48 5424.68
   59.47 5425.02   61.45 5425.08   63.43 5425.06   65.41 5425.03    67.4    5425
   69.38 5424.98   71.36 5424.95   73.34 5424.93   75.32  5424.9   77.31 5424.87
   79.29 5424.84   81.27  5424.8   83.25 5424.77   85.24 5424.74   87.22 5424.71
    89.2 5424.67   91.18 5424.64   93.17  5424.5   95.15 5424.42   97.13 5424.35
   97.23 5424.33   99.11 5424.06  101.09 5423.75  103.08 5423.65  105.06 5423.63
  107.04 5423.55  109.02 5423.48  110.43 5423.45  111.01 5423.44  112.99 5423.37
  114.97 5423.33  116.95 5423.35  118.93 5423.37  120.92 5423.39   122.9 5423.47
  124.88 5423.61  126.86 5423.68  128.85 5423.64  130.83 5423.64  132.81 5423.72
  134.79 5423.77  136.77 5423.79  138.76 5423.83  140.74 5423.75  142.72 5423.63
   144.7 5423.54  146.69 5423.51  148.67 5423.48  150.65 5423.42  152.63 5423.38
  154.61 5423.35   156.6 5423.34  158.58 5423.36  160.56  5423.4  162.54 5423.38
  164.53 5423.37  166.51 5423.37  168.49  5423.4  170.47  5423.5  172.45 5423.52
  174.44 5423.52  176.42  5423.5   178.4  5423.5  180.38 5423.54  182.38 5423.59
  184.37 5423.64  186.37  5423.6  188.36 5423.57  190.36 5423.44  192.35 5423.26
  194.35 5423.25  196.34 5423.38  198.34 5423.56  200.33 5424.18  202.33  5424.5
  204.32 5424.71  206.32 5424.67  208.31 5424.72   210.3 5424.77   212.3 5424.83
  214.29 5424.56  216.29    5424  218.28 5423.47  220.28 5423.04  222.27 5422.64
  224.27 5422.28  226.26 5422.28  228.26  5422.4  230.25 5422.52  232.25 5422.63
  234.24 5422.75  236.24 5422.88  238.23 5423.07  240.23  5423.3  242.22 5423.63
  244.22 5424.25  246.21 5425.09   248.2 5425.41   250.2 5425.45  252.19 5425.48
  254.19  5425.4  256.18 5425.31  258.18 5425.43  260.17 5425.58  262.17  5425.7
  264.16 5425.75  266.16 5425.79  268.15 5425.88  270.15 5425.97  272.14 5426.07
  274.14 5426.21  276.13 5426.36  278.13  5426.5  280.12 5426.61  282.12 5426.76
  284.11 5426.86  286.11 5427.02   288.1 5427.21  290.09  5427.4  292.09 5427.57
  294.08 5427.67  296.08 5427.84  298.07 5428.07  300.07 5428.28  302.06 5428.35
  304.06 5428.38  306.05 5428.42  308.05 5428.44  310.04  5428.5  312.04 5428.58
  314.03 5428.57  316.03 5428.55  318.02 5428.55  320.02 5428.55  322.01 5428.55
  324.01 5428.56     326 5428.56

Manning's n Values        num=       1
     Sta   n Val
       0     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         97.13  138.76           117.86  170.61  145.82             .1       .3
Blocked Obstructions     num=       6
   Sta L   Sta R    Elev   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0   36.29 5436.12   61.77   93.075434.511   103.8  127.535433.668
  140.57  187.225433.592  212.81  253.445435.458  307.63     3265438.564

CROSS SECTION


RIVER: TCC
REACH: 2                    RS: 4996

INPUT
Description: 4996
Station Elevation Data    num=     248
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5423.95    1.99 5423.94    3.98 5423.91    5.96 5423.86    7.95 5423.81
    9.94 5423.74   11.93 5423.72   13.91  5423.7    15.9 5423.66   17.89 5423.61
   19.88 5423.57   21.87 5423.51   23.85 5423.47   25.84 5423.43   27.83  5423.4
   29.82 5423.39    31.8 5423.37   33.79 5423.33   35.78 5423.31   37.77 5423.29
   39.76 5423.25   41.74 5423.22   43.73 5423.16   45.72 5423.13   47.71 5423.15
    49.7 5423.12   51.68 5423.06   53.67 5423.01   55.66 5422.95   57.65 5422.87
   59.63 5422.82   61.62 5422.77   63.61 5422.72    65.6 5422.68   67.59 5422.66
   69.57 5422.66   71.56 5422.63   73.55 5422.59   75.54 5422.55   77.52 5422.54
   79.51 5422.51    81.5 5422.48   83.49 5422.43   85.48 5422.37   87.46 5422.34
   89.45 5422.39   91.44 5422.33   93.43 5422.27   95.41 5422.23    97.4 5422.21
   99.39 5422.16  101.38 5422.13  103.37 5422.08  105.35 5422.04  107.34 5422.04
  109.33    5422  111.32 5421.99   113.3 5421.95  115.29 5421.93  117.28 5421.89
  119.27  5421.9  121.26 5421.87  123.24 5421.82  125.23 5421.78  127.22 5421.77
  129.21 5421.72  131.19  5421.7  133.18 5421.68  135.17 5421.67  137.16 5421.64
  139.15  5421.6  141.13 5421.59  143.12 5421.56  145.11  5421.5   147.1  5421.5
  149.09 5421.46  151.07 5421.44  153.06 5421.44  155.05 5421.42  157.04 5421.37
  159.02 5421.37  161.01 5421.32     163 5421.24  164.99 5421.24  166.98 5421.22
  168.96 5421.24  170.95 5421.16  172.94  5421.1  174.93 5421.14  176.91 5421.07
   178.9 5421.02  180.89    5421  182.88 5420.99  184.87 5420.96  186.85 5420.94
  188.84  5420.9  190.83 5420.87  192.82 5420.85   194.8  5420.8  196.79 5420.77
  198.78 5420.75  200.77 5420.68  202.76 5420.69  204.74 5420.67  206.73 5420.58
  208.72 5420.61  210.71 5420.57  212.69  5420.5  214.68 5420.42  216.67 5420.48
  218.66 5420.45  220.65 5420.45  222.63 5420.42  224.62 5420.42  226.61 5420.39
   228.6 5420.36  230.59 5420.33  232.57 5420.31  234.56  5420.3  236.55 5420.27
  238.54 5420.22  240.52 5420.16  242.51 5420.13   244.5 5420.08  246.49 5420.06
  248.48 5420.01  250.46 5419.97  252.45 5419.98  254.44 5419.95  256.43 5419.92
  258.41 5419.89   260.4 5419.87  262.39 5419.84  263.98 5419.82  264.38 5419.82
  266.37 5419.78  268.35 5419.71  270.34 5419.67  272.33  5419.6  274.32 5419.52
   276.3 5419.45  278.29 5419.39  280.28 5419.31  282.27 5419.24  284.26 5419.19
  285.48 5419.16  286.24 5419.13  288.23 5419.03  290.22 5418.98  292.21 5419.06
  294.19 5419.14  296.18 5419.16  298.17  5419.2  300.16 5419.18  302.15 5419.18
  304.13 5419.18  306.12 5419.25  308.11 5419.25  310.09 5419.32  312.08 5419.39
  314.07 5419.41  316.05 5419.46  318.04 5419.52  320.03 5419.57  322.01 5419.63
     324 5419.69  325.99 5419.75  327.97 5419.79  329.96  5419.9  331.95 5419.99
  333.93 5420.01  335.92 5420.04  337.91 5420.12  339.89 5420.18  341.88 5420.23
  343.87 5420.23  345.85  5420.3  347.84 5420.33  349.83 5420.41  351.81 5420.45
   353.8 5420.51  355.79 5420.54  357.77 5420.61  359.76 5420.66  361.75 5420.71
  363.73 5420.75  365.72 5420.79  367.71 5420.82  369.69 5420.91  371.68 5420.92
  373.67 5420.99  375.65 5421.02  377.64 5421.07  379.63  5421.1  381.61 5421.16
   383.6  5421.2  385.59  5421.2  387.57 5421.27  389.56 5421.34  391.55 5421.39
  393.53 5421.44  395.52 5421.47   397.5  5421.5  399.49 5421.54  401.48 5421.56
  403.46  5421.6  405.45 5421.67  407.44 5421.72  409.42  5421.8  411.41 5421.85
   413.4  5421.9  415.38 5421.91  417.37 5421.97  419.36 5422.01  421.34 5422.07
  423.33 5422.12  425.32 5422.17   427.3 5422.25  429.29 5422.28  431.28 5422.32
  433.26 5422.38  435.25 5422.42  437.24 5422.48  439.22 5422.54  441.21 5422.61
   443.2  5422.7  445.18 5422.76  447.17 5422.86  449.16 5422.94  451.14 5422.98
  453.13 5423.03  455.12 5423.11   457.1 5423.16  459.09 5423.22  461.08 5423.29
  463.06 5423.37  465.05 5423.43  467.04 5423.48  469.02 5423.57  471.01 5423.65
     473  5423.7  474.98 5423.77  476.97 5423.84  478.96 5423.92  480.94 5423.98
  482.93 5424.05  484.92 5424.12   486.9 5424.18

Manning's n Values        num=       1
     Sta   n Val
       0    .015

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         263.98  331.95           123.21   74.06   74.57             .1       .3

CROSS SECTION
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```
RIVER: TCC
REACH: 2                    RS: 4922

INPUT
Description: 4922
Station Elevation Data    num=     205
      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
        0 5422.62        2 5422.43     3.99 5422.29     5.99 5422.19     7.99 5422.12
     9.99 5422.04    11.98 5421.97    13.98 5421.88    15.98 5421.77    17.97 5421.68
    19.97 5421.61    21.97 5421.48    23.97 5421.44    25.96 5421.45    27.96 5421.29
    29.96  5421.2    31.95 5421.15    33.95 5421.13    35.95 5421.12    37.95 5421.19
    39.94 5421.26    41.94 5421.27    43.94 5421.28    45.93 5421.29    47.93 5421.31
    49.93 5421.32    51.93 5421.34    53.92 5421.35    55.92 5421.35    57.92 5421.38
    59.91 5421.44    61.91 5421.45    63.91 5421.41    65.91 5421.35     67.9 5421.28
     69.9 5421.17     71.9     5421     73.9 5420.84    75.89 5420.67    77.89  5420.5
    79.89 5420.33    81.88 5420.17    83.88     5420    85.88 5419.85    87.88 5419.75
    89.87 5419.73    91.87 5419.77    93.87 5419.76    95.86 5419.73    97.86 5419.71
    99.86 5419.81   101.86 5419.81   103.85 5419.63   105.85 5419.58   107.85 5419.78
   109.84 5419.96   111.84 5420.09   113.84 5420.21   115.84 5420.36   117.83 5420.48
   119.83  5420.5   121.83 5420.47   123.82 5420.41   125.82 5420.31   127.82 5420.11
   129.82 5419.89   131.81 5419.64   133.81 5419.28   135.81 5419.15    137.8 5419.33
    139.8  5419.5    141.8 5419.66    143.8 5419.79   145.79 5419.83   147.79 5419.87
   149.79  5419.9   151.78 5419.93   153.78 5419.96   155.78 5419.99   157.78 5420.01
   159.77 5420.04   161.77 5420.06   163.77 5420.08   165.76 5420.07   167.76 5419.92
   169.76 5419.73   171.76 5419.52   173.75 5419.27   175.75 5419.12   177.75 5419.07
   179.74 5419.07   181.74 5418.87   183.74 5418.77   185.74 5418.68   187.73 5418.51
   189.73 5418.33   191.19 5418.19   191.73 5418.13   193.72 5417.95   193.88 5417.94
   195.72 5417.74   197.72 5417.55   199.72 5417.32   201.71 5417.07   203.71 5417.26
   204.84 5417.27   205.71 5417.28    207.7 5417.28    209.7 5417.27    211.7 5417.27
    213.7 5417.25   215.69 5417.17   217.69 5417.16   219.69  5417.1   221.68 5417.12
   223.68 5417.13   225.68 5417.11   227.68 5417.08   229.67 5417.12   231.67 5417.44
   233.67 5417.55   234.53 5417.67   235.67 5417.83   237.66 5417.93   239.66  5417.9
   241.66 5417.81   243.65  5417.8   245.65 5417.64   247.65  5417.7   249.65 5417.72
   251.64 5417.67   253.64 5417.57   255.64 5417.62   257.63 5417.61   259.63 5417.74
   261.62 5417.86   263.62 5417.94   265.61 5418.04   267.61 5418.21    269.6 5418.38
    271.6 5418.64   273.59 5418.73   275.59 5418.74   277.58 5418.77   279.58 5418.75
   281.57 5418.74   283.57 5418.72   285.56  5418.7   287.56 5418.68   289.55 5418.66
   291.55 5418.64   293.54 5418.62   295.54 5418.62   297.53 5418.64   299.53 5418.64
   301.52 5418.64   303.52 5418.65   305.51 5418.68   307.51 5418.71    309.5 5418.73
    311.5 5418.73   313.49  5418.7   315.49 5418.68   317.48 5418.67   319.48 5418.62
   321.47 5418.59   323.47 5418.59   325.46 5418.62   327.46 5418.66   329.45 5418.69
   331.45 5418.74   333.44 5418.83   333.94 5418.84   335.44 5418.89   337.43 5419.01
   339.43 5419.18   341.42 5419.25   343.42 5419.26   345.41 5419.22   347.41 5419.16
    349.4 5419.08    351.4     5419   353.39 5419.05   355.39  5419.1   357.38 5419.17
   359.38 5419.15   361.37 5419.15   363.37 5419.15   365.36 5419.18   367.36 5419.21
   369.35 5419.25   371.35 5419.34   373.34 5419.32   375.34 5419.36   377.33 5419.41
   379.33 5419.42   381.32 5419.47   383.32 5419.47   385.31 5419.51   387.31 5419.51
    389.3 5419.52    391.3 5419.57   393.29  5419.6   395.29 5419.64   397.28 5419.72

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13  193.88    .015  234.53     .13  333.94     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        191.19  237.66             82.41   82.68   82.74             .1       .3
Blocked Obstructions     num=       4
   Sta L   Sta R    Elev   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0   20.13  5431.6   38.85   88.025429.749  118.96  165.175430.108
  271.84  310.025428.731

CROSS SECTION


RIVER: TCC
REACH: 2                    RS: 4840

INPUT
Description: 4840
Station Elevation Data    num=     157
      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
        0 5418.04     1.98 5418.07     3.97 5418.06     5.95 5418.03     7.94     5418
     9.92 5417.97     11.9 5417.94    13.89 5417.91    15.87 5417.88    17.86 5417.85
    19.84 5417.83    21.82 5417.82    23.81 5417.79    25.79  5417.7   27.78 5417.79
    29.76 5417.91    31.74 5417.91    33.73 5417.84    35.71 5417.73     37.7 5417.68
    39.68 5417.67    41.66 5417.55    43.65 5417.48    45.63 5417.54    47.62 5417.48
     49.6  5417.4    51.58  5417.3    53.57 5417.26    55.55 5417.18    57.54 5417.18
    59.52 5417.16     61.5 5417.11    63.49 5417.11    65.47 5417.04    67.46 5416.92
    69.44 5416.76    71.42 5416.73    73.41  5416.6    75.39  5416.6    77.37 5416.63
    79.36 5416.66    81.34 5416.79    83.33     5417    85.31 5416.91    87.29 5416.88
    89.28 5416.86    91.26 5416.77    93.25 5416.72    95.23 5416.72    97.21 5416.71
     99.2 5416.68   101.18 5416.59   103.17   5416.5   105.15 5416.52   107.13 5416.63
   109.12  5416.4   111.1 5416.16   111.79 5416.09   113.09 5415.96   114.35  5415.8
   115.07 5415.71   117.05 5415.57   119.04 5415.42   121.02 5415.42   123.01 5415.43
   124.99 5415.54   126.97 5415.53   128.96  5415.5   130.94 5415.44   132.79 5415.45
   132.93 5415.45   134.91 5415.41   136.89 5415.38   138.88 5415.32   140.86 5415.35
   142.85 5415.28   144.83 5415.18   146.81 5415.05    148.8 5414.92   150.78 5415.09
   152.77 5415.22   154.75 5415.37   155.26  5415.4   156.73 5415.48   158.72 5415.55
    160.7 5415.64   162.69 5415.72   164.67 5415.78   166.65 5415.83   168.64 5415.91
   170.62 5415.98   172.61 5416.06   174.59 5416.15   176.57 5416.25   178.56 5416.27
   180.54 5416.25   182.53 5416.23   184.51 5416.21   186.49 5416.22   188.48 5416.26
   190.46 5416.33   192.45 5416.39   194.43 5416.45   196.42  5416.5   198.41 5416.56
    200.4  5416.6   202.38 5416.54   204.37 5416.48   206.36 5416.42   208.35 5416.45
   210.34 5416.49   212.32 5416.53   214.31 5416.49    216.3 5416.45   218.29 5416.37
   220.27 5416.28   222.26 5416.46   224.25 5416.47   226.24 5416.65   228.23 5416.96
   230.21 5417.47    232.2 5417.76   234.19 5417.98   236.18 5417.96   238.17 5417.73
   240.15 5417.58   242.14 5417.18   244.13 5416.89   245.87 5416.81   246.12  5416.8
    248.1 5416.77   250.09 5416.76   252.08 5416.74   254.07 5416.77   256.06 5416.81
   258.04 5416.91   260.03 5417.04   262.02 5417.14   264.01 5417.15   265.99 5417.15
   267.98 5417.22   268.33 5417.24   269.97 5417.31   271.96  5417.4   273.95 5417.47
   275.93 5417.51   277.92 5417.55   279.91 5417.73    281.9 5417.94   283.88 5418.23
   285.87 5418.32   287.86 5418.39   289.85  5418.6   291.84 5418.56   293.82  5418.6
   295.81 5418.65    297.8 5418.65

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13  114.35    .015  155.26     .13  245.87    .015  268.33     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        111.79  170.62            142.24  139.33  137.03             .1       .3
Blocked Obstructions     num=       4
   Sta L   Sta R    Elev   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0   25.525427.695    84.5  106.235426.576  177.29  218.65 5426.35
  290.74   297.85428.651

CROSS SECTION


RIVER: TCC
REACH: 2                    RS: 4700

INPUT
Description: 4700
Station Elevation Data    num=     163
      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
        0 5414.85     1.99 5414.87     3.97 5414.97     5.96 5414.99     7.94 5415.01
     9.93 5415.02    11.91 5415.03    13.9 5415.02    15.88 5415.03    17.87 5415.16
    19.86 5415.31    21.84 5415.42    23.83 5415.56    25.81 5415.54     27.8 5415.37
    29.78 5415.18    31.77 5415.04    33.75 5414.79    35.74 5414.55    37.72 5414.45
```

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   39.71 5414.39    41.7 5414.26   43.68  5414.1   45.67 5413.94   47.65  5413.9
   49.64 5413.78   51.62 5413.68   53.61 5413.29   55.59 5413.05   57.58 5412.89
    58.4 5412.82   59.57 5412.71   61.55 5412.58   63.54 5412.49   65.52 5412.41
   67.51 5412.41   69.21 5412.47   69.49 5412.48   71.48 5412.51   73.46 5412.49
   75.45 5412.48   77.44 5412.46   79.39 5412.46   79.42 5412.46   81.41  5412.4
   83.39 5412.41   85.38 5412.41   87.36  5412.4   89.35  5412.4   91.33 5412.38
   93.32 5412.37   95.31  5412.3   97.29 5412.51   99.28 5412.68  101.26 5412.77
  102.16 5412.83  103.25 5412.91  105.23 5413.02  107.22 5412.97   109.2 5412.92
  111.19 5412.89  113.17 5412.86  115.16 5412.85  117.15 5412.82  119.13 5412.79
  121.12 5412.75   123.1 5412.84  125.09 5412.82  127.07 5412.81  129.06 5413.01
  131.04 5413.16  133.03 5413.15  135.02 5413.04     137 5412.96  138.99 5412.91
  140.97 5412.88  142.96 5412.87  144.94 5412.86  146.93 5412.95  148.91 5413.22
   150.9 5413.58  152.89 5413.62  154.87  5413.5  156.86 5413.44  158.84 5413.42
  160.83  5413.4  162.81 5413.17   164.8 5413.04  166.78 5413.09  168.77 5413.15
  170.75 5413.09  172.74 5413.13  174.73 5413.13  176.71 5413.05   178.7 5412.88
  180.68 5412.77  182.67  5412.7  184.65 5412.66  186.64 5412.61  188.62  5412.6
  190.61 5412.52   192.6 5412.43  194.58 5412.42  196.57  5412.4  198.55  5412.4
  200.54  5412.4  202.52 5412.43   204.5 5412.51  206.48 5412.51  208.46 5412.53
  210.44 5412.44  212.42 5412.43  214.41 5412.51  216.39 5412.59  218.37 5412.67
  220.35 5412.75  222.33 5412.83  224.31 5412.91  226.29 5412.92  228.27 5412.68
  230.26 5412.55  232.24 5412.46  234.22 5412.37   236.2 5412.35  238.18 5412.22
  240.16 5412.13  242.14 5411.99  244.12 5411.85   246.1 5411.74  248.09 5411.65
  250.07 5411.56  252.05 5411.43  254.03 5411.34  256.01 5411.32  257.99 5411.36
  259.97 5411.56  261.95 5411.73  263.93 5411.82  265.92 5412.06   267.9 5412.39
  269.88 5412.55  271.86 5412.71  273.84    5413  275.82 5413.13   277.8 5413.17
  279.78 5413.67  281.77 5415.93  283.75 5416.31  285.73 5416.37  287.71 5416.52
  289.69 5416.74  291.67 5416.91  293.65 5417.02  295.63 5417.09  297.61 5417.14
   299.6 5417.23  301.58 5417.26  303.56 5417.28  305.54 5417.25  307.52 5417.18
   309.5  5417.1  311.48 5417.03  313.46 5416.98

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13    58.4    .015  102.16     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          79.39  105.23            67.82   70.43   72.48             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
  132.83  156.735423.442       F
Blocked Obstructions     num=       3
   Sta L   Sta R    Elev   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0    26.95425.442  192.42  227.785422.743  306.18  313.465426.977

CROSS SECTION


RIVER: TCC
REACH: 2                  RS: 4630

INPUT
Description: 4630
Station Elevation Data    num=     178
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5416.27    1.99 5416.25    3.98 5416.24    5.97 5416.21    7.96  5416.2
    9.95 5416.16   11.94 5416.12   13.93  5416.1   15.92 5416.06   17.91 5416.06
   19.89 5416.04   21.88 5415.99   23.87 5415.94   25.86 5415.93   27.85 5415.93
   29.84 5415.92   31.83 5415.88   33.82 5415.81   35.81 5415.79    37.8 5415.76
   39.79 5415.72   41.78 5415.69   43.77  5415.7   45.76 5415.64   47.75 5415.59
   49.74 5415.56   51.73  5415.5   53.72 5415.47   55.71 5415.46   57.69 5415.46
   59.68 5415.43   61.67 5415.42   63.66 5415.38   65.65 5415.35   67.64 5415.32
   69.63 5415.29   71.62 5415.24   73.61  5415.2    75.6 5415.15   77.59 5415.12
   79.58  5415.1   81.57 5415.08   83.56 5415.05   85.55 5415.01   87.54    5415
   89.53    5415   91.52 5414.99    93.5 5414.96   95.49 5414.89   97.48 5414.84
   99.47 5414.82  101.46 5414.81  103.45 5414.78  105.44 5414.77  107.43 5414.75
  109.42 5414.73  111.41 5414.74   113.4 5414.72  115.39  5414.7  117.38 5414.68
  119.37 5414.65  121.36 5414.63  123.35 5414.64  125.34 5414.62  127.33 5414.59
  129.32 5414.58   131.3 5414.53  133.29 5414.48  135.28 5414.46  137.27 5414.47
  139.26 5414.44  141.25  5414.4  143.24 5414.37  145.23 5414.37  147.22 5414.39
  149.21 5414.38   151.2 5414.33  153.19 5414.27  155.18 5414.21  157.17 5414.19
  159.16 5414.17  161.15 5414.13  163.14 5414.09  165.13 5414.04  167.12 5414.01
   169.1 5413.97  171.09 5413.95  173.08 5413.92  175.07 5413.91  177.06 5413.86
  179.05  5413.8  181.04 5413.77  183.03 5413.69  185.02 5413.64  187.01 5413.62
     189  5413.6  190.99 5413.55  192.98 5413.49  194.97 5413.46  196.96 5413.39
  198.95 5413.39  200.94 5413.34  202.93 5413.32  204.92 5413.28   206.9 5413.25
  208.89 5413.18  210.88 5413.14  212.87  5413.1  214.86 5413.07  216.85 5413.06
  218.84 5413.02  220.83 5413.01  222.82 5412.97  224.81 5412.89   226.8 5412.87
  228.79 5412.88  230.78 5412.86  232.77  5412.8  234.76 5412.78  236.75 5412.76
  238.74 5412.74  240.73 5412.69  242.72 5412.64   244.7 5412.63  246.69 5412.57
  248.68 5412.56  250.67 5412.56  252.66 5412.52  254.65 5412.49  256.64  5412.4
  258.63  5412.4  260.62 5412.41  262.61 5412.34   264.6 5412.26  266.59 5412.24
  268.58 5412.14  270.57 5412.14  272.56 5412.11  274.55    5412  276.54 5411.96
  278.53    5412  280.51 5411.95   282.5 5411.95  284.49 5411.91  286.48 5411.87
  288.47 5411.86  290.46 5411.87  292.45 5411.83  294.44 5411.74  296.43  5411.7
  298.42 5411.61  300.41 5411.52   302.4 5411.44  304.39 5411.31  306.38 5411.24
  308.37  5411.2  310.36 5411.16  312.35 5411.08  314.34 5411.08  315.92 5411.03
  316.33 5411.02  318.31    5411   320.3 5410.96  322.29 5410.96  324.28 5410.94
  326.05  5410.9  326.27  5410.9  328.26 5410.87  330.25 5410.74  332.24 5410.63
  334.23 5410.53  336.22 5410.58  338.21 5410.65   340.2 5410.84  342.19 5410.92
  344.18 5411.01  346.17 5410.99  348.16 5411.13

Manning's n Values        num=       1
     Sta   n Val
       0    .015

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         296.43  348.16            68.94    68.8   68.66             .1       .3

CROSS SECTION


RIVER: TCC
REACH: 2                  RS: 4561

INPUT
Description: 4561
Station Elevation Data    num=      79
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5411.34    1.99 5411.35    3.98 5411.35    5.97 5411.35    7.97 5411.38
    9.96 5411.38   11.95 5411.38   13.94  5411.4   15.93 5411.42   17.93 5411.29
   19.92  5411.1   21.91 5411.24    23.9 5411.37   25.89 5411.47   27.88  5411.5
   29.87 5411.35   31.87 5411.27   33.86 5410.97   35.85  5410.6   37.84 5410.54
   38.74 5410.38   39.83 5410.19   41.82 5409.96   43.82 5409.92   45.81  5409.9
    47.8 5409.87   49.79 5409.77   51.78 5409.78   53.78 5409.76   55.77 5409.72
   57.76 5409.68   59.75 5409.68   61.74 5409.63   63.73 5409.58   65.72 5409.57
   67.72 5409.52   69.01  5409.5   69.71 5409.49    71.7 5409.43   73.69 5409.38
   75.68  5409.2   77.68 5409.21   79.02 5409.34   79.67  5409.4   81.66 5409.62
   83.48 5409.75   83.65 5409.76   85.64 5409.87   87.63    5410   89.62 5410.12
   91.62 5410.25   93.61 5410.34    95.6 5410.49   97.59 5410.61   99.58 5410.72
  101.57 5410.84  103.57 5410.97  105.56 5411.09  107.55 5411.16  109.54 5411.17
  111.53 5411.14  113.53 5411.09  115.52 5411.04  117.51 5411.07   119.5 5411.09
  121.49 5411.16  123.48 5411.27  125.47 5411.35  127.47 5411.38  129.46 5411.37
  131.45 5411.38  133.44 5411.39  135.43 5411.37  137.43 5411.34  139.42 5411.31
  141.41 5411.32   143.4 5411.38  145.39 5411.44  147.38 5411.44

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   38.74    .015   83.48     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          37.84   93.61            74.97    75.2   75.43             .1       .3
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Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0   21.14 5421.17  106.92  147.385421.444

CROSS SECTION


RIVER: TCC
REACH: 2                  RS: 4486

INPUT
Description: 4486
Station Elevation Data    num=      64
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5410.74    1.98 5410.67    3.97 5410.61    5.95 5410.55    7.94 5410.49
    9.92 5410.42   11.91 5410.35   13.89 5410.21   15.88 5410.25   17.86 5410.11
   19.84  5410.2   21.83 5410.06   23.81 5409.72    25.8 5409.61   27.78 5408.97
   29.77 5408.88   30.97 5408.81   31.75 5408.76   33.74 5408.32   35.72  5408.3
   37.71 5408.23   39.69 5408.23   41.67 5408.18   43.66 5408.19   45.64 5408.18
   47.63 5408.13   49.61 5408.13    51.6  5408.1   53.58 5408.08   55.57 5407.96
   57.55 5407.99   59.53 5407.96   61.52 5407.91   61.71 5407.91    63.5 5407.87
   65.49 5407.87   67.47 5407.77   69.46  5407.6   71.44 5407.74   71.71 5407.76
   73.43 5407.95   75.41 5408.09   75.69 5408.11   77.39 5408.19   79.38 5408.26
   81.36 5408.29   83.35 5408.37   85.33 5408.45   87.32 5408.52    89.3 5408.56
   91.29 5408.63   93.27 5408.68   95.25 5408.76   97.24 5408.78   99.22 5408.82
  101.21 5408.87  103.19 5408.91  105.18    5409  107.16 5409.03  109.15 5409.03
  111.13 5409.05  113.12 5409.05   115.1 5409.01  117.08 5409.01

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   30.97    .015   75.69     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         31.75   95.25           111.02  111.06  111.09             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0   13.485420.233  107.47  117.085419.007

CROSS SECTION


RIVER: TCC
REACH: 2                  RS: 4375

INPUT
Description: 4375
Station Elevation Data    num=      49
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5408.04      2    5408       4 5407.95       6 5407.91    7.99 5407.88
    9.99 5407.84   11.99 5407.84   13.99 5407.93   15.99 5408.01   17.99 5407.98
   19.99 5407.91   21.98 5407.83   23.98 5407.72   25.98  5407.6   27.98 5407.48
   29.98 5407.33   31.98 5407.16   33.97 5406.97   35.97 5406.71   37.97 5406.55
   38.23 5406.52   39.97 5406.31   41.97 5406.03   43.97  5406.1   45.97 5406.14
   47.96 5406.19   49.96 5406.21   51.96 5406.21   53.96 5406.22   55.96 5406.24
   57.96 5406.23   59.96 5406.19   61.95 5406.14   63.95 5406.06   65.95    5406
   67.95 5405.97   69.71 5405.95   69.95 5405.95   71.95 5405.91   73.95 5405.82
   75.94 5405.74   77.94 5405.89   79.71 5406.22   79.94 5406.27   81.94 5406.41
   83.01 5406.42   83.94 5406.42   85.94 5406.17   87.93 5406.01

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   38.23    .015   83.01     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         33.97   83.94           167.05  165.45  163.84             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
       0   12.345417.849

CROSS SECTION


RIVER: TCC
REACH: 2                  RS: 4209

INPUT
Description: 4209
Station Elevation Data    num=      51
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5403.79      2  5403.8    3.99 5403.86    5.99  5403.9    7.99 5403.86
    9.98  5403.9   11.98 5403.84   13.98 5403.69   15.97 5403.54   17.97 5403.52
   19.97 5403.55   21.96 5403.67   23.96 5403.78   25.96 5404.15   27.95 5404.38
   29.95 5404.54   31.95 5404.53   32.03 5404.53   33.94  5404.5   35.94 5404.16
   37.94  5404.1   39.93 5404.16   41.93 5404.21   43.93 5404.28   45.92 5404.34
   47.92  5404.4   49.92 5404.41   51.91  5404.4   53.91 5404.48   55.91 5404.48
    57.9 5404.42    59.9 5404.36    61.9  5404.3   63.89 5404.26   65.89 5404.19
   67.89 5404.15   69.04 5404.11   69.88 5404.07   71.88 5403.92   73.88 5404.08
   75.87 5404.43   77.63 5404.52   77.87 5404.53   79.19 5404.58   79.87 5404.61
   81.86 5404.68   83.86 5404.81   85.86 5405.02   87.85 5405.26   89.85 5405.48
   91.85 5405.65

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   32.03    .015   77.63     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         33.94   79.87           73.93   72.85   71.77             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
       0    7.735413.851

CROSS SECTION


RIVER: TCC
REACH: 2                  RS: 4137

INPUT
Description: 4137
Station Elevation Data    num=      33
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5403.75    1.77  5403.8    1.97 5403.81    3.94  5403.8     5.9 5403.55
    7.87 5403.44    9.84 5403.51   11.81 5403.55   13.77 5403.53   15.74 5403.49
   17.71 5403.49   19.68 5403.56   21.65 5403.52   23.61 5403.49   25.58 5403.48
   27.55 5403.45   29.52 5403.43   31.49 5403.43   33.45 5403.42   35.42 5403.43
   37.39 5403.41   39.36 5403.38   41.23 5403.35   41.32 5403.35   43.29 5403.35
   44.92 5403.43   45.26 5403.44   47.23 5403.82    49.2 5403.84   51.16 5403.84
   51.45 5403.84   53.13 5403.84    55.1 5403.84

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13    1.77    .015   44.92     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          3.94   47.23           162.03  160.28  158.5              .1       .3

CROSS SECTION


RIVER: TCC
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```
REACH: 2                  RS: 3976

INPUT
Description: 3976
Station Elevation Data    num=      46
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5396.26    1.96 5396.35    3.93 5396.36    4.81 5396.33    5.89  5396.3
    7.86 5396.17    9.82 5395.84   11.79 5395.93   13.75 5396.04   15.71 5396.12
   17.68  5396.2   19.64 5396.26   21.61 5396.36   23.57 5396.41   25.53 5396.42
    27.5 5396.41   29.46 5396.41   31.43 5396.38   33.39 5396.33   35.36 5396.29
   37.32 5396.22   38.71 5396.19   39.28 5396.17   41.25 5396.08   43.21 5395.99
   45.18 5396.18    46.8  5396.3   47.14 5396.33   48.73 5396.45   49.11 5396.48
   51.07  5396.6   53.03 5396.68      55 5396.73   56.96 5396.71   58.93 5396.72
   60.89 5396.76   62.85  5396.8   64.82 5396.84   66.78 5396.88   68.75  5396.9
   70.71 5396.91   72.68 5396.97   74.64 5397.05    76.6 5397.09   78.57  5397.1
   80.53 5397.08

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13    4.81    .015    46.8     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          3.93      55           113.99  114.54  115.08             .1       .3

CROSS SECTION


RIVER: TCC
REACH: 2                  RS: 3862

INPUT
Description: 3862
Station Elevation Data    num=      51
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5394.22    1.98 5394.26    3.96 5394.32    5.94 5394.38    7.92 5394.44
    9.89  5394.5   11.87 5394.55   13.85 5394.55   15.83 5394.46   17.81 5394.29
   19.79 5393.91   21.77 5393.63   23.75 5393.58   25.73 5393.62   27.71 5393.54
   29.68 5393.67   31.66  5393.8   33.64 5393.77   35.62 5393.65   36.89 5393.62
    37.6  5393.6   39.58 5393.55   41.56 5393.55   43.54  5393.2   45.52 5393.25
    47.5 5393.28   49.47 5393.32   51.45 5393.36   53.43 5393.37   55.41 5393.39
   57.39 5393.41   59.37 5393.33   61.35 5393.31   63.33 5393.31   65.31 5393.33
   67.28 5393.35   69.26 5393.33   71.09 5393.29   71.24 5393.28   73.22 5393.26
    75.2 5393.24   77.18 5393.12   79.16  5393.2   81.14 5393.48   81.59 5393.52
   83.12 5393.66    85.1 5393.94   87.07 5394.21   89.05 5394.13   91.03  5394.1
   93.01 5394.12

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   36.89    .015   81.59     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         33.64    85.1           181.54  185.19  188.85             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
       0   11.795404.544

CROSS SECTION


RIVER: TCC
REACH: 2                  RS: 3677

INPUT
Description: 3677
Station Elevation Data    num=      55
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5391.67    1.98 5391.67    3.96 5391.66    5.93 5391.61    7.91 5391.53
    9.89 5391.53   11.87 5391.54   13.84 5391.54   15.82 5391.52    17.8 5391.55
   19.78 5391.55   21.75 5391.43   23.73 5391.26   25.71 5391.14   27.69 5390.98
   29.66  5390.8   31.64 5390.61   33.62 5390.38    35.6 5390.16   37.57 5389.94
   39.55 5389.75   41.53 5389.47   43.51 5389.22   43.99  5389.2   45.48 5389.15
   47.46  5389.1   49.44  5388.7   51.42 5388.85   53.39 5388.94   55.37 5389.05
   57.35 5389.11   59.33 5389.08    61.3 5389.11   63.28 5389.13   65.26 5389.19
   67.24  5389.2   69.21 5389.14   71.19 5389.06   73.17 5389.01   75.15 5388.91
   77.12 5388.85   78.31 5388.81    79.1 5388.78   81.08 5388.75   83.06  5388.7
   85.03 5389.14   87.01 5389.25   88.04 5389.33   88.32 5389.35   88.99  5389.4
   90.97 5389.69   92.94 5389.99   94.92 5389.88    96.9 5390.07   98.88 5390.12

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   43.99    .015   88.04     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         39.55   92.94           140.68  140.79   140.9             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
       0   20.725401.505

CROSS SECTION


RIVER: TCC
REACH: 2                  RS: 3536

INPUT
Description: 3536
Station Elevation Data    num=      73
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5388.53    1.99 5388.56    3.98 5388.55    5.97 5388.56    7.96  5388.6
    9.95 5388.68   11.93 5388.63   13.92 5388.58   15.91 5388.51    17.9 5388.43
   19.89  5388.4   21.88 5388.25   23.87 5388.14   25.86 5388.03   27.85 5387.86
   29.84 5387.73   31.83  5387.6   33.82 5387.46    35.8 5387.34   37.79 5387.18
   39.78 5387.09   41.77 5386.97   43.76 5386.83   45.75 5386.69   47.74 5386.59
    49.4 5386.47   49.73 5386.44   51.72 5386.37   53.71 5386.01    55.7 5385.96
   57.68 5386.06   59.67 5386.11   61.66 5386.13   63.65 5386.15   65.64 5386.12
   67.63 5386.13   69.62 5386.17   71.61 5386.17    73.6 5386.17   75.59 5386.12
   77.58 5386.09   79.56 5386.04   81.55 5385.95   83.01 5385.94   83.54 5385.93
   85.53  5385.9   87.52 5385.82   89.51 5385.79    91.5 5386.21   93.01 5386.24
   93.49 5386.24   95.48 5386.35   97.47 5386.68   99.46 5387.03  101.44 5387.07
  103.43 5387.14  105.42  5387.3  107.41 5387.43   109.4 5387.72  111.39 5387.97
  113.38  5388.2  115.37 5388.13  117.36 5388.11  119.35 5387.74  121.34 5387.63
  123.32 5387.62  125.31  5387.6   127.3 5386.58  129.29 5387.55  131.28 5387.71
  133.27  5387.7  135.26 5387.69  137.25 5387.68

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13    49.4    .015   93.01     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         41.77   99.46            85.06   78.27    71.4             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0    8.555398.635  126.06  137.255397.682

CROSS SECTION


RIVER: TCC
REACH: 2                  RS: 3458
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```
INPUT
Description: 3458
Station Elevation Data    num=      84
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5387.34    1.95  5387.4     3.9  5387.5    5.85 5387.56     7.8 5387.51
    9.75 5387.42    11.7 5387.28   13.66 5387.02   15.61 5386.93   17.56 5386.73
   19.51 5386.59   21.46 5386.46   23.41 5386.27   25.36 5386.03   27.31 5385.83
   29.26 5385.68   31.21 5385.48   33.16 5385.35   35.11 5385.14   37.06 5385.04
   38.64 5384.83   39.01 5384.78   40.97 5384.66   42.92 5384.33   44.87 5384.24
   46.82 5384.25   48.77 5384.25   50.72 5384.24   52.67 5384.25   54.62 5384.26
   56.57 5384.25   58.52 5384.25   60.47 5384.27   62.42 5384.26   64.37 5384.23
   66.35 5384.29   68.33 5384.33   70.31 5384.35   72.29 5384.39   74.27  5384.4
   76.25  5384.4   78.23 5384.39   80.21 5384.43   82.19 5384.43   84.18 5384.39
   86.15 5384.34   86.82 5384.33   88.14  5384.3   90.12 5384.27    92.1 5384.21
   93.48 5384.15   94.08 5384.13   96.06 5384.27   97.71 5384.37   98.04 5384.38
  100.02 5384.52     102 5384.81  103.98 5385.03  105.96 5385.31  107.94 5385.48
  109.92 5385.57   111.9 5385.76  113.88 5386.08  115.86 5386.88  117.84  5387.4
  119.82 5387.42   121.8 5387.28  123.78 5387.16  125.76 5386.97  127.74  5386.8
  129.72 5386.72   131.7 5386.62  133.68 5386.69  135.66 5386.88  137.64 5386.96
  139.62 5386.96   141.6 5386.94  143.58 5386.96  145.56 5386.99  147.54 5386.99
  149.52 5386.98   151.5 5386.96  153.48 5386.95  155.46 5386.94

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   38.64    .015   93.48     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         33.16  105.96            63.82   58.47   52.63              .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0   15.065396.962  130.92  155.465396.937

CROSS SECTION


RIVER: TCC
REACH: 2                  RS: 3399

INPUT
Description: 3399
Station Elevation Data    num=      59
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5384.71       2 5384.75       4 5384.93       6 5384.84       8 5384.68
    9.99 5384.67   11.99 5384.58   13.99 5384.45   15.99 5384.34   17.99 5384.27
   19.99 5384.17   21.99    5384   23.99  5383.9   25.99 5383.87   27.98 5383.76
    29.8  5383.6   29.98 5383.58   31.98 5383.44   33.98 5383.16   35.98 5383.26
   37.98 5383.32   39.98 5383.36   41.98 5383.41   43.98 5383.44   45.97 5383.45
   47.97 5383.47   49.97 5383.45   51.97 5383.43   53.97 5383.43   55.97 5383.38
   57.97 5383.39   59.97 5383.35   60.72 5383.34   61.97 5383.32   63.96 5383.29
   65.96 5383.21   67.96 5383.15   69.96 5383.29   70.72 5383.37   71.91 5383.48
   71.96 5383.49   73.96 5383.66   75.96 5384.08   77.96 5384.45   79.96 5384.67
   81.95 5385.08   83.95  5385.5   85.95  5385.9   87.95 5386.14   89.95  5386.3
   91.95 5386.37   93.95 5386.43   95.95 5386.53   97.95 5386.61   99.94 5386.62
  101.94 5386.66  103.94 5386.66  105.94  5386.7  107.94 5386.54

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13    29.8    .015   71.91     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         17.99   77.96            85.36    88.7   92.04              .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0    4.585394.913  103.53  107.945396.545

CROSS SECTION


RIVER: TCC
REACH: 2                  RS: 3310

INPUT
Description: 3310
Station Elevation Data    num=      78
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5384.72    1.99 5384.73    3.97 5384.74    5.96 5384.76    7.95 5384.75
    9.93 5384.57   11.92 5384.56    13.9 5384.61   15.89 5384.67   17.88 5384.72
   19.86 5384.69   21.85 5384.53   23.84 5384.44   25.82 5384.13   27.81 5383.69
    29.8 5383.51   31.78 5383.46   33.77 5383.32   35.75 5383.14   37.74 5382.94
   39.73 5382.82   40.88 5382.67   41.71 5382.56    43.7 5382.33   45.69 5382.48
   47.67 5382.53   49.66 5382.52   51.65 5382.52   53.63 5382.56   55.62 5382.61
    57.6 5382.62   59.59 5382.61   61.58  5382.6   63.56 5382.59   65.55 5382.53
   67.54 5382.52   69.52 5382.49   71.36 5382.46   71.51 5382.46    73.5 5382.42
   75.48 5382.39   77.47 5382.35   79.45 5382.25   81.44 5382.32   81.77 5382.36
   82.06 5382.39   83.43 5382.56   85.41 5382.82    87.4 5383.05   89.39 5383.25
   91.37 5383.45   93.36 5383.68   95.35 5383.86   97.33    5384   99.32 5384.17
   101.3 5384.36  103.29 5384.53  105.28  5384.7  107.26 5384.85  109.25 5384.98
  111.24  5385.1  113.22 5385.21  115.21 5385.33   117.2 5385.47  119.18  5385.6
  121.17 5385.69  123.15 5385.75  125.14 5385.86  127.13 5385.95  129.11 5386.05
   131.1 5386.19  133.09 5386.22  135.07 5386.23  137.06 5386.23  139.05 5386.24
  141.03 5386.27  143.02 5386.31     145 5386.33

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   40.88    .015   82.06     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         31.78   93.36           116.05  124.62  132.94              .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0   11.135394.558  130.28     1455396.327

CROSS SECTION


RIVER: TCC
REACH: 2                  RS: 3186

INPUT
Description: 3186
Station Elevation Data    num=      62
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5383.91    1.97  5383.9    3.94 5383.86    5.92  5383.8    7.89 5383.66
    9.86 5383.48   11.83 5383.32    13.8 5383.16   15.77    5383   17.75 5382.98
   19.72 5382.78   21.69 5382.64   23.66 5382.52   25.63 5382.05   27.61 5381.82
   29.58  5381.6   30.64  5381.5   31.55 5381.41   33.52 5381.18   35.49 5381.32
   37.46 5381.34   39.44 5381.41   41.41 5381.48   43.38 5381.49   45.35 5381.54
   47.32 5381.54    49.3 5381.56   51.27 5381.58   53.24 5381.53   55.21 5381.52
   57.18 5381.52   59.15 5381.47   61.13 5381.46   62.03 5381.44    63.1 5381.41
   65.07 5381.35   67.04 5381.27   69.01 5381.26   70.98 5381.42   72.11 5381.57
   72.96 5381.69   74.07 5381.82   74.93 5381.91    76.9 5382.14   78.87 5382.39
   80.84 5382.62   82.82 5382.82   84.79 5382.94   86.76 5383.13   88.73 5383.36
    90.7 5383.61   92.67 5383.74   94.65 5383.71   96.62 5383.72   98.59 5383.73
  100.56 5383.89  102.53 5383.98  104.51 5384.03  106.48 5384.02  108.45 5383.98
  110.42 5383.94  112.39 5383.91

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   30.64    .015   74.07     .13
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Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         23.66   80.84              167  167.56  168.11             .1       .3
Blocked Obstructions      num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0    6.245393.778  100.05  112.395393.909

CROSS SECTION


RIVER: TCC
REACH: 2                   RS: 3018

INPUT
Description: 3018
Station Elevation Data    num=      69
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5380.14       2 5380.15    3.99 5380.18    5.99 5380.25    7.99 5380.25
    9.98 5380.28   11.98 5380.31   13.98 5380.38   15.97 5380.51   17.97 5380.47
   19.97 5380.54   21.96  5380.6   23.96 5380.62   25.96 5380.62   27.95 5380.59
   29.95 5380.56   31.95 5380.58   33.94 5380.57   35.94 5380.43   37.94 5380.27
   39.93 5380.19   41.93 5380.01   43.46 5379.96   43.93 5379.95   45.92 5379.71
   47.92 5379.57   49.92 5379.66   51.91  5379.7   53.91 5379.75   55.91 5379.79
    57.9 5379.78    59.9 5379.83    61.9 5379.83   63.89 5379.86   65.89 5379.83
   67.89 5379.82   69.88 5379.82   71.88 5379.79   73.72 5379.74   73.88 5379.73
   75.87 5379.67   77.87 5379.61   79.87  5379.5   81.87 5379.38   83.72 5379.58
   83.86 5379.59   85.52 5379.76   85.86 5379.79   87.86 5379.95   89.85 5380.11
   91.85 5380.23   93.85 5380.36   95.84 5380.49   97.84 5380.61   99.84 5380.74
  101.83 5380.84  103.83 5380.87  105.83 5380.92  107.82 5380.95  109.82 5380.95
  111.82 5380.97  113.81    5381  115.81 5381.08  117.81 5381.16   119.8 5381.24
   121.8 5381.33   123.8 5381.41  125.79 5381.39  127.79 5381.33

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   43.46    .015   85.52     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         33.94   97.84             103.3  103.38  103.46             .1       .3
Blocked Obstructions      num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0   17.225390.488   114.3  127.795391.327

CROSS SECTION


RIVER: TCC
REACH: 2                   RS: 2915

INPUT
Description: 2915
Station Elevation Data    num=      68
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5379.54    1.98 5379.42    3.96 5379.31    5.94 5379.22    7.91 5379.22
    9.89 5379.14   11.87  5379.1   13.85 5379.07   15.83 5379.03   17.81    5379
   19.78 5378.94   21.76  5378.9   23.74  5378.8   25.72 5378.71    27.7 5378.56
   29.68 5378.52   31.65 5378.38   33.63 5378.24   33.67 5378.24   35.61 5378.09
   37.59 5377.77   39.57 5378.03   41.55 5378.06   43.52 5378.09    45.5 5378.13
   47.48 5378.15   49.46 5378.14   51.44 5378.15   53.42 5378.16   55.39 5378.12
   57.37 5378.11   59.35 5378.12   61.33 5378.08   63.31 5378.05   64.93 5378.02
   65.29 5378.02   67.26 5377.98   69.24 5377.89   71.22 5377.74    73.2 5377.76
   74.93    5378   75.18 5378.03   75.51 5378.05   77.16 5378.13   79.13 5378.52
   81.11 5378.91   83.09  5379.1   85.07 5379.17   87.05  5379.2   89.03 5379.19
      91 5379.27   92.98 5379.27   94.96 5379.22   96.94 5379.05   98.92 5378.93
   100.9 5379.02  102.87 5379.08  104.85  5379.1  106.83 5379.13  108.81 5379.16
  110.79 5379.19  112.77 5379.21  114.74 5379.25  116.72 5379.29   118.7 5379.33
  120.68 5379.37  122.66 5379.41  124.64 5379.45

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   33.67    .015   75.51     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         23.74   81.11             60.02   53.21   46.38             .1       .3
Blocked Obstructions      num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0    9.165389.157   101.2  124.645389.447

CROSS SECTION


RIVER: TCC
REACH: 2                   RS: 2862

INPUT
Description: 2862
Station Elevation Data    num=      54
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5377.63    1.98  5377.6    3.96 5377.57    5.94 5377.55    7.92 5377.52
     9.9 5377.45   11.88 5377.41   13.86 5377.35   15.84 5377.24   17.82 5377.14
    19.8 5377.04   21.78 5376.89   23.76 5376.78   25.75 5376.73   27.73 5376.71
   29.34 5376.71   29.71 5376.71   31.69 5376.72   33.67 5376.67   35.65 5376.76
   36.65 5376.83   37.63  5376.9   39.61 5377.13   40.84 5377.38   41.59 5377.54
   43.57 5377.93   45.55 5378.11   47.53 5378.27   49.51 5378.38   51.49 5378.43
   53.47 5378.47   55.45 5378.49   57.43  5378.5   59.41 5378.52   61.39 5378.54
   63.37  5378.5   65.35 5378.52   67.33 5378.56   69.31  5378.6   71.29 5378.61
   73.27 5378.65   75.25  5378.7   77.24 5378.72   79.22 5378.73    81.2 5378.74
   83.18 5378.76   85.16 5378.74   87.14 5378.71   89.12 5378.75    91.1 5378.84
   93.08 5378.92   95.06    5379   97.04 5379.06   99.02 5379.11

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0    .015   36.65     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          3.96   43.57             68.54   62.79   56.58             .1       .3
Blocked Obstructions      num=       1
   Sta L   Sta R    Elev
   86.17   99.025389.114

CROSS SECTION


RIVER: TCC
REACH: 2                   RS: 2799

INPUT
Description: 2799
Station Elevation Data    num=      41
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5377.17    1.97  5377.1    3.95 5377.04    5.92 5376.97    7.89  5376.9
    9.79 5376.81    9.87  5376.8   11.84 5376.68   13.81 5376.49   15.79 5376.33
   17.76 5376.22   19.73 5376.56   19.79 5376.57   20.75 5376.66   21.71 5376.75
   23.68    5377   25.66 5377.32   27.63  5377.6    29.6 5377.85   31.58 5378.08
   33.55 5378.27   35.52 5378.35    37.5 5378.52   39.47 5378.57   41.44 5378.54
   43.42 5378.58   45.39  5378.6   47.36 5378.65   49.34 5378.66   51.31 5378.73
   53.28 5378.77   55.26 5378.83   57.23 5378.81    59.2 5378.85   61.18 5378.88
   63.15 5378.91   65.12 5378.95    67.1 5379.04   69.07 5379.13   71.05 5379.27
   73.02 5379.39

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
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```
       0    .015   20.75     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          1.97   33.55             109.14  109.36  109.57             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
   68.47   73.025389.389

CROSS SECTION


RIVER: TCC
REACH: 2                  RS: 2689

INPUT
Description: 2689
Station Elevation Data    num=      40
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5376.26    1.96  5376.3    3.92 5376.31    5.88 5376.21    7.84  5376.2
     9.8 5376.08   11.75    5376   11.99 5375.98   13.71 5375.85   15.67 5375.67
   17.63 5375.48   19.59 5375.45   21.55 5375.76      22  5375.8   23.27 5375.91
   23.51 5375.93   25.47 5376.18   27.43 5376.38   29.39 5376.62   31.35 5376.86
    33.3 5377.05   35.26 5377.21   37.22 5377.35   39.18  5377.5   41.14 5377.65
    43.1 5377.78   45.06 5377.88   47.02 5377.92   48.98 5377.94   50.94    5378
   52.89 5378.14   54.85 5378.26   56.81 5378.35   58.77 5378.43   60.73 5378.44
   62.69 5378.47   64.65  5378.5   66.61 5378.52   68.57 5378.55   70.53 5378.58

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0    .015   23.27     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          1.96   31.35            126.92   126.7  126.49             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
      51   70.53 5388.58

CROSS SECTION


RIVER: TCC
REACH: 2                  RS: 2563

INPUT
Description: 2563
Station Elevation Data    num=      35
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5375.12    1.97 5375.11    3.94 5375.07    5.91 5375.05    7.88 5374.99
    9.85 5374.89   11.82 5374.79   12.81 5374.73   13.79 5374.68   15.76 5374.55
   17.73 5374.38    19.7 5374.48   21.67 5374.75   22.82 5374.93   23.64 5375.06
   23.89  5375.1   25.61 5375.34   27.58 5375.52   29.54  5375.7   31.51 5375.88
   33.48 5376.07   35.45 5376.32   37.42 5376.58   39.39  5376.8   41.36 5377.01
   43.33 5377.25    45.3 5377.47   47.27 5377.66   49.24 5377.84   51.21 5378.02
   53.18 5378.14   55.15 5378.16   57.12 5378.18   59.09 5378.19   61.06 5378.17

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0    .015   23.89     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          1.97   31.51             72.4    72.4    72.4             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
   54.34   61.065388.165

CROSS SECTION


RIVER: TCC
REACH: 2                  RS: 2490

INPUT
Description: 2490
Station Elevation Data    num=      36
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5374.38    1.95 5374.36     3.9 5374.32    5.84 5374.28    7.79 5374.22
    9.74 5374.13   11.68 5374.07   11.95 5374.05   13.63 5373.95   15.58  5373.8
   17.53 5373.67   19.47 5373.52   21.42  5373.7   21.96 5373.79   23.37 5374.01
   24.52 5374.17   25.32 5374.28   27.26 5374.57   29.21  5374.9   31.16 5375.22
   33.11  5375.5   35.05 5375.79      37 5376.15   38.95 5376.28    40.9 5376.48
   42.84 5376.81   44.79 5377.02   46.74 5377.21   48.69  5377.4   50.63 5377.54
   52.58  5377.7   54.53 5377.84   56.48 5377.95   58.42 5378.05   60.37 5378.15
   62.32 5378.25

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0    .015   24.52     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           3.9   33.11             56.1   56.07   56.03             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
   53.44   62.325388.246

CROSS SECTION


RIVER: TCC
REACH: 2                  RS: 2434

INPUT
Description: 2434
Station Elevation Data    num=      33
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5373.99    1.99 5373.98    3.98 5373.93    5.98 5373.89    7.97 5373.81
    9.96 5373.74   10.61 5373.72   11.96 5373.67   13.95 5373.54   15.94 5373.39
   17.93 5373.36   19.93 5373.57   20.61 5373.65   21.92 5373.81   23.91 5374.12
   24.33 5374.24    25.9 5374.67    27.9 5375.13   29.89  5375.5   31.88 5375.92
   33.87  5376.3   35.87 5376.53   37.86 5376.63   39.85 5376.73   41.84 5376.79
   43.84 5376.79   45.83 5376.83   47.82 5376.96   49.81 5377.09   51.81 5377.19
    53.8 5377.29   55.79 5377.31   57.78 5377.39

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0    .015   24.33     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          1.99    27.9            139.8  140.52  141.25             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
    52.4   57.785387.392

CROSS SECTION


RIVER: TCC
REACH: 2                  RS: 2294

INPUT
Description: 2294
```

```
Station Elevation Data    num=      67
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5373.45    1.98 5373.47    3.96 5373.49    5.95 5373.49    7.93  5373.4
    9.91 5373.34   11.89 5373.31   13.87 5373.27   15.86 5373.37   17.84 5373.49
   19.82 5373.53    21.8 5373.47   23.79 5373.32   25.77 5373.18   27.75 5373.04
   29.73 5373.05   31.71 5372.95    33.7 5372.73   35.68 5372.46   36.42 5372.36
   37.66 5372.19   39.64 5371.96   41.62 5371.83   43.61 5371.79   45.59 5372.05
   47.57 5372.21   49.55 5372.36   51.53 5372.46   53.52 5372.56    55.5 5372.59
   57.48 5372.66   59.46 5372.67   61.45 5372.69   63.43 5372.69   65.41 5372.67
   67.39 5372.59   69.37 5372.54   71.36 5372.45   73.34 5372.34   73.53 5372.33
   75.32 5372.27    77.3 5372.05   79.28 5371.89   81.27 5371.75   83.25 5372.07
   83.54 5372.08   85.23 5372.17   86.87 5372.63   87.21 5372.73   89.19 5373.06
   91.18 5373.27   93.16 5373.36   95.14 5373.57   97.12 5373.82   99.11 5374.05
  101.09 5374.22  103.07 5374.41  105.05 5374.61  107.03 5374.84  109.02 5375.05
     111 5375.19  112.98 5375.37  114.96 5375.42  116.94 5375.43  118.93 5375.44
  120.91 5375.46  122.89 5375.48

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   36.42    .015   86.87     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        31.71    89.19             111.19  111.21  111.23             .1       .3
Blocked Obstructions      num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0    8.775383.346  114.56  122.895385.479

CROSS SECTION


RIVER: TCC
REACH: 2                  RS: 2183

INPUT
Description: 2183
Station Elevation Data    num=      93
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5372.19    1.97  5372.2    3.95 5372.22    5.92 5372.23    7.89 5372.19
    9.87 5372.13   11.84  5372.1   13.81  5372.1   15.79 5372.12   17.76 5372.13
   19.73 5372.12   21.71 5372.06   23.68 5371.98   25.65 5371.99   27.63 5371.95
    29.6  5371.9   31.57 5371.82   33.55 5371.84   35.52  5371.8   37.49  5371.8
   39.47 5371.75   41.44 5371.66   43.41 5371.88   45.39 5371.86   47.36 5371.77
   49.33 5371.66   51.31 5371.66   53.28 5371.65   55.25 5371.63   57.23 5371.58
    59.2 5371.55   61.17 5371.53   63.15  5371.5   64.64 5371.48   65.12 5371.48
   67.09 5371.47   69.07 5371.44   71.04 5371.41   73.01 5371.29   74.99 5371.05
   76.96 5371.25   78.93 5371.42    80.9 5371.53   82.87 5371.63   84.84 5371.75
   86.81 5371.82   88.78 5371.88   90.75 5371.89   92.72 5371.94   94.69    5372
   96.66 5372.06   98.63 5372.06   100.6 5371.99  102.57 5371.94  104.54 5371.88
  106.51 5371.77  107.32 5371.72  108.48 5371.64  110.45  5371.5  112.42 5371.31
  114.39 5371.11  116.36 5371.39  117.37 5371.44  118.33  5371.5   120.3 5371.69
  120.43 5371.71  122.27 5372.03  124.24 5372.35  126.21 5372.76  128.18  5373.2
  130.15 5373.54  132.12 5373.73  134.09 5373.82  136.05 5373.97  138.02 5374.19
  139.99 5374.33  141.96 5374.39  143.93 5374.45   145.9 5374.51  147.87 5374.57
  149.84 5374.63  151.81 5374.68  153.78 5374.69  155.75 5374.64  157.72 5374.59
  159.69 5374.56  161.66 5374.56  163.63 5374.57   165.6 5374.54  167.57 5374.54
  169.54 5374.53  171.51 5374.54  173.48 5374.55

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   64.64    .015  120.43     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        45.39  124.24             99.08   98.84   98.59             .1       .3
Blocked Obstructions      num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0   22.765382.014  137.67  173.485384.551

CROSS SECTION


RIVER: TCC
REACH: 2                  RS: 2084

INPUT
Description: 2084
Station Elevation Data    num=      82
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5371.13    1.97 5371.11    3.94 5371.08    5.91 5371.09    7.88 5371.14
    9.85 5371.14   11.82 5371.15   13.78 5371.25   15.75 5371.35   17.72 5371.32
   19.69 5371.31   21.66 5371.27   23.63 5371.28    25.6  5371.3   27.57 5371.35
   29.54 5371.31   31.51 5371.17   33.48 5371.09   35.45 5371.15   37.42 5371.24
   38.67  5371.2   39.39 5371.18   41.35 5370.99   43.32 5370.84   45.29 5370.71
   47.26  5370.6   49.23  5370.8    51.2  5370.9   53.17 5371.07   55.14 5371.16
   57.11 5371.24   59.08 5371.26   61.05 5371.32   63.02 5371.34   64.99 5371.35
   66.96 5371.35   68.93 5371.32   70.89 5371.28   72.86 5371.26   74.83 5371.19
    76.8 5371.07   78.16 5370.99   78.77 5370.95   80.74 5370.81   82.71 5370.64
   84.68  5370.5   86.65 5370.41   88.17 5370.39   88.62 5370.39   90.59 5370.46
   91.63 5370.52   92.56 5370.57   94.53 5370.74    96.5 5370.95   98.46 5371.23
  100.42 5371.41  102.39 5371.51  104.35 5371.61  106.31 5371.73  108.28 5371.83
  110.24 5372.06   112.2 5372.42  114.17 5372.87  116.13 5372.97  118.09  5372.7
  120.06 5372.82  122.02 5372.93  123.98 5373.02  125.95 5373.03  127.91 5372.89
  129.87 5372.73  131.84 5372.69   133.8  5372.6  135.76 5372.51  137.73 5372.21
  139.69 5372.14  141.66 5372.05  143.62 5372.07  145.58 5372.01  147.55 5372.02
  149.51 5372.03  151.47 5372.06

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   38.67    .015   91.63     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        37.42  100.42             128.67  128.31  127.94             .1       .3
Blocked Obstructions      num=       1
   Sta L   Sta R    Elev
       0   12.765381.197

CROSS SECTION


RIVER: TCC
REACH: 2                  RS: 1955

INPUT
Description: 1955
Station Elevation Data    num=      46
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5370.39    1.97 5370.37    3.94 5370.28    5.92 5370.13    7.89 5369.89
    8.54 5369.86    9.86 5369.79   11.83 5369.64    13.8 5369.84   15.78 5369.94
   17.75  5370.1   19.72  5370.2   21.69 5370.25   23.66 5370.33   25.64 5370.36
   27.61 5370.41   29.58 5370.44   31.55 5370.43   33.52 5370.43   35.49 5370.34
   37.47 5370.28   39.44 5370.23   41.41 5370.09   43.38 5369.98   43.74 5369.96
   45.35 5369.88   47.33 5369.71    49.3 5369.53   51.27 5369.48   53.24 5369.62
   53.74  5369.7   55.21 5369.93   56.03  5370.2   57.19 5370.58   59.16 5371.61
   61.13 5372.27    63.1  5372.3   65.07 5372.25   67.05 5372.29   69.02 5372.37
   70.99 5372.35   72.96 5372.25   74.93 5372.23   76.91 5372.23   78.88 5372.22
   80.85  5372.2

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13    8.54    .015   56.03     .13
```

```
Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          3.94   57.19           192.85  192.81  192.76             .1       .3

CROSS SECTION


RIVER: TCC
REACH: 2                   RS: 1763

INPUT
Description: 1763
Station Elevation Data    num=      68
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5368.78    1.99 5368.79    3.98 5368.81    5.98 5368.82    7.97 5368.79
    9.96 5368.74   11.95 5368.75   13.95 5368.78   15.94 5368.77   17.93 5368.75
   19.92 5368.72   21.91 5368.71   23.91 5368.69    25.9 5368.68   27.89  5368.7
   29.88 5368.66   31.87 5368.68   33.87 5368.68   35.86 5368.68   37.85 5368.66
   39.16 5368.63   39.84 5368.62   41.84 5368.64   43.83  5368.7   45.82 5368.75
   47.81 5368.77    49.8 5368.93    51.8 5369.04   53.79  5369.1   55.78 5369.13
   57.77 5369.16   59.76 5369.17   61.76 5369.18   63.75 5369.17   65.74 5369.15
   67.73 5369.07   69.73    5369   71.72  5368.9   73.71 5368.77   75.41 5368.67
    75.7 5368.65   77.69 5368.51   79.69  5368.3   81.68 5368.37   83.67 5368.57
   85.42 5368.67   85.66 5368.68   87.26 5368.77   87.66 5368.79   89.65 5368.86
   91.64 5368.95   93.63 5369.02   95.62  5369.1   97.62 5369.27   99.61 5369.62
   101.6 5370.23  103.59 5370.49  105.58 5370.53  107.58  5370.7  109.57 5370.89
  111.56 5371.05  113.55 5371.21  115.55 5371.36  117.54 5371.45  119.53 5371.53
  121.52 5371.59  123.51  5371.6  125.51  5371.6

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   39.16    .015   87.26     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         63.75   99.61           151.45   151.4  151.35             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
       0    9.61 5378.75

CROSS SECTION


RIVER: TCC
REACH: 2                   RS: 1611

INPUT
Description: 1611
Station Elevation Data    num=      90
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5368.69       2 5368.65       4 5368.55       6 5368.45       8 5368.47
      10 5368.53      12 5368.51      14 5368.48      16 5368.43      18  5368.4
      20 5368.37      22  5368.3      24 5368.23      26  5368.2      28 5368.18
      30 5368.16      32 5368.21      34 5368.11   35.99 5368.05   37.99 5367.91
   38.61 5367.85   39.99  5367.7   41.99 5367.63   43.99 5367.76   45.99 5367.96
   47.99 5368.11   49.99 5368.23   51.99 5368.31   53.99 5368.39   55.99 5368.48
   57.99 5368.53   59.99 5368.54   61.99 5368.54   63.99 5368.53   65.99  5368.5
   67.99 5368.43   69.99 5368.35   71.99 5368.22   73.99 5368.09   75.49 5368.01
   75.99 5367.98   77.99  5367.8   79.99 5367.63   81.99 5367.74   83.99 5368.04
   85.49 5368.08   85.99  5368.1   87.17  5368.2   87.99 5368.27   89.99 5368.37
   91.99 5368.35   93.99 5368.38   95.99 5368.44   97.99 5368.48   99.98 5368.49
  101.98 5368.54  103.98 5368.57  105.98 5368.54  107.98 5368.51  109.98 5368.52
  111.98 5368.57  113.98 5368.59  115.98  5368.6  117.98 5368.64  119.98 5368.66
  121.98 5368.66  123.98  5368.7  125.98 5368.74  127.98 5368.79   129.9 5368.82
  131.82  5368.8  133.74 5368.77  135.66  5368.8  137.58 5368.86   139.5 5368.91
  141.42 5368.92  143.34  5368.9  145.26 5368.94  147.18 5368.94   149.1 5368.94
  151.02 5368.99  152.94 5369.02  154.86 5369.07  156.78 5369.15   158.7 5369.18
  160.62 5369.23  162.54 5369.27  164.46 5369.32  166.38 5369.34   168.3 5369.35

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   38.61    .015   87.17     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
            32   89.99           145.25   145.4  145.55             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
       0    6.535378.437

CROSS SECTION


RIVER: TCC
REACH: 2                   RS: 1466

INPUT
Description: 1466
Station Elevation Data    num=     104
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5368.48    1.99 5368.55    3.98 5368.62    5.97 5368.64    7.96 5368.55
    9.95 5368.47   11.94 5368.41   13.93 5368.33   15.92 5368.24   17.91 5368.14
   19.89 5368.08   21.88 5368.06   23.87 5367.97   25.86 5367.92   27.85 5367.83
   29.84  5367.8   31.83 5367.66   33.82 5367.67   35.81  5367.6    37.8 5367.48
   39.79 5367.38   41.78 5367.37   43.77 5367.33   45.76 5367.24   47.75 5367.18
   49.68 5367.05   49.74 5367.05   51.73 5366.88   53.72 5366.86   55.71 5367.09
    57.7 5367.26   59.69 5367.43   61.67 5367.56   63.66 5367.62   65.65 5367.69
   67.64 5367.76   69.63 5367.84   71.62 5367.84   73.61  5367.9    75.6 5367.85
   77.59 5367.78   79.58  5367.7   81.57 5367.61   83.56 5367.49   85.55 5367.33
   86.15 5367.27   87.54 5367.13   89.53 5366.96   91.52 5366.78   93.51 5367.11
    95.5 5367.21   96.15 5367.22   97.49 5367.23   98.71 5367.35   99.47 5367.43
  101.46 5367.52  103.45 5367.53  105.44 5367.51  107.43 5367.46  109.42  5367.4
  111.41  5367.4   113.4  5367.4  115.39  5367.4  117.38 5367.39  119.37 5367.35
  121.36 5367.33  123.35 5367.37  125.34 5367.37  127.33  5367.4  129.32 5367.44
  131.31 5367.42  133.29 5367.46  135.27 5367.45  137.26 5367.45  139.24 5367.58
  141.22  5367.7   143.2 5367.74  145.19 5367.74  147.17 5367.72  149.15 5367.77
  151.13 5367.87  153.12 5367.96   155.1 5368.02  157.08 5368.11  159.07 5368.24
  161.05 5368.28  163.03 5368.36  165.01 5368.45     167 5368.48  168.98 5368.52
  170.96 5368.57  172.95 5368.63  174.93 5368.64  176.91 5368.71  178.89 5368.76
  180.88  5368.8  182.86 5368.77  184.84 5368.81  186.83 5368.87  188.81 5368.85
  190.79 5368.88  192.77 5368.92  194.76 5369.01  196.74 5369.05

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   49.68    .015   98.71     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         35.81  103.45           163.24  163.14  163.04             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
       0    8.625378.522

CROSS SECTION


RIVER: TCC
REACH: 2                   RS: 1303

INPUT
Description: 1303
Station Elevation Data    num=      67
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5367.41    1.97 5367.42    3.94 5367.43    5.91 5367.44    7.88 5367.41
```

```
    9.86 5367.33   11.83 5367.23    13.8 5367.19   15.77 5367.26   17.74 5367.27
   19.71 5367.31   21.68 5367.35   23.65 5367.32   25.62  5367.3   27.59 5367.23
   29.57 5367.13   31.54  5367.1   33.51 5366.87   35.48  5366.8   37.45 5366.47
   38.28  5366.4   39.42  5366.3   41.39 5365.92   43.36 5366.02   45.33 5366.23
    47.3 5366.47   49.28 5366.62   51.25 5366.74   53.22 5366.88   55.19 5366.94
   57.16 5366.98   59.13    5367    61.1 5367.02   63.07    5367   65.04 5366.97
   67.02 5366.89   68.99 5366.81   70.96 5366.75   72.93 5366.63   74.28 5366.53
    74.9 5366.48   76.87 5366.32   78.84 5366.17   80.81 5366.07   82.78 5366.16
   84.28 5366.31   84.75 5366.35   85.57 5366.44   86.73 5366.58    88.7 5366.83
   90.67 5367.08   92.64 5367.34   94.61 5367.57   96.58 5367.78   98.55 5367.99
  100.52  5368.2  102.49  5368.4  104.46  5368.6  106.44 5368.79  108.41 5368.96
  110.38 5369.11  112.35 5369.26  114.32 5369.42  116.29 5369.57  118.26 5369.68
  120.23  5369.7   122.2 5369.71

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   38.28    .015   85.57     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         31.54   92.64            141.36  141.47  141.57             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0   10.185377.313   114.1   122.25379.708

CROSS SECTION


RIVER: TCC
REACH: 2                   RS: 1161

INPUT
Description: 1161
Station Elevation Data    num=      68
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5363.94    1.98    5364    3.96 5364.06    5.94 5364.12    7.92 5364.17
     9.9 5364.01   11.88 5364.08   13.86 5364.19   15.84 5363.77   17.81 5363.41
   19.79 5363.06   21.77 5362.83   23.75 5362.83   25.73 5362.57   27.71 5362.38
   29.69 5362.18   31.67 5362.07   33.65 5361.94   35.63  5361.9   37.61 5361.73
   39.59 5361.44   41.13 5361.32   41.57 5361.29   43.55  5361.1   45.53    5361
   47.51 5361.18   49.49 5361.36   51.46 5361.53   53.44 5361.69   55.42 5361.77
    57.4 5361.82   59.38 5361.86   61.36 5361.91   63.34 5361.91   65.32  5361.9
    67.3 5361.91   69.28 5361.81   71.26  5361.7   73.24 5361.63   75.22 5361.51
   76.92 5361.39    77.2 5361.36   79.18 5361.18   81.16 5360.99   83.14 5360.85
   85.11 5360.98   86.92 5361.22   87.09 5361.24   88.05 5361.36   89.07 5361.49
   91.05 5361.75   93.03 5362.01   95.01  5362.3   96.99 5362.58   98.97 5362.86
  100.95 5363.13  102.93 5363.41  104.91 5363.63  106.89 5363.84  108.87 5364.06
  110.85 5364.22  112.83 5364.37  114.81 5364.55  116.79 5364.74  118.76 5364.87
  120.74 5364.94  122.72 5364.98   124.7 5364.98

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   41.13    .015   88.05     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         35.63   95.01            144.64  144.57  144.49             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0    9.355374.045  118.14   124.75374.979

CROSS SECTION


RIVER: TCC
REACH: 2                   RS: 1017

INPUT
Description: 1017
Station Elevation Data    num=      81
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5355.91       2 5356.04       4 5356.22       6 5356.43       8 5356.49
      10 5356.38   11.99 5356.31   13.99 5356.26   15.99 5356.24   17.99 5356.21
   19.99 5356.13   21.99 5355.99   23.99  5355.8   25.99 5355.59   27.99 5355.35
   29.99 5355.08   31.99 5354.81   33.99 5354.54   35.98  5354.3   37.98 5354.04
   38.98 5353.93   39.98 5353.82   41.98 5353.68   43.98 5353.75   45.98 5353.96
   47.98 5354.16   49.98 5354.32   51.98 5354.43   53.98 5354.51   55.98 5354.55
   57.97 5354.56   59.97 5354.57   61.97 5354.59   63.97 5354.58   65.97 5354.53
   67.97 5354.43   69.97 5354.32   71.97 5354.24   73.97  5354.1   74.68 5354.04
   75.97 5353.93   77.97 5353.77   79.97 5353.58   81.96 5353.59   83.96 5353.83
   84.68 5353.88   85.52 5353.93   85.96 5353.96   87.96 5354.09   89.96 5354.17
   91.96 5354.11   93.96 5353.99   95.96 5353.86   97.96 5353.73   99.96 5353.61
  101.96 5353.45  103.96 5353.37  105.95 5353.39  107.95 5353.33  109.95 5353.26
  111.95 5353.26  113.95 5353.33  115.95 5353.47  117.95 5353.57  119.95 5353.62
  121.95 5353.65  123.95 5353.68  125.95 5353.71  127.94 5353.72  129.94 5353.72
  131.94 5353.84  133.94 5353.97  135.94 5353.99  137.94    5354  139.94 5354.05
  141.94  5354.1  143.94 5354.13  145.94 5354.21  147.94 5354.29  149.94 5354.36
  151.93 5354.44

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   38.98    .015   85.52     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         31.99   89.96            155.28   155.2  155.11             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
       0    8.755366.438

CROSS SECTION


RIVER: TCC
REACH: 2                   RS: 861

INPUT
Description: 861
Station Elevation Data    num=      69
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5352.52    1.97 5352.56    3.95 5352.63    5.92  5352.7     7.9  5352.8
    9.87 5352.78   11.84 5352.65   13.82 5352.58   15.79 5352.52   17.77 5352.48
   19.74 5352.44   21.71 5352.34   23.69 5352.24   25.66 5352.14   27.63 5352.06
   29.61 5351.94   31.58 5351.82   33.56 5351.68   35.53 5351.52    37.5 5351.37
   39.48 5351.24   41.08 5351.14   41.45 5351.12   43.43 5351.01    45.4 5351.07
   47.37 5351.26   49.35 5351.43   51.32 5351.58    53.3 5351.72   55.27 5351.84
   57.24 5351.91   59.22 5351.95   61.19 5352.01   63.16 5352.02   65.14 5352.03
   67.11    5352   69.09 5351.92   71.06 5351.86   73.03 5351.79   75.01 5351.68
   76.46 5351.56   76.98 5351.52   78.96 5351.35   80.93 5351.17    82.9 5351.08
   84.88 5351.21   86.47  5351.4   86.85 5351.44   87.56 5351.51   88.83 5351.62
    90.8 5351.91   92.77 5351.98   94.75 5352.04   96.72 5352.14   98.69 5352.29
  100.67 5352.44  102.64 5352.58  104.62 5352.67  106.59 5352.75  108.56 5352.86
  110.54 5352.96  112.51 5353.05  114.49 5353.15  116.46 5353.23  118.43 5353.41
  120.41 5353.44  122.38 5353.45  124.36 5353.45  126.33 5353.45

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   41.08    .015   87.56     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         29.61    90.8            126.34  126.34  126.34             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
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       0    9.395362.792   117.5  126.335363.447

CROSS SECTION


RIVER: TCC
REACH: 2                   RS: 735

INPUT
Description: 735
Station Elevation Data    num=      69
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5351.71    1.97 5351.73    3.95 5351.74    5.92 5351.67     7.9 5351.57
    9.87 5351.69   11.84 5351.79   13.82 5351.76   15.79 5351.67   17.77 5351.72
   19.74 5351.65   21.71 5351.57   23.69 5351.44   25.66 5351.37   27.63 5351.37
   29.61 5351.28   31.58 5351.26   33.56  5351.2   35.53 5351.09    37.5 5350.77
   38.06 5350.74   39.48 5350.65   41.45 5350.49   43.43  5350.6    45.4 5350.82
   47.37 5350.98   49.35 5351.06   51.32 5351.14    53.3 5351.19   55.27 5351.22
   57.24 5351.26   59.22  5351.3   61.19 5351.34   63.16 5351.32   65.14 5351.24
   67.11 5351.12   69.09 5351.04   71.06 5350.98   73.03 5350.88   74.54 5350.77
   75.01 5350.74   76.98 5350.59   78.96 5350.42   80.93 5350.56    82.9 5350.76
   84.54 5350.86   84.88 5350.88    85.2 5350.93   86.85 5351.19   88.83 5351.49
    90.8 5351.65   92.77 5351.74   94.75 5351.79   96.72 5351.77   98.69 5351.78
  100.67 5351.86  102.64 5351.92  104.62 5351.99  106.59 5352.18  108.56 5352.53
  110.54 5352.86  112.51 5352.98  114.49 5352.99  116.46 5352.92  118.43 5352.86
  120.41  5352.9  122.38 5352.93  124.36 5352.87  126.33 5352.92

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   38.06    .015    85.2     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         27.63    90.8            125.04  125.26  125.48             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0    5.845361.674  120.07  126.335362.917

CROSS SECTION


RIVER: TCC
REACH: 1                   RS: 610

INPUT
Description: 610
Station Elevation Data    num=      65
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5350.19    1.98 5350.23    3.96 5350.27    5.95 5350.31    7.93 5350.38
    9.91 5350.37   11.89  5350.4   13.88 5350.47   15.86 5350.36   17.84 5350.32
   19.82 5350.33   21.81 5350.37   23.79 5350.39   25.77 5350.36   27.75 5350.33
   29.74 5350.46   31.72 5350.59    33.7 5350.61   35.68 5350.29   37.54 5350.14
   37.67 5350.13   39.65 5349.89   41.63 5349.99   43.61 5350.11    45.6 5350.23
   47.58 5350.38   49.56 5350.46   51.54 5350.55   53.52 5350.57   55.51 5350.61
   57.49 5350.61   59.47 5350.65   61.45 5350.65   63.44  5350.6   65.42 5350.53
    67.4 5350.44   69.38 5350.38   71.37 5350.27   73.35 5350.18   74.11 5350.13
   75.33 5350.05   77.31 5349.92    79.3 5350.02   80.09 5350.09   81.28 5350.19
   83.26 5350.31   84.11 5350.44   85.24  5350.6   87.23 5350.87   89.21 5351.28
   91.19 5351.97   93.17 5352.36   95.16 5352.55   97.14 5352.77   99.12 5352.96
   101.1 5353.06  103.08 5353.05  105.07 5353.05  107.05 5353.09  109.03  5353.2
  111.01 5353.31     113 5353.37  114.98 5353.43  116.96 5353.48  118.94 5353.53

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   37.54    .015   80.09     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         33.7   89.21            110.44  111.25  112.06             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0    9.55 5360.37  112.26  118.945363.525

CROSS SECTION


RIVER: TCC
REACH: 1                   RS: 499

INPUT
Description: 499
Station Elevation Data    num=      71
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5348.99    1.99 5349.05    3.98 5349.13    5.97 5349.24    7.96 5349.38
    9.95 5349.43   11.94 5349.52   13.93 5349.59   15.92 5349.46   17.91 5349.39
    19.9  5349.2   21.89 5349.24   23.88 5349.25   25.87 5349.25   27.86 5349.16
   29.85    5349   31.84 5348.94   33.83 5348.92   35.82 5348.91   37.81  5348.9
    39.8 5348.91   41.79 5348.77   43.78 5348.46   45.55 5348.29   45.77 5348.27
   47.76 5348.08   49.75  5348.2   51.74 5348.41   53.73 5348.52   55.72 5348.62
   57.71 5348.72    59.7 5348.79   61.69 5348.86   63.68 5348.95   65.67 5348.96
   67.66 5348.96   69.65 5348.97   71.64 5348.93   73.63 5348.86   75.61 5348.79
    77.6 5348.71   79.59  5348.6   81.58 5348.47   81.73 5348.46   83.57 5348.31
   85.56 5348.14   87.55 5348.12   87.58 5348.12   89.54 5348.26   91.53  5348.5
   91.81 5348.54   93.52 5348.77   95.51 5348.92    97.5 5349.01   99.49 5349.12
  101.48 5349.28  103.47 5349.44  105.46 5349.65  107.45 5349.84  109.44 5350.01
  111.43 5350.16  113.42  5350.3  115.41 5350.51   117.4 5350.72  119.39 5350.81
  121.38 5350.77  123.37 5350.71  125.36 5350.78  127.35 5350.85  129.34 5350.93
  131.33 5351.04

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   45.55    .015   87.58     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         39.8   95.51            69.84    69.5   69.16             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0   11.815359.511  125.17  131.335361.039

CROSS SECTION


RIVER: TCC
REACH: 1                   RS: 429

INPUT
Description: 429
Station Elevation Data    num=      66
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5347.82    1.99 5347.75    3.97 5347.65    5.96  5347.5    7.95 5347.51
    9.93 5347.54   11.92 5347.56   13.91 5347.51   15.89 5347.44   17.88 5347.43
   19.86 5347.42   21.85 5347.43   23.84 5347.48   25.82 5347.45   27.81 5347.39
    29.8 5347.34   31.78 5347.35   33.77 5347.09   35.76 5346.87   36.83 5346.74
   37.74 5346.63   39.73 5346.56   41.72 5346.74    43.7 5346.95   45.69 5347.15
   47.67  5347.3   49.66 5347.39   51.65 5347.45   53.63 5347.52   55.62 5347.53
   57.61 5347.56   59.59 5347.55   61.58 5347.56   63.57 5347.46   65.55 5347.42
   67.54 5347.35   69.53 5347.22   71.51 5347.12   71.63 5347.11    73.5 5346.95
   75.48 5346.78   77.47 5346.57   78.17 5346.61   79.46 5346.67   81.44 5346.85
   81.65 5346.88   83.43 5347.13   85.42 5347.35    87.4 5347.39   89.39 5347.44
   91.38  5347.6   93.36 5347.81   95.35 5347.97   97.34 5348.14   99.32 5348.32
  101.31  5348.5  103.29 5348.71  105.28 5348.87  107.27 5348.98  109.25 5349.08
  111.24 5349.06  113.23 5349.13  115.21 5349.26   117.2 5349.32  119.19 5349.37
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  121.17 5349.48

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   36.83    .015   78.17     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         23.84   85.42              97.67   97.65   97.63             .1       .3
Blocked Obstructions      num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0     6.35357.504  114.43  121.175359.476

CROSS SECTION


RIVER: TCC
REACH: 1                  RS: 331

INPUT
Description: 331
Station Elevation Data    num=      71
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  5346.8    1.97 5346.74    3.95 5346.73    5.92 5346.65    7.89 5346.56
    9.87  5346.5   11.84  5346.5   13.82  5346.5   15.79 5346.45   17.76 5346.36
   19.74  5346.3   21.71 5346.24   23.68 5346.17   25.66  5346.1   27.63 5345.96
    29.6 5345.86   31.58 5345.79   33.55 5345.71   35.52 5345.65    37.5 5345.61
   39.47 5345.51   41.41  5345.3   41.44 5345.29   43.42 5345.26   45.39 5345.45
   47.37 5345.58   49.34 5345.74   51.31 5345.86   53.29 5345.94   55.26 5345.97
   57.23 5346.01   59.21 5346.06   61.18 5346.06   63.15 5346.11   65.13 5346.11
    67.1 5346.07   69.08 5345.95   71.05 5345.95   73.02 5345.82   74.44 5345.76
      75 5345.74   76.97 5345.62   78.94 5345.48   80.92 5345.28   82.02 5345.26
   82.89 5345.26   84.48 5345.53   84.86 5345.59   86.84 5345.66   88.81  5345.9
   90.78 5347.13   92.76 5347.51   94.73  5347.6    96.7 5347.94   98.68 5348.43
  100.65 5348.86  102.63 5349.12   104.6 5349.25  106.57 5349.43  108.55  5349.6
  110.52 5349.73  112.49  5349.8  114.47 5349.88  116.44 5349.95  118.41 5350.04
  120.39 5350.21  122.36 5350.36  124.34 5350.35  126.31 5350.37  128.28 5350.52
  130.26 5350.54

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   41.41    .015   82.02     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         15.79   90.78              115.42  114.92  114.42             .1       .3
Blocked Obstructions      num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0     8.25356.549   125.6  130.265360.544

CROSS SECTION


RIVER: TCC
REACH: 1                  RS: 216

INPUT
Description: 216
Station Elevation Data    num=     134
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5346.68    1.96 5346.65    3.93 5346.63    5.89 5346.57    7.85 5346.62
    9.82 5346.68   11.78 5346.66   13.74 5346.76   15.71 5346.77   17.67 5346.72
   19.63 5346.63    21.6 5346.53   23.56 5346.49   25.52 5346.42   27.49 5346.31
   29.45 5346.18   31.41 5346.08   33.38    5346   35.34 5345.99    37.3 5345.94
   39.27 5345.83   41.23 5345.78   43.19 5345.75   45.16 5345.74   47.12 5345.64
   49.08 5345.58   51.05 5345.53   53.01 5345.43   54.97 5345.41   56.94 5345.36
    58.9 5345.34   60.86 5345.13   61.74 5344.92   62.83 5344.67   64.79 5344.35
   66.75 5344.13   68.72 5344.23   70.68 5344.38   72.64  5344.5   74.61 5344.62
   76.57 5344.78   78.53 5344.84    80.5 5344.92   82.46 5344.99   84.42 5345.08
   86.39 5345.09   88.35 5345.12   90.31 5345.17   92.27 5345.17   94.24 5345.16
    96.2 5345.15   98.16 5345.17  100.13 5345.21  102.09 5345.22  104.05 5345.24
  106.02 5345.26     108 5345.29  109.98 5345.28  111.97 5345.21  113.95 5345.14
  115.93 5345.19  117.92 5345.18  119.27 5345.14   119.9 5345.12  121.88 5345.09
  123.87 5345.04  125.85 5345.03  127.83 5345.05  129.27 5345.08  129.81 5345.09
   131.8 5345.16  133.78 5345.16  135.76 5345.18  137.75 5345.24  139.73  5345.3
  141.71 5345.34   143.7 5345.38  145.68 5345.44  147.66 5345.51  149.64  5345.5
  151.63 5345.52  153.61 5345.57  155.59 5345.61  157.58 5345.65  159.56 5345.67
  161.54 5345.69  163.53 5345.71  165.51 5345.74  167.49 5345.77  169.47  5345.8
  171.46 5345.83  173.44 5345.85  175.42 5345.88  177.41 5345.89  179.39 5345.91
  181.37 5345.94  183.36 5345.98  185.34 5346.01  187.32 5346.03  189.31 5346.08
  191.29 5346.12  193.27 5346.13  195.25 5346.18  197.24 5346.21  199.22 5346.24
   201.2 5346.28  203.19 5346.31  205.17 5346.34  207.15  5346.4  209.14 5346.46
  211.12 5346.51   213.1 5346.57  215.08 5346.64  217.07 5346.68  219.05 5346.72
  221.03 5346.79  223.02 5346.86    225 5346.92  226.98 5346.98  228.97 5347.04
  230.95 5347.12  232.93 5347.22  234.91 5347.26   236.9 5347.34  238.88 5347.42
  240.86 5347.49  242.85 5347.56  244.83 5347.65  246.81 5347.71   248.8 5347.83
  250.78 5347.96  252.76    5348  254.74 5348.09  256.73 5348.19

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0     .13   61.74    .015

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         60.86   78.53              153.56  177.74  201.12             .1       .3
Blocked Obstructions      num=       1
   Sta L   Sta R    Elev
       0    10.65356.674

CROSS SECTION


RIVER: TCC
REACH: 1                  RS: 39

INPUT
Description: 39
Station Elevation Data    num=     218
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5346.61    1.99 5346.57    3.98 5346.57    5.96 5346.56    7.95 5346.56
    9.94 5346.52   11.93 5346.47   13.91 5346.44    15.9 5346.54   17.89 5346.62
   19.88 5346.61   21.87 5346.59   23.85 5346.47   25.84 5346.39   27.83  5346.3
   29.82 5346.24    31.8 5346.17   33.79 5346.15   35.78 5346.22   37.77 5346.17
   39.76 5345.97   41.74 5345.79   43.73 5345.71   45.72 5345.67   47.71 5345.62
   49.69 5345.57   51.68 5345.53   53.67 5345.42   55.66 5345.37   57.64 5345.31
   59.63 5345.16   60.85    5345   61.62  5344.9   63.61 5344.56    65.6 5344.25
   67.58 5344.09   69.57 5344.18   71.56 5344.28   73.55 5344.39   75.53 5344.51
   77.52 5344.63   79.51 5344.73    81.5 5344.76   83.49 5344.81   85.47 5344.84
   87.46 5344.91   89.45 5344.95   91.44 5344.98   93.42 5345.06   95.41 5345.15
    97.4 5345.19   99.39 5345.17  101.38 5345.17  103.36 5345.22  105.35 5345.18
  107.34 5345.18  109.33 5345.23  111.31 5345.18   113.3 5345.16  115.29 5345.17
  117.27 5345.19  119.25 5345.18  121.23 5345.16  123.21 5345.13  125.19 5345.13
  127.17 5345.12  129.15 5345.11  131.13  5345.1  133.11 5345.09  135.09  5345.1
  137.07 5345.07  139.05 5345.05  141.03 5345.05  143.01 5345.02     145 5345.02
  146.98 5345.01  148.96 5344.94  150.94 5344.89  152.92 5344.91   154.9 5344.93
  156.88 5344.93  158.86  5344.9  160.84 5344.87  162.82 5344.85  164.8 5344.84
  166.78 5344.82  168.76 5344.79  170.74 5344.78  172.72 5344.73  174.7 5344.69
  176.68 5344.72  178.66 5344.69  180.64 5344.66  182.62 5344.66  184.6 5344.64
  186.58 5344.61  188.56 5344.61  190.54  5344.6  192.52 5344.57  194.5 5344.57
  196.48 5344.59  198.46 5344.53  200.44 5344.49  202.43 5344.46  204.41 5344.44
  206.39 5344.43  208.37  5344.4  210.35  5344.4  212.33  5344.4  214.31 5344.39
  216.29 5344.36  218.27 5344.36  220.25 5344.39  222.23 5344.37  224.21 5344.33
  226.19 5344.31  228.17 5344.33  230.15 5344.31  232.13 5344.35  234.11 5344.32
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  236.09 5344.32  238.07  5344.3  240.05 5344.28  242.03  5344.3  244.01 5344.28
  245.99 5344.32  247.97 5344.28  249.96 5344.27  251.95  5344.2  253.94 5344.19
  255.93 5344.19  257.91 5344.16  258.29 5344.14   259.9 5344.03  261.89 5344.06
  263.88    5344  265.87 5343.95  267.86 5343.78  269.84 5343.71  271.83 5343.66
  273.82 5343.56  275.81 5343.46   277.8 5343.32   278.2 5343.29  279.79 5343.18
  279.81 5343.18  281.77 5343.34  283.76 5343.38  285.75 5343.46  287.74 5343.51
  289.73 5343.66  291.71 5343.42   293.7 5342.77  295.69 5341.75  297.68 5340.67
  299.67 5340.04  301.66 5339.38  303.64 5339.24  305.63 5339.44  307.62 5341.16
  309.61 5342.85   311.6 5344.16  311.91 5344.27  313.59 5344.84  315.57 5345.19
  317.56 5345.46  319.55 5345.76  321.54 5345.79  323.53  5345.8  325.51 5345.88
   327.5 5345.99  329.49 5346.09  331.48 5346.18  333.47 5346.29  335.46  5346.4
  337.44 5346.46  339.43 5346.56  341.42 5346.62  343.41 5346.68   345.4 5346.73
  347.39 5346.72  349.37  5346.7  351.36 5346.64  352.93 5346.56  353.35 5346.54
  355.34 5346.48  357.33 5346.48  359.32 5346.35   361.3 5346.29  363.29 5346.46
  365.28 5346.52  367.27 5346.62  369.26 5346.75  371.24 5346.87  373.23 5346.94
  375.22 5347.07  377.21 5347.11   379.2 5347.17  381.19 5347.18  383.17 5347.24
  385.16 5347.27  387.15 5347.26  389.14 5347.25  391.13 5347.24  393.12  5347.2
   395.1 5347.14  397.09 5347.18  399.08 5347.34  401.07 5347.56  403.06  5347.8
  405.04 5348.33  407.03 5348.69  409.02 5348.94  411.01 5349.17     413 5349.43
  414.99 5349.63  416.97 5349.91  418.96 5350.15

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   60.85    .015   278.2    .015  311.91     .13  352.93    .015

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         289.73  311.91            53.47   38.74   24.23             .1       .3
Blocked Obstructions      num=       1
   Sta L   Sta R    Elev
       0   15.31 5356.49

CROSS SECTION


RIVER: TCC_S1
REACH: 7                  RS: 9130

INPUT
Description: 9130
Station Elevation Data    num=     105
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  5586.5    1.98 5586.53    3.96 5586.52    5.94 5586.48    7.91 5586.45
    9.89 5586.46   11.87 5586.41   13.85 5586.38   13.98 5586.38   15.83 5586.31
   17.81 5586.17   19.79 5586.12   21.76 5586.24   23.74 5586.29   25.72 5586.37
    27.7  5586.4   29.68 5586.39   31.66 5586.37   33.64 5586.51   35.61 5587.09
    37.6  5587.3   39.58 5587.63   41.57 5588.18   43.56 5588.27   45.54 5588.55
   47.53  5588.7   49.51 5588.35    51.5 5588.01   53.48 5588.03   55.47 5587.93
   57.45 5587.97   59.44 5588.32   61.42 5588.68   63.41 5588.85   65.39  5588.6
   67.38  5588.5   69.37 5588.72   71.35 5588.77   73.34 5588.55   75.32 5588.52
   77.31 5588.59   79.29 5588.65   81.28 5588.51   83.26 5587.58   85.25  5587.4
   87.23 5587.64   89.22 5587.87   91.21 5587.99   93.19  5587.9   95.18 5587.67
   95.87 5587.57   97.16 5587.37   99.15 5587.31  101.13 5587.63  103.12 5587.62
   105.1  5587.6  105.96 5587.65  107.09 5587.71  109.07 5587.73  111.06 5587.79
  113.04  5587.9  115.03 5588.01  117.02 5588.06     119 5588.13  120.99 5588.38
  122.97 5588.65  124.96 5588.92  126.94 5589.15  128.93 5589.13  130.91 5589.11
   132.9 5589.12  134.88 5589.15  136.87 5589.11  138.85 5589.06  140.84 5589.03
  142.83    5589  144.81 5588.96   146.8 5588.94  148.78  5588.9  150.77 5588.73
  152.75 5588.59  154.74 5588.36  156.72 5588.25  158.71 5588.13  160.69 5588.02
  162.68 5587.98  164.67 5587.86  166.65 5587.75  168.64 5587.69  170.62 5587.67
  172.61 5587.66  174.59 5587.63  176.58  5587.6  178.56 5587.64  180.55 5587.65
  182.53 5587.68  184.52 5587.64  186.51 5587.63  188.49  5587.6  190.48 5587.62
  192.46 5587.66  194.45 5587.65  196.43 5587.68  198.42 5587.68   200.4 5587.72

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0    .015   13.98     .09

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         81.28  126.94            60.27   87.33  140.45             .1       .3

CROSS SECTION


RIVER: TCC_S1
REACH: 7                  RS: 9043

INPUT
Description: 9043
Station Elevation Data    num=     173
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5584.56    1.99 5584.49    3.98 5584.43    5.97 5584.08    7.96 5583.42
    9.95 5582.71   11.93 5582.24   13.92 5582.18   15.91 5582.35    17.9 5582.67
   19.89 5582.81   21.88 5583.06   23.87 5583.26   25.86 5583.41   27.85 5583.21
   29.84 5582.96   31.83 5582.67   33.81 5582.58    35.8 5582.47   37.79 5582.43
   39.78  5582.4   41.77 5582.42   43.76 5582.41   45.75 5582.36   47.74 5582.34
   49.73 5582.42   51.72 5582.47   53.71 5582.52   55.69 5582.57   57.68 5582.67
   59.67 5582.77   61.66 5582.85   63.65 5582.98   65.64  5583.3   67.63 5583.56
   69.62  5583.6   71.61 5583.76    73.6  5583.8   75.58 5583.89   77.57  5583.9
   79.56 5583.84   81.55 5583.85   83.54 5583.82   85.53 5583.71   87.52  5583.4
   89.51 5583.03    91.5 5582.71   93.49  5582.4   95.48 5582.04   97.46 5581.71
   99.45 5581.53  101.44 5581.39  103.43 5581.35  105.42 5581.27  107.41 5581.16
   109.4 5581.11  111.22 5581.08  111.39 5581.08  113.38 5581.06  115.37 5581.06
  117.36 5581.08  119.34 5581.12  121.33 5581.13  121.89 5581.14  123.32 5581.17
  125.31 5581.23   127.3 5581.25  129.29 5581.28  131.28 5581.33  133.27 5581.36
  135.26 5581.35  137.25 5581.37  139.24 5581.33  141.22 5581.29  143.21 5581.33
   145.2 5581.36  147.19 5581.38  149.18 5581.39  151.17 5581.43  153.16 5581.47
  155.15 5581.52  157.14 5581.56  159.13 5581.63  161.12 5581.78   163.1  5581.9
  165.09 5582.02  167.08 5582.18  169.07 5582.33  171.06 5582.48  173.05 5582.53
  175.04 5582.71  177.03 5582.86  179.02 5583.03  181.01 5583.18     183 5583.41
  184.98 5583.55  186.97 5583.66  188.96 5583.83  190.95 5583.92  192.94 5583.96
  194.93 5584.04  196.92 5584.05  198.91 5584.09   200.9 5584.06  202.89 5583.97
  204.88 5583.87  206.86 5583.84  208.85 5583.69  210.84 5583.64  212.83  5583.6
  214.82 5583.57  216.81 5583.45   218.8 5582.58  220.79 5583.06  222.78 5582.78
  224.77 5582.55  226.75 5582.42  228.74 5582.29  230.73 5582.16  232.72 5582.06
  234.71 5582.15   236.7 5582.11  238.69 5581.95  240.68  5581.9  242.67 5581.97
  244.66 5581.79  246.65 5581.81  248.65 5581.92  250.64 5581.94  252.64 5581.94
  254.63 5582.11  256.63 5582.16  258.63 5582.12  260.62 5582.26  262.62  5582.3
  264.61 5582.42  266.61 5582.64   268.6 5582.55   270.6 5582.66  272.59 5583.16
  274.59 5583.19  276.58 5583.32  278.58 5582.88  280.58 5582.46  282.57 5582.46
  284.57 5582.71  286.56 5583.14  288.56 5583.47  290.55 5583.74  292.55 5583.82
  294.54 5583.91  296.54 5584.04  298.53 5584.12  300.53 5584.14  302.53 5584.21
  304.52 5584.35  306.52 5584.35  308.51 5584.34  310.51 5584.39   312.5 5584.43
   314.5 5584.48  316.49 5584.56  318.49 5584.58  320.48 5584.65  322.48 5584.71
  324.48 5584.69  326.47 5584.69  328.47 5584.66  330.46 5584.71  332.46 5584.78
  334.45 5584.83  336.45 5584.96  338.44 5585.17

Manning's n Values        num=       1
     Sta   n Val
       0     .09

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         85.53  190.95           119.03  133.82  156.09             .1       .3

CROSS SECTION


RIVER: TCC_S1
REACH: 7                  RS: 8909

INPUT
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Description: 8909
Station Elevation Data    num=     158
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5578.05    1.99 5578.02    3.98 5578.02    5.97 5578.08    7.96 5578.18
    9.96 5578.31   11.95 5578.17   13.94 5577.88   15.93 5577.67   17.92 5577.43
   19.91 5577.12    21.9  5576.8   23.89 5576.37   25.89    5576   27.88 5575.73
   29.87 5575.44   31.86 5575.15   33.85 5574.89   35.84 5574.77   37.83 5574.68
   39.82 5574.62   41.82 5574.54   43.81 5574.47    45.8 5574.38   47.79 5574.34
   49.78 5574.28   51.77 5574.27   53.76 5574.23   55.75 5574.17   57.74 5574.15
   59.74 5574.09   61.73 5574.06   63.72 5574.03   65.71 5573.96    67.7 5573.92
   69.69 5573.89   71.68 5573.82   73.67 5573.72   75.67 5573.61   77.66 5573.53
   79.65 5573.46   81.64 5573.43   83.63 5573.43   85.62  5573.4   87.61 5573.39
    89.6 5573.36    91.6 5573.34   93.59 5573.31   95.58 5573.29   97.57  5573.3
   99.56  5573.3  101.55 5573.27  103.54 5573.29  105.44 5573.37  105.53 5573.38
  107.52 5573.44  109.52 5573.46  111.51 5573.48   113.5 5573.49  115.49 5573.45
  115.54 5573.45  117.48 5573.42  119.47 5573.31  121.46 5573.12  123.45 5573.04
  125.45 5572.92  127.44 5572.83  129.43 5572.76  131.42 5572.76  133.41 5572.73
   135.4 5572.78  137.39 5572.84  139.38 5572.86  141.37 5572.86  143.37  5572.9
  145.36 5572.87  147.35 5572.86  149.34 5572.83  151.33 5572.84  153.32 5572.86
  155.31 5572.91   157.3 5572.88   159.3 5572.88  161.29 5572.87  163.28 5572.88
  165.27 5572.87  167.26 5572.88  169.25 5572.91  171.24 5572.97  173.23 5573.02
  175.23 5573.06  177.22 5573.22  179.21 5573.17   181.2 5573.17  183.19 5573.26
  185.18 5573.39  187.17 5573.38  189.16 5573.16  191.15 5573.13  193.15 5573.11
  195.14 5573.19  197.13 5573.22  199.12 5573.12  201.11 5573.05   203.1 5572.88
  205.09 5572.82  207.08 5572.83  209.08 5572.83  211.07 5572.81  213.06 5572.75
  215.05 5572.75  216.38 5572.78  217.04  5572.8  219.03 5572.86  221.02 5572.93
  223.01 5573.01  225.01 5573.09    227 5573.15  228.99 5573.18  230.98 5573.29
  232.95 5573.38  234.92 5573.43  236.89 5573.54  238.86 5573.66  240.83 5573.76
   242.8 5573.86  244.77 5573.96  246.74 5574.04  248.71 5574.19  250.68 5574.24
  252.65 5574.27  254.62  5574.4  256.59 5574.47  258.56 5574.54  260.53 5574.61
   262.5 5574.69  264.47 5574.73  266.44 5574.78  268.41 5574.84  270.38 5574.92
  272.36 5574.94  274.33 5575.03   276.3  5575.1  278.27 5575.17  280.24 5575.25
  282.21 5575.34  284.18 5575.42  286.15 5575.47  288.12 5575.53  290.09 5575.63
  292.06 5575.72  294.03 5575.81     296 5575.89  297.97 5575.98  299.94  5576.1
  301.91 5576.21  303.88  5576.3  305.85 5576.43

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0     .09  216.38    .015

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         113.5  185.18             75.28   83.05   60.78             .1       .3

CROSS SECTION


RIVER: TCC_S1
REACH: 7                  RS: 8826

INPUT
Description: 8826
Station Elevation Data    num=     150
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5573.55    1.99 5573.44    3.97 5573.26    5.96 5573.05    7.94 5572.89
    9.93 5572.72   11.91 5572.56    13.9 5572.34   15.88 5571.97   17.87 5571.72
   19.85 5571.53   21.84 5571.24   23.82 5570.82   25.81 5570.62   27.79 5570.37
   29.78 5570.09   31.76 5570.03   33.75 5570.05   35.73 5569.77   37.72 5569.73
    39.7 5569.61   41.69 5569.55   43.67 5569.59   45.66 5569.62   47.64 5569.56
   49.63 5569.38   51.61 5569.29    53.6  5569.3   55.58 5569.32   57.57 5569.25
   59.55 5569.19   61.54  5569.3   63.52 5569.38   65.51 5569.16    67.5 5568.99
   69.48 5568.97   71.47 5569.05   73.45  5569.3   75.44 5569.52   77.42 5569.72
   79.41 5569.81   81.39 5569.84   83.38 5569.71   85.36 5569.58   87.35 5569.16
   89.34 5568.98   91.34 5568.92   93.34  5568.8   95.34 5568.73   97.13  5568.6
   97.34 5568.59   99.34 5568.33  101.34 5568.14  103.33  5568.1  105.33 5568.19
  107.33 5568.37  107.55  5568.4  109.33 5568.68  111.33 5569.05  113.33 5569.28
  115.33 5569.45  117.32 5569.58  119.32 5569.57  121.32  5569.5  123.32 5569.41
  125.32 5569.25  127.32 5569.02  129.32 5568.75  131.31 5568.46  133.31 5568.21
  135.31 5568.01  137.31 5567.84  139.31 5567.87  141.31 5567.88   143.3 5567.87
   145.3 5567.82   147.3 5567.83   149.3 5567.84   151.3 5567.85   153.3 5567.86
   155.3 5567.88  157.29 5567.93  159.14 5567.94  159.29 5567.94  161.29 5568.01
  163.29 5568.03  165.29 5568.09  167.29 5568.19  169.29 5568.23  171.28  5568.3
  173.28 5568.37  175.28 5568.42  177.28 5568.44  179.28 5568.45  181.06 5568.47
  181.28 5568.47  183.27 5568.57  185.27 5568.64  187.27 5568.68  189.27 5568.65
  191.27 5568.63  193.27  5568.6  195.27  5568.6  197.26  5568.6  199.26 5568.61
  201.26  5568.6  203.26  5568.6  205.25 5568.65  207.25  5568.7  209.24 5568.74
  211.23 5568.81  213.23 5568.88  215.22 5568.91  217.21 5568.93  219.21 5568.93
   221.2 5568.96  223.19 5569.02  225.19 5569.07  227.18 5569.08  229.17 5569.09
  231.17 5569.12  233.16 5569.12  235.15 5569.15  237.15 5569.16  239.14 5569.19
  241.13 5569.31  243.13 5569.41  245.12 5569.52  247.11 5569.63  249.11 5569.77
   251.1 5569.82  253.09 5569.72  255.09 5569.62  257.08 5569.56  259.07 5569.57
  261.07 5569.62  263.06 5569.69  265.05 5569.76  267.05 5569.74  269.04 5569.75
  271.03 5569.76  273.03 5569.79  275.02 5569.76  277.01 5569.81  279.01 5569.84
     281 5569.79  282.99 5569.77  284.99 5569.81  286.98  5569.8  288.97  5569.8

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .09  159.14    .015  181.06     .09

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          81.39  117.32            155.7  126.87   72.81             .1       .3

CROSS SECTION


RIVER: TCC_S1
REACH: 6                  RS: 8699

INPUT
Description: 8699
Station Elevation Data    num=     104
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5562.54    1.83 5562.57    1.99 5562.58    3.99 5562.54    5.98 5562.13
    7.98 5561.63    9.97 5561.37   11.97 5561.32   13.96 5561.34   15.75 5561.31
   15.96 5561.31   17.95 5561.27   19.94  5561.3   21.94  5561.4   23.93 5561.43
   25.78 5561.47   25.93 5561.47   27.92 5561.52   29.92 5561.54   31.58 5561.55
   31.91 5561.55   33.91 5561.82    35.9  5562.1   37.89 5562.26   39.89 5562.33
   41.88 5562.42   43.88 5562.51   45.87 5562.54   47.87 5562.51   49.86 5562.42
   51.86 5562.24   53.85 5562.16   55.84 5562.03   57.84 5562.01   59.83 5562.14
   61.83 5562.28   63.82  5562.4   65.82 5562.55   67.81 5562.68    69.8 5562.79
    71.8 5562.89   73.79 5562.98   75.79 5563.07   77.78 5563.14   79.78 5563.15
   81.77 5563.25   83.77 5563.54   85.76 5563.85   87.75 5564.09   89.75 5564.25
   91.74 5564.31   93.74 5564.32   95.73 5564.35   97.73  5564.4   99.72 5564.43
  101.72 5564.47  103.71 5564.64   105.7 5564.87   107.7 5564.99  109.69 5565.06
  111.69 5565.17  113.68 5565.36  115.68 5565.55  117.67  5565.7  119.67 5565.83
  121.66 5565.86  123.65 5565.78  125.65 5565.74  127.64 5565.81  129.64 5565.83
  131.63 5565.84  133.63 5565.79  135.62 5565.73  137.62 5565.73  139.61 5565.73
   141.6 5565.78   143.6 5565.85  145.59 5565.93  147.59 5565.94  149.58 5566.02
  151.58    5566  153.57 5566.03  155.57 5566.03  157.56 5566.06  159.55 5566.12
  161.55 5566.23  163.54  5566.4  165.54 5566.57  167.53 5566.77  169.53 5566.86
  171.52    5567  173.51 5567.11  175.51 5567.22   177.5  5567.3   179.5  5567.3
  181.49 5567.36  183.49 5567.32  185.48 5567.33  187.48 5567.38  189.47 5567.36
  191.46 5567.33  193.46 5567.34  195.45 5567.32  197.45 5567.31

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13    1.83    .015   31.58     .09

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           1.83   77.78             68.36   86.97  120.47             .1       .3
```

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CROSS SECTION


RIVER: TCC_S1
REACH: 6                    RS: 8612

INPUT
Description: 8612
Station Elevation Data    num=     121
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
        0 5560.09    1.97 5560.73    3.93 5560.93     5.9 5559.81    7.86 5558.56
     9.83 5558.51   11.79 5558.48   13.76  5558.5   15.72 5558.38   17.69 5558.11
    19.65  5557.9   21.62 5557.91   23.58 5557.94   25.55 5557.98   27.51 5558.01
    29.48 5558.04   31.44 5558.08   33.41 5558.11   35.37 5558.16   37.34 5558.23
     39.3  5558.3   41.27 5558.24   43.23 5558.17    45.2  5558.1   47.17  5558.1
    49.13 5558.07    51.1 5558.09   53.06 5558.16   55.03 5558.22   56.99 5558.26
    58.96 5558.25   60.92 5558.24   62.89 5558.23   64.85 5558.22   66.82 5558.21
    68.78 5558.19   70.75 5558.18   72.73 5558.21    74.7 5558.23   76.68 5558.25
    78.66 5558.27   80.63 5558.27   82.61 5558.26   84.59 5558.22   86.57 5558.16
    88.54 5558.06   90.52    5558    92.5 5557.97   94.48 5557.89   96.45 5557.84
    98.43 5557.92  100.41 5557.91  102.39 5557.91  104.36 5557.92  106.34 5557.87
   108.32  5557.8   110.3 5557.98  112.27 5558.18  114.25 5558.37  116.23 5558.46
   118.21 5558.43  120.18 5558.43  122.16 5558.44  123.69 5558.43  124.14 5558.43
   126.12 5558.44  128.09 5558.36  130.07 5558.18  132.05 5557.91  134.03 5557.79
      136 5557.72  137.98 5557.68  139.42 5557.64  139.96 5557.63  141.93  5557.5
   143.91 5557.38  145.89 5557.36  147.87 5557.44  149.84 5557.46  151.82 5557.48
   152.71 5557.47   153.8 5557.45  155.78 5557.44  157.75 5557.41  157.83 5557.41
   159.73 5557.37  161.71 5557.34  163.69 5557.45  165.66 5557.56  167.64 5557.48
   169.62 5557.38   171.6 5557.24  173.57 5557.21  175.55 5557.29  177.53 5557.53
   179.51 5557.66  181.48 5557.63  183.46 5557.59  185.44 5557.49  187.42 5557.55
   189.39 5557.59  191.37 5557.61  193.35 5557.69  195.33 5557.82   197.3 5557.97
   199.28 5558.24  201.26 5558.58  203.24    5559  205.21 5559.34  207.19 5559.68
   209.17 5560.03  211.15 5560.38  213.12 5560.66   215.1 5560.96  217.08 5561.15
   219.06 5561.15  221.03 5561.16  223.01 5561.19  224.99 5561.23  226.96 5561.24
   228.94 5561.26

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13  123.69    .015  157.83     .09

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        128.09  201.26          205.23  165.61  134.51             .1       .3
Ineffective Flow     num=       1
   Sta L    Sta R    Elev  Permanent
   84.86  104.245567.916      F
Blocked Obstructions      num=       1
   Sta L    Sta R    Elev
   24.94   85.645568.203

CROSS SECTION


RIVER: TCC_S1
REACH: 6                    RS: 8447

INPUT
Description: 8447
Station Elevation Data    num=     275
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  5549.4    1.99 5549.38    3.98 5549.35    5.97 5549.41    7.96 5549.44
    9.95 5549.48   11.95 5549.45   13.94 5549.43   15.93 5549.38   17.92 5549.38
   19.91 5549.37    21.9 5549.36   23.89 5549.36   25.88 5549.35   27.87 5549.33
   29.86 5549.26   31.86 5549.21   33.85 5549.18   35.84 5549.19   37.83 5549.22
   39.82 5549.17   41.81 5549.14    43.8  5549.2   45.79  5549.1   47.78 5549.12
   49.77 5549.16   51.77 5549.14   53.76 5549.15   55.75 5549.08   57.74 5549.08
   59.73 5549.08   61.72 5549.05   63.71 5549.03    65.7    5549   67.69 5548.96
   69.69 5548.93   71.68 5548.86   73.67 5548.83   75.66 5548.82   77.65 5548.91
   79.64 5549.08   81.63 5548.82   83.62  5548.7   85.61 5548.61    87.6 5548.69
   89.59 5548.75   91.59  5548.8   93.58 5548.83   95.57  5548.8   97.56 5548.76
   99.55 5548.72  101.54 5548.69  103.53 5548.65  105.52 5548.61  107.51 5548.57
   109.5 5548.54   111.5  5548.5  113.49 5548.47  115.48 5548.45  117.47 5548.45
  119.46 5548.34  121.45 5548.32  123.44 5548.29  125.43 5548.22  127.42 5548.18
  129.41 5548.17  131.41 5548.27   133.4 5548.27  135.39 5548.27  137.38  5548.3
  139.37 5548.41  141.36 5548.39  143.35 5548.26  145.34 5548.23  147.33 5548.23
  149.32 5548.07  151.32  5547.9  153.31 5547.82   155.3 5547.74  157.29 5547.72
  159.28  5547.7  161.27  5547.7  163.26 5547.81  165.25 5547.82  167.24 5547.88
  169.24 5547.93  171.23 5547.85  173.22 5547.88  175.21 5547.64   177.2 5547.53
  179.19 5547.49  181.18 5547.46  183.17 5547.46  185.16 5547.47  187.15  5547.5
  189.14 5547.53  191.14 5547.48  193.13 5547.53  195.12 5547.55  197.11 5547.58
   199.1 5547.57  201.09 5547.55  203.08 5547.55  205.07 5547.55  207.06  5547.6
  209.05 5547.71  211.05  5547.8  213.04 5547.78  215.03 5547.88  217.02 5548.08
  219.01    5548    221 5548.01  222.99 5548.06  224.98 5548.01  226.97 5547.83
  228.97 5547.66  230.96 5547.44  232.95 5547.29  234.94 5547.25  236.93 5547.25
  238.92 5547.24  240.91 5547.33   242.9 5547.23  244.89 5547.27  246.88 5547.44
  248.87 5547.68  250.87 5547.64  252.86 5547.63  254.85 5547.62  256.84 5547.65
  258.83 5547.68  260.82  5547.6  262.81 5547.65   264.8 5547.78  266.79 5548.04
  268.79  5548.3  270.78 5548.56  272.77 5548.74  274.76 5548.79  276.75 5548.79
  278.74 5548.79  280.73 5548.79  282.73 5548.88  284.73 5548.96  286.73 5548.99
  288.72 5549.02  290.72 5549.04  292.72 5548.99  294.72 5548.93  296.72 5548.87
  298.72 5548.81  300.71 5548.75  302.71 5548.68  304.71 5548.59  306.71  5548.5
  308.71 5548.48  310.71 5548.46   312.7 5548.56   314.7  5548.6   316.7 5548.49
   318.7  5548.4   320.7 5548.31   322.7 5548.22  324.69 5548.05  326.69 5548.05
  328.69 5548.07  330.69 5547.98  332.69 5547.92  334.69 5547.87  336.68  5547.8
  338.68 5547.85  340.68 5547.97  342.68 5548.07  344.68 5548.15  346.68 5548.26
  348.67 5548.33  350.67 5548.28  352.67 5548.37  354.67 5548.34  356.67 5548.39
  358.67 5548.45  360.66 5548.54  362.66 5548.61  364.66 5548.74  366.66 5548.78
  368.66  5548.8  370.66 5548.84  372.65 5548.86  374.65 5548.85  376.65 5548.79
  378.65 5548.82  380.65 5548.89  382.65 5548.89  384.64 5549.01  386.64 5549.19
  388.62 5549.45  388.64 5549.45  390.64 5549.81  392.64 5550.13  394.64 5550.07
  396.63    5550  397.53 5549.99  398.63 5549.98  400.63 5549.98  402.63 5549.94
  404.63  5549.9  406.63 5550.04  407.54 5550.08  408.62 5550.13  410.54 5550.18
  410.62 5550.18  412.62  5550.2  414.62 5550.24  416.62  5550.3  418.62 5550.58
  420.61 5550.82  422.61 5550.65  424.61 5550.19  426.61 5550.13  428.61 5550.84
  430.61 5551.62   432.6 5552.49   434.6 5553.25   436.6 5553.99   438.6 5554.16
   440.6 5551.54   442.6 5550.33  444.59 5550.32  446.59 5550.33  448.59 5550.28
  450.59 5550.39  452.59 5550.41  454.59 5550.41  456.58 5550.43  458.58 5550.46
  460.58 5550.46  462.58 5550.48  464.58 5550.51  466.58 5550.56  468.57 5550.59
  470.57 5550.58  472.57 5550.57  474.57  5550.6  476.57 5550.65  478.57 5550.65
  480.56 5550.69  482.56 5550.71  484.56 5550.69  486.56 5550.74  488.56 5550.76
  490.56 5550.75  492.55 5550.73  494.55 5550.76  496.55 5550.75  498.55 5551.13
  500.55 5552.78  502.55  5554.5  504.54 5556.14  506.54  5556.2  508.54 5556.27
  510.54 5556.23  512.54 5556.24  514.54 5556.24  516.53 5556.31  518.53 5556.37
  520.53 5556.33  522.53 5556.38  524.53 5556.47  526.53 5556.57  528.52  5556.7
  530.52 5556.83  532.52 5556.95  534.52 5557.19  536.52 5557.41  538.52 5557.55

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13  388.62    .015  410.54     .09

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        292.72  392.64          112.79   94.98   92.84             .1       .3
Ineffective Flow     num=       1
   Sta L    Sta R    Elev  Permanent
       0  305.94    5558       T
Blocked Obstructions      num=       2
   Sta L    Sta R    Elev   Sta L   Sta R    Elev
    87.3   119.7 5558.33  261.98  305.945558.532

CROSS SECTION
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```
RIVER: TCC_S1
REACH: 6                    RS: 8352

INPUT
Description: 8352
Station Elevation Data    num=     270
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
        0 5544.94    1.99 5544.89    3.98 5544.83    5.97 5544.79    7.95 5544.75
     9.94 5544.65   11.93 5544.53   13.92 5544.45   15.91 5544.37    17.9 5544.31
    19.88  5544.3   21.87 5544.27   23.86 5544.23   25.85 5544.19   27.84 5544.17
    29.83 5544.17   31.82 5544.15    33.8 5544.15   35.79 5544.13   37.78 5544.11
    39.77 5544.09   41.76 5544.08   43.75 5544.05   45.73 5544.12   47.72  5544.5
    49.71 5544.97    51.7 5545.15   53.69 5545.14   55.68 5545.14   57.66 5545.16
    59.65 5545.21   61.64 5545.23   63.63 5545.27   65.62  5545.3   67.61 5545.27
     69.6 5545.25   71.58 5545.25   73.57  5545.3   75.56 5545.29   77.55 5545.22
    79.54 5545.19   81.53  5545.2   83.51 5545.16    85.5 5545.09   87.49 5545.02
    89.48 5544.94   91.47 5544.89   93.46 5544.85   95.45 5544.78   97.43 5544.68
    99.42 5544.59  101.41 5544.49   103.4 5544.38  105.39 5544.28  107.38 5544.19
   109.36 5544.08  111.36 5544.06  113.35 5544.11  115.34 5544.16  117.33 5544.22
   119.32 5544.28  121.31  5544.3  123.31 5544.29   125.3 5544.25  127.29 5544.22
   129.28 5544.21  131.27 5544.29  133.26 5544.38  135.26 5544.38  137.25 5544.28
   139.24 5544.17  141.23 5544.04  143.22 5543.84  145.21 5543.76  147.21 5543.68
    149.2 5543.64  151.19  5543.6  153.18 5543.56  155.17 5543.53  157.16 5543.48
   159.16 5543.45  161.15 5543.37  163.14 5543.28  165.13 5543.21  167.12 5543.21
   169.11 5543.27  171.11 5543.26   173.1 5543.33  175.09  5543.4  177.08 5543.48
   179.07 5543.58  181.06 5543.57  183.06 5543.52  185.05 5543.49  187.04 5543.45
   189.03 5543.49  191.02 5543.52  193.01 5543.49  195.01 5543.33     197 5543.23
   198.99 5543.26  200.98 5543.24  202.97 5543.16  204.96 5543.14  206.96 5543.18
   208.95  5543.2  210.94 5543.21  212.93 5543.42  214.92 5543.43  216.91 5543.42
   218.91 5543.32   220.9 5543.29  222.89 5543.35  224.88 5543.31  226.87  5543.3
   228.86 5543.22   230.4 5543.21  230.86  5543.2  232.85 5543.21  234.84 5543.23
   236.83 5543.26  238.82 5543.32  240.81 5543.36  242.81 5543.41   244.8 5543.45
   246.79 5543.51  248.77 5543.57  250.74 5543.61  252.72 5543.62   254.7  5543.7
   256.68 5543.74  258.65  5543.8  260.63 5543.83  262.61 5543.88  264.59 5543.93
   266.56 5543.97  268.54 5544.01  270.52 5544.09   272.5 5544.17  274.48 5544.17
   276.45 5544.22  278.43 5544.26  280.41 5544.29  282.39  5544.3  284.36 5544.33
   286.34 5544.35  288.32  5544.4   290.3 5544.44  292.27  5544.5  294.25 5544.55
   296.23 5544.59  298.21  5544.6  300.18  5544.6  302.16 5544.66  304.14 5544.72
   306.12 5544.77  308.09 5544.79  310.07 5544.81  312.05 5544.84  314.03 5544.87
      316 5544.92  317.98 5544.96  319.96 5545.01  321.94 5545.04  323.91 5545.07
   325.89 5545.12  327.87 5545.14  329.85 5545.18  331.82 5545.21   333.8 5545.18
   335.78 5545.17  337.76 5545.26  339.73 5545.32  341.71 5545.35  343.69  5545.4
   345.67 5545.43  347.64 5545.46  349.62 5545.49   351.6 5545.54  353.58 5545.58
   355.56 5545.61  357.53 5545.64  359.51 5545.68  361.47  5545.71 361.49 5545.71
   363.47 5545.77  365.44 5545.79  367.42 5545.79   369.4 5545.83  371.38 5545.84
   373.35 5545.87  375.33 5545.93  377.31 5545.99  379.29 5546.02  381.26 5546.09
   383.24 5546.15  385.22 5546.21  387.21 5546.29  389.19  5546.3  391.18  5546.4
   393.17 5546.47  395.16 5546.51  397.15 5546.55  399.13 5546.54  401.12 5546.56
    401.9 5546.58  403.11  5546.6   405.1 5546.64  407.08 5546.67  409.07 5546.73
   411.06 5546.79  413.05 5546.86  415.04 5546.92  417.02 5546.98  419.01 5547.06
      421 5547.11  422.99 5547.17  424.97 5547.23   425.6 5547.25  426.96  5547.3
   428.95 5547.34  430.94  5547.4  432.93 5547.45  434.91 5547.49   436.9 5547.55
   438.89 5547.59  440.88 5547.63  442.86 5547.59  444.85 5547.59  446.84 5547.56
   448.83 5547.57  450.82 5547.55   452.8 5547.59  454.79 5547.83  456.78 5548.12
   458.77 5548.37  459.12 5548.44  460.75 5548.76  462.74 5549.37  464.73 5550.11
   466.72 5550.57  468.71 5550.52  470.69 5550.52  472.68  5550.6  474.67 5550.67
   476.66 5550.67  478.64 5550.73  480.63 5550.68  482.62 5550.85  484.61 5550.83
    486.6 5550.87  488.58  5550.9  490.57 5550.99  492.56 5550.95  494.55 5550.93
   496.53 5551.05  498.52 5551.19  500.51 5551.29   502.5 5551.36  504.49 5551.44
   506.47 5551.51  508.46 5551.53  510.45 5551.58  512.44 5551.69  514.42 5551.75
   516.41 5551.76   518.4 5551.82  520.39 5551.91  522.38 5551.93  524.36  5552.1

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   230.4    .015   425.6    .015  459.12     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        137.25  274.48           191.99  242.58  220.39            .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
       0     268    5550       T
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0   16.875554.336   55.31   127.35554.218

CROSS SECTION


RIVER: TCC_S1
REACH: 6                    RS: 8109

INPUT
Description: 8109
Station Elevation Data    num=     215
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
        0 5537.66    1.99 5537.68    3.99 5537.69    5.98  5537.7    7.98  5537.7
     9.97 5537.72   11.96 5537.75   13.96 5537.68   15.95 5537.76   17.95 5537.77
    19.94 5537.79   21.93 5537.77   23.93 5537.77   25.92 5537.81   27.92 5537.75
    29.91 5537.75    31.9 5537.75    33.9 5537.73   35.89 5537.68   37.89 5537.68
    39.88 5537.38   41.87 5537.46   43.87 5537.57   45.86 5537.69   47.86 5537.69
    49.85 5537.67   51.84 5537.66   53.84 5537.62   55.83 5537.55   57.83 5537.48
    59.82 5537.43   61.81 5537.27   63.81 5537.29    65.8 5537.37    67.8 5537.42
    69.79 5537.36   71.78  5537.3   73.78 5537.21   75.77 5537.18   77.77 5537.14
    79.76  5537.1   81.75 5537.08   83.75 5537.07   85.74 5537.07   87.74 5537.06
    89.73 5537.03   91.72 5536.99   93.72 5536.93   95.71 5536.87   97.71 5536.79
     99.7 5536.85  101.69 5536.94  103.69 5536.97  105.68 5536.93  107.68 5536.84
   109.67 5536.65  111.66  5536.2  113.66 5535.84  115.65  5535.8  117.65 5535.76
   119.64  5535.7  121.63 5535.64  123.63 5535.64  125.62 5535.64  127.62 5535.62
   129.61 5535.66   131.6 5535.76   133.6 5535.84  135.59 5535.61  137.59 5535.72
   139.58 5535.81  141.57  5535.8  143.57 5535.75  145.56 5535.69  147.56 5535.64
   149.55 5535.58  151.54 5535.53  153.54 5535.48  155.53 5535.42  157.53 5535.37
   159.52 5535.34  161.51 5535.24  163.51 5535.17   165.5 5535.17   167.5 5535.15
   169.49  5535.1  171.49 5535.09  173.48 5535.05  175.47 5535.06  177.47 5535.07
   179.46 5535.07  181.46 5535.06  183.45  5535.1  185.44 5535.09  187.44  5535.1
   189.43 5535.12  191.43 5535.15  193.42 5535.13  195.41 5535.17  197.41 5535.16
    199.4 5535.09   201.4  5535.1  203.39 5535.09  205.38 5535.04  207.38 5535.03
   209.37 5534.99  211.37 5534.93  213.36 5534.89  215.35 5534.87  217.35 5534.77
   219.34 5534.61  221.34 5534.61  223.33 5534.56  225.32 5534.52  227.32 5534.46
   229.31  5534.4  231.31 5534.41   233.3 5534.36  235.29 5534.29  237.29 5534.21
   239.28 5534.12  241.28 5534.06  243.27 5534.07  245.26 5534.07  247.26 5534.05
   249.25 5533.97  251.25 5533.88  253.24 5533.83  254.56 5533.91  255.23 5533.96
   257.23 5533.91  259.22 5533.87  261.22  5533.8  263.21 5533.86   265.2 5533.98
   266.12 5534.06   267.2 5534.17  269.19 5534.08  271.19 5534.13  273.18  5534.2
   275.17  5534.3  277.17 5534.37  279.16  5534.5  281.16 5534.49  283.15 5534.51
   285.14 5534.62  287.14 5534.67  289.13 5534.71  291.13 5534.76  293.12 5534.82
   295.11 5534.83  297.11 5534.86   299.1 5534.92   301.1 5535.01  303.09 5535.15
   305.08 5535.23  307.08 5535.31  309.07  5535.4  311.07 5535.53  313.06 5535.59
   315.05 5535.67  317.05 5535.71  319.04 5535.69  321.04 5535.76  323.03 5535.87
   325.02 5536.04  327.02 5536.22  329.01 5536.36  331.01 5536.42  332.99 5536.81
   334.98 5537.21  336.97 5537.49  338.95 5537.74  340.94 5538.01  342.93  5538.2
   344.92 5538.39   346.9 5538.63  348.89 5538.87  350.88 5539.12  352.86 5539.28
   354.85 5539.43  356.84 5539.59  358.83 5539.77  360.81 5539.97   362.8 5540.15
   364.79 5540.27  366.77 5540.33  368.76 5540.39  370.75  5540.5  372.74 5540.59
   374.72 5540.72  376.71 5540.84   378.7 5540.97  380.68 5541.12  382.67 5541.22
   384.66 5541.29  386.65 5541.41  388.63 5541.48  390.62 5541.56  392.61 5541.64
   394.59 5541.74  396.58 5541.93  398.57 5542.08  400.56 5542.14  402.54  5542.3
   404.53 5542.47  406.52 5542.56   408.5 5542.59   409.3  5542.6  410.49 5542.62
   412.48 5542.68  414.47 5542.72  416.45 5542.75  418.44 5542.75  420.43 5542.77
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Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0     .13   409.3    .015

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         199.4  315.05          166.12  176.28  181.04             .1       .3
Ineffective Flow     num=       3
   Sta L   Sta R    Elev  Permanent
     8.2   24.365547.781       F
     133  171.995545.073       F
  310.96  373.335550.605       F

CROSS SECTION


RIVER: TCC_S1
REACH: 6                   RS: 7933

INPUT
Description: 7933
Station Elevation Data    num=     239
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5532.07    1.97 5532.03    3.94 5531.97    5.91  5531.9    7.87 5531.83
    9.84 5531.78   11.81 5531.72   13.78  5531.6   15.75 5531.47   17.72 5531.38
   19.68 5531.15   21.65  5531.3   23.62 5531.26   25.59 5531.16   27.56 5531.09
   29.53 5530.96   31.49 5530.87   33.46 5530.82   35.43 5530.66     37.4  5530.6
   39.37 5530.55   41.34 5530.48    43.3 5530.35   45.27 5530.38   47.24 5530.29
   49.21 5530.25   51.18 5530.14   53.15 5530.06   55.12 5529.95   57.08 5529.84
   59.05  5529.8   61.02 5529.74   62.99 5529.62   64.96 5529.51   66.93 5529.41
   68.89 5529.41   70.86 5529.35   72.83 5529.23    74.8 5529.19   76.77  5529.1
   78.74 5529.03    80.7 5528.95    82.7 5528.93   84.69  5528.9   86.69 5528.89
   88.68  5528.9   90.68 5528.85   92.67 5528.82   94.66 5528.81   96.66 5528.82
   98.65 5528.83  100.65  5528.8  102.64 5528.76  104.63 5528.78  106.63 5528.79
  108.62 5528.79  110.62 5528.79  112.61 5528.74  114.61 5528.76   116.6 5528.75
  118.59 5528.74  120.59 5528.75  122.58 5528.74  124.58  5528.7  126.57 5528.72
  128.57 5528.72  130.56 5528.71  132.55 5528.63  134.55  5528.6  136.54 5528.57
  138.54 5528.57  140.53 5528.58  142.52 5528.61  144.52 5528.66  146.51 5528.67
  148.51 5528.73   150.5 5528.77   152.5 5528.78  154.49 5528.76  156.48 5528.74
  158.48 5528.69  160.47 5528.69  162.47 5528.69  164.46 5528.63  166.45  5528.6
  168.45 5528.59  170.44 5528.62  172.44  5528.7  174.43 5528.74  176.43 5528.77
  178.42 5528.78  180.41 5528.71  182.41 5528.66   184.4 5528.65   186.4 5528.67
  188.39 5528.67  190.38 5528.65  192.38 5528.65  194.37 5528.64  196.37 5528.63
  198.36 5528.65  200.36 5528.73  202.35 5528.69  204.34 5528.68  206.34 5528.66
  208.33 5528.61  210.33 5528.59  212.32 5528.52  214.31 5528.46  216.31 5528.47
   218.3 5528.47   220.3 5528.46  222.29 5528.47  224.29 5528.51  226.28 5528.53
  228.27 5528.51  230.27 5528.55  232.26 5528.62  234.26 5528.79  236.25  5528.9
  238.24 5528.97  240.24 5528.87  242.23 5528.76  243.64 5528.47  244.23 5528.36
  246.22 5528.11  248.22 5527.96  250.21 5527.73   252.2 5527.46  253.65 5527.45
   254.2 5527.44  256.19 5527.62  258.19 5527.56  260.18 5527.48  262.17 5527.41
  264.17 5527.42  266.16 5527.39  268.16 5527.31  270.15 5527.32  272.15 5527.29
  274.14 5527.33  276.13 5527.36  278.13 5527.29  280.12  5527.1  282.12 5527.01
  284.11 5526.86  286.11 5526.89   288.1 5526.93  290.09 5526.97  292.09 5527.01
  294.08 5527.04  296.08 5527.07  298.07 5527.11  300.06 5527.12  302.06 5527.12
  304.05 5527.09  306.05 5527.05  308.04 5527.03  310.04 5526.98  312.03 5526.97
  314.02 5526.93  316.02 5527.11  318.01 5527.35  320.01 5527.53     322 5527.79
  323.99 5528.14  325.99 5528.66  327.98 5529.12  329.98 5529.58  331.97 5530.05
  333.97 5530.34  335.96 5530.49  337.95  5530.6  339.95 5530.73  341.94 5530.84
  343.94 5530.92  345.93 5531.05  347.92 5531.12  349.92 5531.16  351.91 5531.23
  353.91  5531.3   355.9 5531.38   357.9 5531.42  359.86 5531.54  361.83 5531.67
   363.8 5531.79  365.77  5531.9  367.73    5532   369.7 5532.09  371.67 5532.16
  373.64 5532.27   375.6 5532.39  377.57  5532.5  379.54 5532.59  381.51 5532.67
  383.47 5532.76  385.44 5532.89  387.41 5533.02  389.38 5533.12  391.34 5533.19
  393.31  5533.3  395.28 5533.37  397.25 5533.45  399.21 5533.53  401.18 5533.58
  403.15  5533.6  405.11  5533.6  407.08 5533.72  409.05 5533.76  411.02 5533.85
  412.98 5533.93  414.95  5534.1  416.92 5534.35  418.89 5534.45  420.85 5534.47
  422.82 5534.52  424.79 5534.52  426.76 5534.57  428.72  5534.6  430.69 5534.63
  432.66 5534.67  434.63 5534.75  436.59 5534.79  438.56 5534.86  440.53    5535
   442.5 5534.97  444.46 5535.08  446.43 5535.27   448.4 5535.58  450.37 5536.07
  452.33 5536.61   454.3 5537.14  456.27 5537.67  458.24  5538.2   460.2 5538.74
  462.17 5539.27  464.14  5539.8  466.11 5540.33  468.07 5540.86

Manning's n Values        num=       1
     Sta   n Val
       0     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        240.24  327.98          214.47  220.44  249.04             .1       .3
Ineffective Flow     num=       3
   Sta L   Sta R    Elev  Permanent
  281.56  302.415537.114       F
  305.16  323.465538.035       F
  436.96  445.295545.155       F
Blocked Obstructions      num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
  302.41  305.165537.063  445.29  468.075550.864

CROSS SECTION


RIVER: TCC_S1
REACH: 6                   RS: 7712

INPUT
Description: 7712
Station Elevation Data    num=     188
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5520.82       2 5520.73       4 5520.63       6 5520.54       8 5520.44
      10 5520.35      12 5520.25   13.99 5520.16   15.99 5520.06   17.99 5519.97
   19.99 5519.85   21.99 5519.73   23.99 5519.63   25.99 5519.36   27.99 5519.07
   29.99 5519.06   31.99 5519.03   33.99 5518.75   35.99 5518.58   37.98  5518.5
   39.98 5518.35   41.98 5518.21   43.98 5518.05   45.98  5517.9   47.98 5517.78
   49.98 5517.66   51.98 5517.57   53.98 5517.57   55.98 5517.58   57.98 5517.55
   59.98 5517.49   61.98 5517.48   63.97 5517.48   65.97 5517.48   67.97 5517.56
   69.97 5517.63   71.97  5517.7   73.97 5517.83   75.97 5517.94   77.97 5518.11
   79.11  5518.2   79.97 5518.27   81.97 5518.48   83.97 5518.87   85.97 5519.03
   87.97 5519.13   89.79 5519.23   89.96 5519.24   91.96 5519.41   93.96 5519.53
   95.96 5519.66   97.96 5519.74   99.96  5519.8  101.96 5519.77  103.96 5519.82
  105.96 5519.85  107.96 5519.89  109.96 5519.96  111.96 5520.07  113.95 5520.24
  115.95 5520.41  117.95 5520.45  119.95 5520.51  121.95 5520.55  123.95 5520.55
  125.95 5520.48  127.95 5520.45  129.95 5520.46  131.95 5520.35  133.95 5520.23
  135.95 5520.14  137.95 5520.12  139.94 5520.13  141.94 5520.14  143.94 5520.14
  145.94 5520.15  147.94 5520.17  149.94 5520.21  151.94 5520.28  153.94 5520.35
  155.94 5520.42  157.94 5520.49  159.94 5520.56  161.94 5520.64  163.94 5520.69
  165.93 5520.75  167.93 5520.82  169.93 5520.86  171.93  5520.9  173.93 5520.92
  175.93 5520.95  177.93 5521.04  179.93 5521.07  181.93 5521.06  183.93 5521.04
  185.93 5521.02  187.93    5521  189.92 5520.97  191.92 5520.96  193.92 5520.97
  195.92 5520.98  197.92 5520.99  199.92 5520.96  201.92 5520.97  203.92 5520.97
  205.92 5520.96  207.92    5521  209.92  5521.6  211.92 5522.19  213.92 5522.39
  215.91 5522.44  217.91 5522.41  219.91 5522.42  221.91  5522.3  223.91 5522.21
  225.91 5522.16  227.91 5522.08  229.91 5522.02  231.91 5521.91  233.91 5521.89
  235.91 5521.82  237.91 5521.88   239.9 5521.94   241.9    5522   243.9  5522.1
   245.9 5522.21   247.9  5522.3   249.9 5522.35   251.9  5522.4   253.9 5522.45
   255.9 5522.47   257.9  5522.5   259.9 5522.55   261.9 5522.55   263.9 5522.76
  265.89 5522.96  267.89 5522.67  269.89 5522.47  271.89 5522.32  273.89 5522.11
  275.89 5521.94  277.89 5521.86  279.89 5521.93  281.89 5521.92  283.89    5522
  285.89 5522.06  287.89 5522.09  289.58 5522.08  289.89 5522.08  291.88 5522.16
  293.88 5522.26  295.88 5522.39  297.88 5522.53  299.88 5522.64  301.88 5522.79
  303.88 5522.87  305.88 5522.97  307.88 5523.11  309.81 5523.24  311.75 5523.29
  313.69 5523.39  315.62  5523.5  317.56 5523.57  319.49 5523.66  321.43 5523.77
  323.37 5523.89   325.3 5523.96  327.24 5524.07  329.18 5524.18  331.11 5524.27
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  333.05 5524.38  334.98 5524.47  336.92 5524.58  338.86 5524.73  340.79 5524.84
  342.73 5524.92  344.66 5525.01   346.6 5525.11  348.54 5525.26  350.47 5525.37
  352.41 5525.38  354.34 5525.49  356.28 5525.63  358.22 5525.76  360.15 5525.86
  362.09    5526  364.03  5526.1  365.96 5526.23

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0     .13  289.58    .015

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         17.99   99.96           126.04  162.15   172.4             .1       .3
Ineffective Flow     num=       4
   Sta L   Sta R    Elev  Permanent
   15.21   51.875527.575       F
  124.09  130.965530.401       F
  179.06  189.735530.976       F
  201.65  214.765532.407       F
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0   15.215530.101  130.96  179.065531.075

CROSS SECTION


RIVER: TCC_S1
REACH: 6                  RS: 7550

INPUT
Description: 7550
Station Elevation Data    num=     204
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  5515.9    1.99 5515.86    3.97 5515.79    5.96 5515.68    7.95 5515.68
    9.93 5515.63   11.92 5515.61   13.91 5515.56   15.89 5515.53   17.88 5515.48
   19.87 5515.39   21.85 5515.31   23.84 5515.26   25.83 5515.15   27.81 5515.08
    29.8 5515.05   31.79 5514.98   33.77 5514.88   35.76 5514.78   37.75 5514.63
   39.73 5514.48   41.72 5514.31   43.71 5514.11   45.69 5514.18   46.15 5514.23
   47.68  5514.4   49.67 5514.47   51.65 5514.48   53.64 5514.46   55.63 5514.43
   57.61 5514.42    59.6 5514.37   61.59 5514.45   63.57 5514.52   65.56 5514.59
   67.55 5514.43   69.53 5514.22   71.52 5514.06   73.51 5514.15   75.49 5514.55
   77.48 5514.71   79.47 5515.43   81.45 5516.01   83.44 5516.39   85.43 5516.81
   87.41 5516.94    89.4 5516.96   91.39 5516.91   93.37  5516.8   95.36 5516.58
   97.35 5515.95   99.33 5515.15  101.32 5514.69  103.31 5514.54  105.29 5514.29
  107.28 5513.91  109.27 5513.52  111.25 5513.05  113.24 5512.27  115.22 5512.04
  117.21 5512.04   119.2 5512.06  121.18 5512.12  123.17 5512.15  125.16 5512.17
  127.14 5512.19  129.13  5512.2  131.12 5512.21   133.1 5512.37  135.09 5512.55
  137.08 5512.65  139.06 5512.76  141.05 5512.83  143.04  5512.9  145.02 5513.07
  147.01 5513.34     149 5513.68  150.98 5513.99  152.97 5514.17  154.96 5514.27
  156.94 5514.37  158.93 5514.47  160.92 5514.56   162.9 5514.66  164.89 5514.76
  166.88 5514.88  168.86    5515  170.85  5515.1  172.84 5515.16  174.82 5515.24
  176.81 5515.21   178.8  5515.1  180.78 5515.06  182.77 5514.98  184.76 5514.89
  186.74 5514.78  188.73 5514.71  190.72  5514.6   192.7 5514.48  194.69 5514.36
  196.68 5514.24  198.66 5514.16  200.65 5513.97  202.64 5513.76  204.62 5513.61
  206.61 5513.48  207.13 5513.46   208.6 5513.41  210.58 5513.37  211.35 5513.37
  212.57 5513.38  214.56 5513.31  216.54  5513.3  218.44 5513.43  218.53 5513.43
  220.52 5513.51   222.5 5513.59  224.49 5513.63  226.48 5513.71  228.46 5513.74
  230.45  5513.8  232.44 5513.88  234.43 5513.93  236.42 5514.01  238.41 5514.11
   240.4 5514.19  242.39  5514.3  244.38 5514.32  246.37 5514.43  248.35 5514.51
  250.34 5514.58  252.33 5514.62  254.32  5514.7  256.31 5514.81   258.3 5514.89
  260.29 5514.94  262.28 5515.01  264.27  5515.1  266.26 5515.16  268.25 5515.23
  270.23 5515.31  272.22 5515.39  274.21 5515.51   276.2 5515.57  278.19 5515.65
  280.18 5515.74  282.17 5515.84  284.16 5515.87  286.15 5515.96  288.14 5516.03
  290.13 5516.09  292.11 5516.24   294.1 5516.25  296.09 5516.41  298.08 5516.47
  300.07 5516.53  302.06 5516.62  304.05 5516.73  306.04 5516.77  308.03  5516.9
  310.02 5516.95  312.01  5517.04  313.99 5517.1.1  315.98  5517.2  317.97 5517.25
  319.96 5517.29  321.95 5517.39  323.94 5517.49  325.93  5517.6  327.92  5517.7
  329.91  5517.8   331.9 5517.89  333.89 5517.98  335.88 5518.07  337.86 5518.17
  339.85 5518.32  341.84 5518.39  343.83 5518.48  345.82 5518.56  347.81 5518.69
   349.8 5518.82  351.79 5518.91  353.78 5518.98  355.77 5519.08  357.76 5519.16
  359.74 5519.29  361.73 5519.36  363.72 5519.44  365.71 5519.56   367.7 5519.65
  369.69 5519.73  371.68  5519.8  373.67 5519.89  375.66 5520.01  377.65 5520.12
  379.64  5520.2  381.62 5520.29  383.61 5520.38   385.6 5520.44  387.59 5520.53
  389.58 5520.63  391.57 5520.75  393.56 5520.82  395.55 5520.89

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .015   46.15     .13  211.35    .015

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        198.66   240.4           135.11  141.77  128.71             .1       .3
Ineffective Flow     num=       3
   Sta L   Sta R    Elev  Permanent
   80.76   92.485526.858       F
    98.4   105.5 5524.25       F
       0   80.76    5518       T
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
   92.48    98.4 5525.55  132.63  175.625525.263

CROSS SECTION


RIVER: TCC_S1
REACH: 6                  RS: 7408

INPUT
Description: 7408
Station Elevation Data    num=     147
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5513.62       2 5513.61       4 5513.58       6 5513.52       8 5513.46
      10 5513.41      12 5513.36   13.99 5513.32   15.99 5513.27   17.99 5513.15
   19.99 5512.97   21.99 5512.85   23.99 5512.73   25.99 5512.61   27.99 5512.49
   29.99 5512.36   31.99  5512.2   33.99 5512.18   35.99 5512.07   37.99 5511.82
   39.98 5511.64   41.98 5511.34   43.98 5510.75   45.98 5509.84   47.98 5509.63
   49.98  5509.6   51.98 5509.55   53.98 5509.49   55.98 5509.51   57.98 5509.59
   59.98 5509.64   61.98 5509.56   63.97 5509.62   65.97  5509.6   67.97 5509.56
   69.97 5509.53   71.97  5509.5   73.97 5509.46   75.97 5509.43   77.97  5509.4
   79.96 5509.36   81.95 5509.33   83.95  5509.3   85.94 5509.27   87.93 5509.24
   89.92  5509.2   91.91 5509.17   93.91 5509.14    95.9 5509.12   97.89 5509.09
   99.88 5509.07  101.87 5509.05  103.87 5509.09  105.86 5509.08  107.85 5509.11
  109.84  5509.1  111.83 5509.09  113.83 5508.99  115.82 5508.87  117.81  5508.8
   119.8  5508.7  121.79 5508.67  123.79 5508.67  125.78 5508.66  127.77 5508.66
  129.76 5508.64  131.75 5508.65  133.75 5508.68  135.74 5508.62  137.73  5508.6
  139.72 5508.61  141.71 5508.55  143.71 5508.53   145.7 5508.54  147.69 5508.55
  149.68 5508.49  151.67 5508.43   152.3  5508.4  153.67 5508.35  154.02 5508.35
  155.66 5508.35  157.65 5508.35  159.64 5508.41  161.63 5508.49  162.56 5508.53
  163.62 5508.58  165.62 5508.61  167.61 5508.69   169.6 5508.74  171.59 5508.71
  173.58 5508.65  175.58  5508.5  177.57 5508.48  179.56 5508.49  181.55 5508.47
  183.54 5508.46  185.54 5508.41  186.47 5508.38  187.53 5508.33  189.52 5508.38
  191.51 5508.47   193.5  5508.5   195.5 5508.38  197.49 5508.09  199.48 5507.98
  201.47 5508.12  203.46 5508.21  205.46  5508.3  207.45 5508.38  209.44 5508.39
  211.43 5508.41  213.42 5508.45  215.42  5508.5  217.41 5508.62   219.4 5508.76
  221.39 5508.75  223.38 5508.93  225.38 5509.25  227.37 5509.63  229.36 5510.01
  231.35 5510.36  233.34 5510.69  235.34 5511.01  237.33  5511.1  239.32 5511.09
  241.27 5511.11  243.22 5511.15  245.17 5511.17  247.12 5511.22  249.07 5511.27
  251.02 5511.27  252.98 5511.27  254.93  5511.3  256.88 5511.32  258.83 5511.38
  260.78 5511.57  262.73 5511.81  264.68 5511.93  266.63 5512.13  268.58  5512.1
  270.53 5511.95  272.48 5511.94  274.43 5511.96  276.39 5511.96  278.34 5511.85
  280.29 5511.52  282.24 5511.36

Manning's n Values        num=       3
```

```
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13  154.02    .015  186.47     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         111.83  221.39          173.87  161.65  154.87             .1       .3
Ineffective Flow      num=        1
   Sta L    Sta R    Elev  Permanent
  253.74  261.635521.666        F
Blocked Obstructions      num=        3
   Sta L   Sta R    Elev   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0   35.935522.075   62.98   108.45519.101  270.54  282.245521.362

CROSS SECTION


RIVER: TCC_S1
REACH: 6                    RS: 7247

INPUT
Description: 7247
Station Elevation Data    num=     170
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5505.12    1.96 5505.15    3.92 5505.17    5.88 5505.18    7.84 5505.16
     9.8 5505.14   11.76 5505.01   13.72  5504.7   15.68 5504.33   17.64 5504.12
    19.6 5504.03   21.56 5503.94   23.52 5503.87   25.48 5503.73   27.44 5503.67
    29.4 5503.52   31.36 5503.34   33.32 5503.21   35.28 5503.12   37.24 5503.04
    39.2 5503.03   41.16 5503.09   43.12 5503.04   45.08 5502.95   46.26  5502.9
   47.04 5502.87      49 5502.73   50.96 5502.71   52.92 5502.76   54.88 5502.78
   56.84 5502.78    58.8 5502.73   60.76 5502.66   62.72 5502.58   64.68 5502.47
   66.64  5502.4   68.64 5502.36   70.64 5502.34   72.63 5502.25   73.17  5502.2
   74.63 5502.07   76.63 5501.99   78.63  5501.9   80.63 5501.78   82.63 5501.57
   84.63 5501.18   86.63 5501.44   88.62 5501.83   90.62 5502.25   92.62 5502.13
   94.62 5501.99   96.62 5501.53   98.62 5501.24  100.62 5501.18  102.62 5501.09
  104.61 5501.03  106.61 5501.01  108.61 5500.93  110.61 5500.87  112.61 5500.73
  114.61 5500.71  116.61 5500.78  118.61 5500.74  120.61 5500.71   122.6 5500.73
   124.6 5500.79   126.6 5500.86   128.6 5500.96   130.6 5501.02   132.6 5501.04
   134.6 5501.09   136.6 5501.09  138.59 5501.11  140.59 5501.14  142.59 5501.13
  144.59 5501.13  146.59 5501.12  148.59 5501.23  150.59 5501.52  152.59 5501.56
  154.58 5501.42  156.58 5501.22  158.58 5501.02  160.58 5500.98  162.58 5500.87
  164.58 5500.79  166.58  5500.7  167.29 5500.68  168.58 5500.66  170.58 5500.87
  172.57 5501.06  174.57 5501.33  176.57 5501.58  178.49  5501.8  178.57 5501.81
  180.57 5501.67  182.57 5501.73  184.57 5502.27  186.57 5502.46  188.56 5502.47
  190.56 5502.35  192.56 5502.33  194.56 5502.18  196.56 5502.02  198.56 5502.05
  200.56 5502.11  202.56 5502.16  204.55 5502.15  206.55 5502.15  208.55 5502.16
  210.55 5502.17  212.55 5502.09  214.55 5502.09  216.55 5502.12  218.55 5502.18
  220.55 5502.23  222.54 5502.25  224.54 5502.25  226.54 5502.24  228.54 5502.24
  230.54 5502.29  232.54 5502.42  234.54 5502.57  236.54 5502.72  238.53 5502.87
  240.53 5503.07  242.53 5503.21  244.53 5503.31  246.53 5503.45  248.53 5503.56
  250.53 5503.62  252.53 5503.68  254.52 5503.73  256.52 5503.78  258.52  5503.9
  260.52 5504.06  262.52  5504.2  264.52 5504.64  266.52  5504.7  268.52  5504.5
  270.52 5504.25  272.51 5504.07  274.51 5504.24  276.51 5504.27  278.51  5504.2
  280.51 5504.15  282.51 5504.35  284.51  5504.7  286.51 5505.05   288.5 5505.27
   290.5 5505.29   292.5 5505.46   294.5 5505.52   296.5 5505.45   298.5 5505.33
   300.5 5505.29   302.5 5505.34  304.49  5505.4  306.49 5505.43  308.49 5505.46
  310.49 5505.48  312.49 5505.51  314.49 5505.47  316.49  5505.4  318.49 5505.34
  320.49 5505.34  322.48 5505.31  324.48 5505.35  326.48 5505.35  328.48 5505.43

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   46.26    .015   73.17     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         152.59  178.49          107.51   98.92   46.53             .1       .3
Ineffective Flow      num=        2
   Sta L    Sta R    Elev  Permanent
     116  154.655511.411        F
  262.85  315.765515.426        F
Blocked Obstructions      num=        2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0    8.98 5515.15  194.03  262.85 5514.27

CROSS SECTION


RIVER: TCC_S1
REACH: 6                    RS: 7148

INPUT
Description: 7148
Station Elevation Data    num=     179
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5502.21    1.99 5502.23    3.98  5502.3    5.97 5502.33    7.96 5502.29
    9.95 5502.21   11.94 5502.12   13.93 5502.03   15.92 5501.89   17.87 5501.79
   17.91 5501.79    19.9 5501.61   21.89 5501.49   23.88 5501.26   25.87 5501.28
   27.86 5501.54   29.85 5501.49   31.84 5501.23   33.83 5501.06   35.82 5500.97
   37.81 5500.89    39.8 5500.81   41.79 5500.67   43.78  5500.6   45.77 5500.53
   47.76 5500.37   49.75  5500.2   51.74 5500.07   53.73 5499.94   55.72 5499.86
   57.71 5499.68    59.7 5499.58   61.69 5499.47   63.68 5499.35   65.67 5499.27
   67.66 5499.11   69.65 5499.05   71.64 5499.03   73.63 5498.95   75.62 5498.91
   77.61 5498.92    79.6 5498.86   81.59 5498.77   83.58  5498.7   85.57 5498.65
   87.56 5498.54   89.55 5498.64   91.55 5498.66   93.54 5498.64   95.53 5498.62
   97.52 5498.66   99.51 5498.65   101.5 5498.73  103.49 5498.75  105.48 5498.77
  107.47 5498.77  109.46 5498.75  111.45 5498.77  113.44 5498.79  115.43 5498.78
  117.42 5498.78  119.41 5498.79   121.4 5498.83  123.39 5498.86  125.38 5498.88
  127.37 5498.87  129.36 5498.86  131.35 5498.86  133.34 5498.86  135.33 5498.85
  137.32 5498.85  139.31 5498.84   141.3 5498.84  143.29 5498.83  145.28 5498.82
  147.27 5498.82  149.26 5498.82  151.25  5498.8  153.24 5498.79  155.23  5498.8
  157.22 5498.78  159.21 5498.76   161.2 5498.76  163.19 5498.69  165.18 5498.67
  167.17 5498.67  169.16 5498.67  171.15 5498.62  173.14 5498.49  175.13 5498.45
  177.12 5498.47  179.11 5498.48   181.1 5498.46  183.09 5498.52  185.08 5498.59
  187.07 5498.56  189.05 5498.53  191.04 5498.49  193.02 5498.48     195 5498.48
  196.99 5498.48  198.97 5498.56  200.95 5498.49  202.94 5498.41  204.92 5498.32
   206.9 5498.32  208.89 5498.31  210.87 5498.39  212.85 5498.37  214.84  5498.2
  216.82 5497.99  217.67 5497.96  218.81 5497.92  220.79 5498.03  222.77  5498.1
  224.76 5498.03  226.74 5498.06  227.67 5498.19  228.72 5498.33  230.71 5498.66
  232.69 5498.94  234.67 5499.05  236.66 5499.08  238.64 5499.15  240.62 5499.19
  242.61 5499.21  244.59 5499.29  246.57 5499.25  248.56 5499.26  250.54 5499.25
  252.52 5499.43  254.51 5499.52  256.49  5499.6  258.47 5499.68  260.46 5499.76
  262.44 5499.89  264.42 5500.02  266.41  5500.1  268.39 5500.17  270.37 5500.31
  272.36 5500.35  274.34 5500.36  276.32 5500.45  278.31 5500.58  280.29 5500.66
  282.27  5500.7  284.26 5500.73  286.24 5500.81  288.23 5500.84  290.21 5500.92
  292.19 5501.02  294.18 5501.12  296.16 5501.25  298.14  5501.3  300.13 5501.42
  302.11 5501.58  304.09 5501.68  306.08 5501.82  308.06 5501.97  310.04 5502.12
  312.03 5502.18  314.01 5502.39  315.99 5502.92  317.98 5503.55  319.96 5504.21
  321.94  5504.9  323.93 5505.27  325.91 5505.36  327.89 5505.38  329.88 5505.35
  331.86 5505.32  333.84 5505.32  335.83 5505.35  337.81  5505.4  339.79 5505.41
  341.78 5505.42  343.76  5505.4  345.74 5505.39  347.73 5505.41

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0    .015   17.87     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         212.85  234.67          132.3  170.72  205.23             .1       .3
Ineffective Flow      num=        4
   Sta L    Sta R    Elev  Permanent
   63.14  112.585508.787        F
  164.02  191.375508.487        F
  236.93  291.595510.995        F
  292.17  319.635514.092        F
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Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
  112.58  164.025508.684

CROSS SECTION


RIVER: TCC_S1
REACH: 6                  RS: 6977

INPUT
Description: 6977
Station Elevation Data    num=     165
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5497.25       2 5497.25    3.99 5497.24    5.99 5497.23    7.98 5497.22
    9.98 5497.24   11.97 5497.31   13.97 5497.36   15.97 5497.38   17.96 5497.45
   19.96 5497.49   21.95 5497.48   23.95 5497.48   25.95 5497.48   27.94 5497.48
   29.94 5497.43   31.93 5497.34   33.93 5497.24   35.92 5497.13   37.92 5496.96
   39.92  5496.8   41.91 5496.49   43.91 5496.16    45.9 5495.97    47.9 5495.92
    49.9 5495.91   51.89 5495.84   53.89 5495.85   55.88 5495.73   57.88 5495.49
   59.87 5495.38   61.87 5495.38   63.87 5495.34   65.86 5495.43   67.86 5495.59
   69.85 5495.64   71.85 5495.87   73.85 5496.01   75.84 5495.93   77.84 5495.88
   79.83 5495.85   81.83 5495.79   83.82 5495.75   85.82 5495.67   87.82 5495.65
   89.81 5495.55   91.81 5495.49    93.8 5495.43    95.8 5495.37    97.8  5495.3
   99.79 5495.25  101.79 5495.17  103.78 5495.11  105.78 5495.05  107.77 5495.01
  109.77 5494.97  111.77 5494.91  113.76 5494.86  115.76 5494.94  117.75  5494.9
  119.75 5494.86  121.74 5494.74  123.74 5494.65  125.74 5494.71  127.73 5494.73
  129.73 5494.64  131.72 5494.54  133.72 5494.47  135.72 5494.27  137.71 5494.33
  139.71 5494.51   141.7 5494.77   143.7 5494.95  145.69 5495.24  147.69 5495.31
  149.69  5495.4  151.68  5495.5  153.68 5495.58  155.67 5495.59  157.67 5495.57
  159.67 5495.67  161.66 5495.82  163.66  5495.7  165.65 5495.63  167.65 5495.56
  169.64 5495.42  171.64 5495.31  173.64 5495.16  175.63 5494.76  177.63 5494.45
  179.62 5494.24  181.62 5494.06  183.62 5493.93  185.61 5493.82  187.61 5493.78
   189.6 5493.73   191.6  5493.7  193.59 5493.67  195.59 5493.69  197.59 5493.61
  199.58 5493.52  201.58 5493.44  203.57 5493.38  205.57 5493.37  207.56 5493.27
  209.56 5493.21  211.56 5493.21  213.55 5493.18  215.55 5493.18  217.54 5493.14
  219.54 5493.12  221.54 5493.14  223.53 5493.06  225.53 5493.06  227.52 5493.05
  229.52 5493.03  231.51 5492.94  233.51 5492.86  235.51 5492.79   237.5 5492.75
   239.5 5492.73  241.49 5492.66  243.49 5492.63  245.49 5492.64  247.48 5492.65
  249.48 5492.71  251.47 5492.79  253.47 5492.86  255.46 5492.88  257.46 5492.95
  259.46 5493.02  261.45 5493.06  263.45 5493.05  265.44 5493.06  267.44 5493.04
  269.44  5493.1  271.43 5493.21  273.43 5493.26  275.42 5493.31  276.53 5493.36
  277.42  5493.4  279.41 5493.43  281.41 5493.43  283.41 5493.53   285.4 5493.57
   287.4 5493.21  287.44 5493.21  289.39 5492.94  291.39 5493.39  293.39 5494.19
  295.38 5494.64  297.38 5494.95  299.37 5495.29  301.37 5495.45  303.36 5495.45
  305.36 5495.58  307.36 5495.71  309.35 5495.61  311.35 5495.41  313.34 5495.21
  315.34 5495.02  317.33 5494.82  319.33 5494.62  321.33 5494.44  323.32 5494.42

Manning's n Values        num=       1
     Sta   n Val
       0     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        173.64  295.38           196.43  206.64  210.62             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
  109.67  137.055504.285       F
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0   37.445506.997  310.02  323.325504.418

CROSS SECTION


RIVER: TCC_S1
REACH: 6                  RS: 6770

INPUT
Description: 6770
Station Elevation Data    num=     269
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5493.59       2 5493.52       4 5493.44    5.99 5493.37    7.99 5493.32
    9.99 5493.32   11.99 5493.35   13.99 5493.17   15.99 5492.92   17.98 5492.83
   19.98 5492.72   21.98 5492.64   23.98 5492.48   25.98 5492.36   27.97 5492.32
   29.97 5492.32   31.97 5492.21   33.97 5492.15   35.97 5492.22   37.96 5492.17
   39.96 5491.98   41.96 5491.96   43.96 5491.92   45.96 5491.95   47.96 5491.83
   49.95 5491.76   51.95  5491.6   53.95 5491.47   55.95 5491.36   57.95 5491.37
   59.94 5491.33   61.94 5491.29   63.94 5491.12   65.94 5491.11   67.94 5491.13
   69.93 5491.11   71.93 5491.08   73.93 5491.01   75.93 5490.98   77.93 5490.92
   79.93 5490.78   81.92 5490.73   83.92 5490.65   85.92 5490.65   87.92 5490.61
   89.92 5490.47   91.91 5490.45   93.91 5490.43   95.91 5490.42   97.91 5490.37
   99.91 5490.28  101.91 5490.24   103.9 5490.21   105.9  5490.2   107.9 5490.13
   109.9 5490.07   111.9 5489.99  113.89 5489.98  115.89 5489.97  117.89 5489.97
  119.89 5489.96  121.89 5489.93  123.88 5489.91  125.88 5489.86  127.88 5489.85
  129.88 5489.85  131.88 5489.84  133.88 5489.81  135.87 5489.76  137.87 5489.63
  139.87  5489.5  141.87  5489.4  143.87  5489.3  145.86 5489.23  147.86 5489.16
  149.86 5489.08  151.86 5489.03  153.86 5488.95  155.85 5488.87  157.85 5488.83
  159.85 5488.77  161.85 5488.77  163.85  5488.8  165.85 5488.74  167.84 5488.76
  169.84 5488.85  171.84 5488.93  173.84 5488.89  175.84 5488.81  177.83 5488.74
  179.83 5488.58  181.83 5488.36  183.83 5488.29  185.83 5488.25  187.83 5488.22
  189.82 5488.26  191.82 5488.13  193.82    5488  195.82 5487.95  197.82    5488
  199.81 5487.92  201.81 5487.87  203.81 5487.81  205.81 5487.73  207.81 5487.73
   209.8 5487.82   211.8 5487.97   213.8 5487.98   215.8 5487.97   217.8    5488
   219.8  5487.9  221.79 5487.94  223.79 5487.95  225.79 5488.43  227.79 5489.27
  229.79 5487.81  231.78    5487  233.78 5486.84  235.78 5486.54  237.78 5486.22
  239.78 5486.03  241.77 5485.91  243.77 5485.69  244.97  5485.7  245.77 5485.72
  247.77 5485.54  249.77 5485.46  251.77 5485.55  253.76 5485.54  254.99 5485.48
  255.76 5485.44  257.76 5485.49  259.76 5485.41  261.76 5485.52  263.75 5485.44
  265.75 5485.43  267.75 5485.41  269.75 5485.31  271.75 5485.17  273.75 5485.39
  275.74 5485.41  277.74 5485.37  279.74  5485.4  281.74 5485.37  283.74 5485.34
  285.72  5485.4  287.71  5485.4  289.69 5485.35  291.68 5485.31  293.66 5485.29
  295.65 5485.47  297.63 5485.76  299.62 5486.01   301.6 5486.13  303.59 5486.04
  305.57 5485.97  307.56 5485.93  309.54  5485.9  311.53  5485.9  313.52 5485.93
   315.5 5486.01  317.49 5486.26  319.47 5486.95  321.46 5487.33  323.44 5487.42
  325.43 5487.45  327.41 5487.46   329.4 5487.48  331.38 5487.69  333.37 5487.82
  335.35  5487.8  337.34 5487.83  339.32 5487.87  341.31 5487.88   343.3 5487.93
  345.28 5488.04  347.27 5488.18  349.25 5488.22  351.24 5488.26  353.22 5488.31
  355.21 5488.35  357.19 5488.39  359.18 5488.42  361.16 5488.46  363.15 5488.49
  365.13 5488.53  367.12 5488.57   369.1 5488.52  371.09 5488.48  373.08 5488.36
  375.06 5488.24  377.05  5488.2  379.03 5488.28  381.02  5488.5     383 5488.48
  384.99  5488.6  386.97 5488.93  388.96 5489.19  390.94 5489.37  392.93 5489.52
  394.91 5489.63   396.9  5489.7  398.88  5489.8  400.87 5489.92  402.85    5490
  404.84 5490.05  406.83 5490.11  408.81 5490.16   410.8 5490.22  412.78 5490.27
  414.77 5490.32  416.75 5490.38  418.74 5490.43  420.72 5490.48  422.71 5490.54
  424.69 5490.59  426.68 5490.63  428.66 5490.53  430.65 5490.32  432.63 5490.26
  434.62 5490.29  436.61 5490.32  438.59 5490.29  440.58 5490.24  442.56 5490.27
  444.55 5490.46  446.53 5490.66  448.52 5490.77   450.5 5490.85  452.49 5490.86
  454.47 5490.87  456.46 5490.89  458.44 5490.89  460.43 5490.87  462.41 5490.85
   464.4 5490.83  466.38 5490.85  468.37  5490.9  470.36 5490.94  472.34 5490.95
  474.33 5490.93  476.31 5490.91   478.3 5490.89  480.28 5490.91  482.27 5490.91
  484.25 5490.88  486.24 5491.06  488.22 5491.27  490.21 5491.48  492.19 5491.69
  494.18  5491.9  496.16 5492.12  498.15 5492.33  500.14 5492.54  502.12 5492.65
  504.11 5492.58  506.09 5492.54  508.08 5492.55  510.06 5492.61  512.05 5492.84
  514.03 5493.36  516.02 5493.63    518  5493.8  519.99 5493.95  521.97 5493.98
  523.96 5493.98  525.94 5494.01  527.93 5494.04  529.92 5494.08

Manning's n Values        num=       1
     Sta   n Val
       0     .13
```

```
Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        227.79  323.44           94.64   90.24   87.93             .1       .3
Ineffective Flow     num=      1
   Sta L   Sta R    Elev  Permanent
  324.22  346.64    5498       T
Blocked Obstructions       num=       6
   Sta L   Sta R    Elev   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0   11.075503.365  319.23  324.22 5497.43  346.64  370.51  5498.5
   391.7  428.955500.487  450.18  502.535502.666  520.03  529.925504.075

CROSS SECTION


RIVER: TCC_S1
REACH: 6                   RS: 6680

INPUT
Description: 6680
Station Elevation Data    num=      98
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5487.11    1.99 5487.07    3.97    5487    5.96 5486.95    7.94 5486.89
    9.93 5486.89   11.91 5486.79    13.9 5486.74   15.89 5486.61   17.87  5486.5
   19.86 5486.45   21.84 5486.44   23.83 5486.42   25.81 5486.43    27.8 5486.42
   29.79 5486.34   31.77 5486.23   33.76 5486.13   35.74 5486.12   37.73  5486.1
   39.71 5486.05    41.7 5486.04   43.69 5485.98   45.67 5485.92   47.66  5485.9
   49.64 5485.86   51.63 5485.82   53.61 5485.81    55.6 5485.81   57.59 5485.82
   59.57 5485.85   61.56 5485.83   63.54 5485.87   65.53 5485.96   67.51 5486.04
    69.5 5486.02   71.49 5485.93   73.47 5485.76   75.46 5485.59   77.44 5485.61
   79.43  5485.8   81.41 5485.97    83.4 5486.02   85.39  5485.9   87.37  5485.7
   89.36 5485.53   91.34 5485.35   93.33  5485.2   95.31 5485.35    97.3 5485.44
   99.29 5485.19  101.27 5484.99  103.26 5484.94  105.24  5485.2  107.23 5485.89
  109.21  5485.7   111.2 5485.38  113.19 5485.34  115.17 5485.25  117.16 5485.13
  119.14 5484.96  121.13 5484.74  122.33 5484.62  123.11 5484.54   125.1 5484.33
  127.09 5484.14  129.07 5484.04  131.06 5483.96  132.63 5483.74  133.04 5483.68
  135.03 5483.36  137.01 5483.24     139 5483.23  140.99 5483.22  142.97 5483.21
  144.96 5483.22  146.94 5483.24  148.93 5483.29  150.91 5483.35   152.9 5483.42
  154.89 5483.48  156.87 5483.52  158.86 5483.56  160.84 5483.57  162.83 5483.48
  164.81 5483.46   166.8  5483.4  168.79 5483.37  170.77 5483.34  172.76 5483.31
  174.74 5483.28  176.73 5483.25  178.71 5483.21   180.7 5483.15  182.69 5483.12
  184.67  5483.1  186.66  5483.1  188.63 5483.12

Manning's n Values        num=       1
     Sta   n Val
       0     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        115.17  188.63           111.6   121.2  124.41             .1       .3
Blocked Obstructions       num=       1
   Sta L   Sta R    Elev
  125.94  188.635493.964

CROSS SECTION


RIVER: TCC_S1
REACH: 6                   RS: 6559

INPUT
Description: 6559
Station Elevation Data    num=      83
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5485.24    1.98  5485.2    3.96 5485.13    5.94 5485.03    7.92 5484.93
     9.9 5484.81   11.88 5484.76   13.86  5484.7   15.84 5484.59   17.82  5484.5
    19.8 5484.46   21.78 5484.43   23.76 5484.33   25.73 5484.27   27.71 5484.21
   29.69 5484.15   31.67 5484.09   33.65 5484.03   35.63 5484.02   37.61 5484.03
   39.59    5484   41.57 5484.05   43.55 5484.04   45.53 5484.04   47.51    5484
   49.49 5483.99   51.47 5484.01   53.45 5483.99   55.43 5483.96   57.41 5483.95
   59.39 5483.87   61.37 5483.87   63.35 5483.87   65.33 5483.92   67.31 5483.89
   69.29 5483.87   71.26 5483.85   73.24 5483.81   75.22 5483.79    77.2 5483.76
   79.18 5483.74   81.16 5483.72   83.14 5483.69   85.12 5483.67    87.1 5483.65
   89.08 5483.62   91.06  5483.6   93.04 5483.57   95.02 5483.55     97 5483.52
   98.98  5483.5  100.96 5483.47  102.94 5483.43  104.92 5483.26   106.9 5483.15
  108.88 5483.25  110.86 5483.24  112.84 5483.23  114.82 5483.29   116.8 5483.17
  118.77 5483.07  120.75 5483.19  122.73 5482.84  124.71 5482.08  126.69 5481.44
  128.67 5481.27  130.07 5481.26  130.65 5481.25  132.63 5481.16  134.61 5481.01
  136.59 5480.88  138.57 5480.76  140.15 5480.69  140.55 5480.67  142.53 5480.62
  144.51 5480.65  146.49 5480.69  148.47 5480.73  150.45 5480.82  152.43 5480.87
  154.41 5480.91  156.39 5480.94  158.37 5480.96

Manning's n Values        num=       1
     Sta   n Val
       0     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        122.73  158.37           92.24   91.53   91.54             .1       .3
Blocked Obstructions       num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
   66.33  105.695493.209  144.62  158.375490.949

CROSS SECTION


RIVER: TCC_S1
REACH: 6                   RS: 6468

INPUT
Description: 6468
Station Elevation Data    num=      92
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5482.74    1.99 5482.67    3.99 5482.65    5.98 5482.57    7.97 5482.55
    9.96 5482.53   11.96  5482.5   13.95 5482.45   15.94 5482.38   17.94 5482.28
   19.93 5482.21   21.92 5482.13   23.91  5482.1   25.91 5482.15    27.9 5482.17
   29.89 5482.11   31.89 5482.05   33.88    5482   35.87 5481.97   37.86 5481.95
   39.86 5481.89   41.85 5481.84   43.84 5481.84   45.84 5481.79   47.83 5481.73
   49.82 5481.66   51.81 5481.59   53.81 5481.57    55.8 5481.59   57.79 5481.57
   59.79 5481.53   61.78 5481.51   63.77 5481.54   65.76 5481.55   67.76 5481.48
   69.75 5481.38   71.74 5481.26   73.74 5481.21   75.73  5481.2   77.72 5481.21
   79.71  5481.2   81.71 5481.23    83.7 5481.17   85.69 5481.12   87.68  5481.1
   89.68 5481.07   91.67 5481.07   93.66 5481.08   95.66 5481.07   97.65 5481.01
   99.64 5480.92  101.63 5480.88  103.63 5480.84  105.62 5480.57  107.61 5480.34
  109.61 5480.34   111.6 5480.76  113.59 5480.93  115.58 5480.84  117.58 5480.79
  119.57 5480.73  121.56 5480.65  123.56  5480.5  125.55 5479.68  127.54 5478.69
  129.53 5478.13  131.53 5477.81  133.52 5477.63  135.51 5477.55  136.01 5477.54
  137.51 5477.52   139.5 5477.57  141.49 5477.56  143.48 5477.57  145.48 5477.63
  146.02 5477.62  147.47 5477.61  149.46 5477.58  151.46 5477.58  153.45  5477.6
  155.44 5477.62  157.43 5477.64  159.43 5477.66  161.42 5477.71  163.41 5477.73
  165.41 5477.72   167.4 5477.69  169.39 5477.66  171.38 5477.61  173.38 5477.57
  175.37 5477.61  177.36 5477.68

Manning's n Values        num=       1
     Sta   n Val
       0     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        123.56  177.36           85.5   75.76   67.32             .1       .3
Blocked Obstructions       num=       1
   Sta L   Sta R    Elev
  170.36  177.365487.681

CROSS SECTION
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RIVER: TCC_S1
REACH: 6                    RS: 6392

INPUT
Description: 6392
Station Elevation Data    num=      83
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
        0 5480.23    1.99 5480.15    3.98 5480.16    5.97 5480.21    7.96 5480.21
     9.95 5480.09   11.94 5479.93   13.93 5479.86   15.92 5479.84   17.91 5479.78
     19.9 5479.71   21.89 5479.69   23.88 5479.69   25.87 5479.64   27.87 5479.58
    29.86 5479.44   31.85 5479.43   33.84 5479.38   35.83 5479.33   37.82 5479.33
    39.81 5479.27    41.8 5479.21   43.79 5479.19   45.78 5479.15   47.77 5479.15
    49.76 5479.13   51.75 5479.15   53.74 5479.21   55.73 5479.21   57.72 5479.17
    59.71 5479.21    61.7 5479.16   63.69 5479.19   65.68 5479.04   67.67 5478.81
    69.66  5478.8   71.65 5479.05   73.64 5479.33   75.63 5479.39   77.62 5479.28
    79.61  5479.3    81.6 5478.57    83.6 5477.38   85.59 5476.68   87.58 5476.48
    89.57 5476.43   91.56 5476.42   93.55 5476.37   95.54 5476.44   97.53 5476.43
    99.52 5476.38  101.51 5476.42   103.5 5476.37  105.49 5476.35  107.48 5476.36
   109.47 5476.34  111.46 5476.27  113.45 5476.25  114.27 5476.27  115.44  5476.3
   117.43 5476.35  119.42 5476.36  121.41  5476.4   123.4 5476.43  124.47 5476.46
   125.39 5476.48  127.38 5476.45  129.37 5476.57  131.36 5476.56  133.35 5476.59
   135.34 5476.63  137.34 5476.66  139.33 5476.83  141.32 5476.98  143.31  5477.2
    145.3 5477.35  147.29 5477.31  149.28 5477.28  151.27 5477.24  153.26  5477.2
   155.25 5477.16  157.24 5477.13  159.23 5477.09

Manning's n Values        num=       1
      Sta   n Val
        0     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         79.61   145.3           131.96  147.38   30.25             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
  142.62  159.235486.971

CROSS SECTION


RIVER: TCC_S1
REACH: 6                    RS: 6244

INPUT
Description: 6244
Station Elevation Data    num=      76
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
        0  5477.9       2 5477.27       4 5476.63       6 5475.74       8 5475.06
       10 5474.75      12 5474.49      14 5474.27      16 5474.17      18 5474.14
       20 5474.05      22 5474.05      24 5474.04      26 5473.98   27.99 5473.91
    29.99 5473.88   31.99 5473.84   33.99  5473.8   35.99 5473.75   37.99 5473.77
    39.99 5473.96   41.99 5473.98   43.99 5473.85   45.99  5473.8   47.99 5473.81
    49.99 5473.88   51.99 5473.83   53.99 5473.87   55.99 5473.87   57.99 5473.81
    59.99 5473.92   61.99 5474.03   63.99 5474.14   65.99 5474.28   67.99 5474.22
    69.99 5474.11   71.99 5474.05   73.99 5473.99   75.99 5473.94   77.99 5473.88
    79.99 5473.84   81.98  5473.8   83.98 5473.76   85.98 5473.77   87.97  5473.8
    89.97 5473.76   91.96  5473.7   93.96 5473.64   95.95 5473.55   97.95 5473.42
    99.65 5473.43   99.94 5473.43  101.94 5473.49  103.93 5473.69  105.92 5473.95
   107.92 5474.12  109.66 5474.18  109.91 5474.19  111.91 5474.17   113.9  5473.9
    115.9 5473.71  117.89 5474.03  119.89 5474.39  121.88 5474.55  123.88 5474.64
   125.87 5474.72  127.86  5474.8  129.86 5474.89  131.85 5474.97  133.85 5475.06
   135.84 5475.14  137.84 5475.22  139.83 5475.32  141.83 5475.38  143.82 5475.41
   145.81  5475.4

Manning's n Values        num=       1
      Sta   n Val
        0     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         67.99  121.88           119.1   67.17   80.01             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
      50    72.7 5483.73       T
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
    72.7   91.035483.728  115.35  145.815484.624

CROSS SECTION


RIVER: TCC_S1
REACH: 6                    RS: 6177

INPUT
Description: 6177
Station Elevation Data    num=     223
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
        0 5471.58    1.98 5471.55    3.96 5471.51    5.94 5471.48    7.91 5471.52
     9.89 5471.51   11.87 5471.45   13.85  5471.4   15.83 5471.34   17.81 5471.28
    19.79 5471.23   21.76 5471.17   23.74 5471.11   25.72 5471.06    27.7    5471
    29.68 5470.96   31.66 5470.96   33.64 5470.97   35.61 5470.99   37.59 5470.98
    39.57 5470.96   41.55 5471.04   43.53 5471.03   45.51 5470.89   47.49 5470.75
    49.47 5470.62   51.44 5470.54   53.42 5470.47    55.4  5470.4   57.38 5470.33
    59.36 5470.28   61.34 5470.29   63.32 5470.34   65.29 5470.32   67.27 5470.34
    69.25 5470.34   71.23 5470.37   73.21 5470.31   75.19 5470.25   77.17 5470.29
    79.14  5470.2   81.12 5470.01    83.1 5469.76   85.08 5469.69   85.86 5469.68
    87.06 5469.67   89.04 5469.52   91.02 5469.52   92.99 5469.68   94.97 5469.81
    96.95 5469.81   98.93 5469.85  100.91 5469.93  102.89 5469.99  104.87    5470
   106.84 5470.05  108.84 5470.07  110.84 5470.11  112.83 5470.13  114.83 5470.18
   116.82 5470.26  118.82 5470.32  120.81 5470.31  122.81  5470.4   124.8 5470.45
    126.8 5470.46  128.79 5470.51  130.79  5470.6  132.78  5470.6  134.78 5470.66
   136.77 5470.72  138.77 5470.75  140.76 5470.77  142.36  5470.8  142.76 5470.81
   144.75 5470.87  146.75  5470.9  148.75 5470.94  150.74 5470.99  152.74 5471.04
   154.73 5471.09  156.73 5471.09  158.31 5471.12  158.72 5471.13  160.72 5471.19
   162.71 5471.22  164.71 5471.27   166.7 5471.33   168.7 5471.35  170.69 5471.36
   172.69 5471.39  174.68 5471.42  176.68 5471.47  178.67 5471.51  180.67 5471.55
   182.67  5471.6  184.66 5471.65  186.66 5471.69  188.65 5471.72  190.65 5471.78
   192.64 5471.86  194.64 5471.91  196.63  5471.9  198.63 5471.98  200.62 5472.05
   202.62 5472.06  204.61 5472.09  206.61 5472.16   208.6 5472.19   210.6 5472.22
   212.59 5472.26  214.59 5472.31  216.58 5472.36  218.58  5472.4  220.58 5472.44
   222.57 5472.48  224.57 5472.58  226.56 5472.61  228.56 5472.66  230.55 5472.68
   232.55 5472.67  234.54 5472.75  236.54 5472.83  238.53 5472.87  240.53 5472.91
   242.52 5472.95  244.52 5472.97  246.51 5473.06  248.51  5473.1   250.5 5473.08
    252.5 5473.15   254.5 5473.21  256.49  5473.2  258.49 5473.27  260.48 5473.33
   262.48 5473.35  264.47 5473.42  266.47 5473.45  268.46 5473.49  270.46 5473.53
   272.45 5473.56  274.45  5473.6  276.44 5473.66  278.44  5473.7  280.43 5473.75
   282.43 5473.78  284.42  5473.8  286.42 5473.85  288.42 5473.91  290.41 5473.96
   292.41    5474   294.4 5474.06   296.4 5474.11  298.39 5474.12  300.39 5474.15
   302.38  5474.2  304.38 5474.29  306.37 5474.32  308.37 5474.36  310.36 5474.42
   312.36 5474.44  314.35  5474.5  316.35 5474.53  318.34 5474.58  320.34 5474.64
   322.34 5474.67  324.33 5474.71  326.33 5474.77  328.32  5474.8  330.32 5474.86
   332.31 5474.91  334.31 5474.95   336.3 5474.98   338.3 5475.01  340.29 5475.08
   342.29 5475.08  344.28 5475.13  346.28  5475.2  348.27 5475.26  350.27 5475.31
   352.26 5475.33  354.26 5475.37  356.26 5475.41  358.25 5475.43  360.25  5475.5
   362.24 5475.55  364.24  5475.6  366.23 5475.66  368.23 5475.68  370.22 5475.71
   372.22 5475.77  374.21 5475.81  376.21 5475.86   378.2 5475.92   380.2 5475.94
   382.19 5475.98  384.19 5476.03  386.18 5476.08  388.18 5476.13  390.17 5476.14
   392.17 5476.21  394.17 5476.29  396.16 5476.33  398.16 5476.35  400.15 5476.39
   402.15 5476.43  404.14 5476.46  406.14 5476.52  408.13 5476.53  410.13 5476.52
   412.12 5476.58  414.12 5476.66  416.11 5476.74  418.11 5476.79   420.1 5476.82
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   422.1 5476.86  424.09 5476.92  426.09 5476.96  428.09 5477.01  430.08 5477.03
  432.08 5477.08  434.07 5477.14  436.07 5477.16

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0     .13   85.86    .015

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        45.51  158.31             91.4   95.39   87.12              .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
       0    43.85481.009

CROSS SECTION


RIVER: TCC_S1
REACH: 6                  RS: 6082

INPUT
Description: 6082
Station Elevation Data    num=     229
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5469.65    1.97 5469.56    3.95 5469.47    5.92 5469.48    7.89 5469.51
    9.86  5469.5   11.84 5469.51   13.81 5469.52   15.78 5469.52   17.75 5469.51
   19.73 5469.46    21.7 5469.51   23.67 5469.53   25.64 5469.64   27.62 5469.59
   29.59 5469.47   31.56 5469.33   33.53 5469.17   35.51 5469.14   37.48 5469.15
   39.45 5469.17   41.42 5469.13    43.4  5468.8   45.37 5468.53   47.34 5468.44
    47.5 5468.43   49.31 5468.24   51.29 5468.27   53.26 5468.38   55.23 5468.46
    57.2 5468.49   59.18 5468.52   61.15 5468.58   63.12 5468.55   65.09 5468.55
   67.07 5468.58   69.04 5468.52   71.01 5468.49   72.98 5468.44   74.96 5468.39
   76.93  5468.3    78.9 5468.18   80.87 5468.03   82.85 5467.87   84.82 5467.81
   85.35 5467.89   86.79 5468.11   88.76 5468.21   90.74 5468.22   92.71 5468.24
   94.68 5468.29   96.65 5468.33   98.63 5468.33   100.6 5468.36  102.57 5468.35
  104.54 5468.41  106.52 5468.42  108.49 5468.39  110.46 5468.54  112.43 5468.75
  114.41 5469.28  116.38 5469.52  118.35 5469.45  120.32 5469.28   122.3 5469.15
  124.27 5469.05  126.24 5469.01  128.21 5468.93  130.19  5468.9  132.16 5468.86
  134.13 5468.77  136.11 5468.72  138.08 5468.69  140.05 5468.64  142.02 5468.58
  144.02 5468.62  146.01 5468.55     148 5468.49     150 5468.47  151.99 5468.48
  153.98 5468.51  155.98 5468.53  157.97 5468.58  159.96 5468.64  161.96  5468.7
  163.95 5468.76  165.94 5468.82  167.94 5468.93  169.93 5469.08  171.92 5469.21
  173.92 5469.27  175.91 5469.39   177.9 5469.34   179.9 5469.33  181.89 5469.27
  183.88 5469.32  183.99 5469.32  185.88 5469.37  187.87 5469.39  189.86 5469.49
  191.86 5469.53  193.85 5469.78  193.99 5469.79  195.84 5469.91  197.84 5469.96
  199.83 5469.93  201.82 5469.88  203.82 5469.83  205.81 5469.78   207.8 5469.73
   209.8 5469.68  211.79 5469.63  213.78 5469.58  215.78 5469.53  217.77 5469.48
  219.76 5469.44  221.76 5469.41  223.75 5469.38  225.74 5469.37  227.74 5469.42
  229.73 5469.45  231.72 5469.46  233.72 5469.51  235.71 5469.57   237.7 5469.63
   239.7 5469.69  241.69 5469.75  243.68 5469.81  245.68 5469.87  247.67 5469.94
  249.66    5470  251.66 5470.06  253.65 5470.13  255.64 5470.07  257.64 5469.98
  259.63 5469.97  261.62 5469.93  263.62 5469.95  265.61 5470.02   267.6 5470.05
   269.6    5470  271.59 5469.96  273.58 5470.13  275.58 5470.13  277.57  5470.2
  279.56 5470.36  281.56 5470.55  283.55 5470.74  285.54 5470.93  287.54 5471.11
  289.53  5471.3  291.52 5471.36  293.52 5471.35  295.51 5471.34   297.5 5471.33
   299.5 5471.32  301.49 5471.34  303.48 5471.36  305.48  5471.4  307.47 5471.47
  309.46 5471.56  311.46 5471.64  313.45 5471.72  315.44  5471.8  317.44  5471.9
  319.43 5471.94  321.42 5471.89  323.42 5471.86  325.41 5471.96   327.4 5472.06
   329.4 5472.17  331.39 5472.26  333.38 5472.32  335.38 5472.34  337.37 5472.39
  339.36 5472.48  341.36 5472.56  343.35 5472.61  345.34 5472.66  347.34 5472.71
  349.33 5472.76  351.32 5472.84  353.32 5472.91  355.31 5472.95   357.3 5472.96
   359.3 5472.99  361.29 5473.01  363.28 5473.03  365.28 5473.09  367.27  5473.1
  369.26 5473.08  371.26 5473.05  373.25 5473.06  375.24 5473.12  377.24 5473.18
  379.23 5473.25  381.22 5473.24  383.22 5473.19  385.21 5473.16   387.2 5473.13
   389.2  5473.1  391.19 5473.07  393.18 5473.04  395.18 5473.02  397.17 5473.03
  399.16 5473.01  401.16 5472.89  403.15 5472.86  405.14  5472.9  407.14 5472.92
  409.13 5473.03  411.12  5473.3  413.12 5473.61  415.11 5473.88   417.1 5474.02
   419.1 5474.06  421.09 5474.04  423.08 5474.02  425.08 5474.08  427.07 5474.17
  429.06 5474.25  431.06 5474.31  433.05 5474.38  435.04 5474.45  437.04 5474.52
  439.03 5474.59  441.02 5474.66  443.02 5474.73  445.01 5474.81

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13    47.5    .015   85.35     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       116.38  195.84             116.3  137.83  175.36              .1       .3
Blocked Obstructions     num=       6
   Sta L   Sta R    Elev   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0   15.815479.515  125.51   173.1 5479.25  192.83  255.085480.097
   275.9   320.45481.927  337.25  400.895482.908  422.22  445.015484.805

CROSS SECTION


RIVER: TCC_S1
REACH: 6                  RS: 5944

INPUT
Description: 5944
Station Elevation Data    num=     231
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5466.49    1.95 5466.47    3.91 5466.45    5.86 5466.43    7.81 5466.41
    9.76 5466.39   11.72 5466.37   13.67 5466.35   15.62 5466.33   17.58 5466.31
   19.53 5466.29   21.48 5466.18   23.43 5466.15   25.39 5466.12   27.34 5466.05
   29.29 5465.93   31.24 5465.86    33.2 5465.74   35.15  5465.6    37.1  5465.5
   39.06 5465.39   41.01 5465.28   42.96 5465.18   44.91 5465.12   46.87 5465.03
   48.82 5465.01   50.77 5465.09   52.73 5465.04   54.68 5464.98   56.63 5464.93
   58.58 5464.88   60.54 5464.83   62.53  5464.8   64.52 5464.78   66.52 5464.83
   68.51 5464.96    70.5 5465.03    72.5 5465.08   74.49 5465.25   76.48 5465.21
   78.48 5465.02   80.47 5464.84   82.46 5464.73   84.46 5464.77   86.45 5464.68
   88.44 5464.62   90.44 5464.59   92.43 5464.65   94.42 5464.64   96.42 5464.64
   98.41 5464.73   100.4 5464.65   102.4 5464.67  104.39 5464.75  106.38 5464.74
  108.38 5464.82  110.37 5464.89  112.36 5464.71  114.36 5464.46  116.35 5464.32
  118.34 5464.34  120.34 5464.31  122.33 5464.34  124.32  5464.4  126.32 5464.45
  128.31 5464.56   130.3 5464.61   132.3 5464.46  134.29 5464.56  136.28 5464.75
  138.27 5464.91  140.27 5464.86  142.26 5464.84  144.25 5464.78  146.25 5464.68
  148.24 5464.56  150.23 5464.38  152.23 5464.56  154.22 5464.43  156.21 5464.37
  158.21 5464.32   160.2 5464.15  162.19 5464.38  164.19 5464.48  166.18  5464.3
  168.17 5464.17  170.17 5464.16  172.16  5464.1  174.15 5464.06  176.15 5464.15
  178.14 5464.23  180.13 5464.25  182.13 5464.18  184.12 5464.29  186.11 5464.35
  188.11 5464.27   190.1 5464.29  192.09 5464.25  194.09 5464.21  195.37 5464.24
  196.08 5464.25  198.07 5464.22  200.07  5464.2  202.06 5464.13  204.05 5464.15
  206.05 5464.24  206.18 5464.24  208.04 5464.26  210.03 5464.26  212.03  5464.3
  214.02 5464.38  216.01 5464.47  218.01  5464.5     220 5464.44  221.99 5464.41
  223.99 5464.46  225.98  5464.5  227.97 5464.43  229.97 5464.37  231.96 5464.37
  233.95  5464.4  235.95 5464.41  237.94 5464.47  239.93 5464.51  241.93 5464.59
  243.92 5464.64  245.91 5464.64  247.91 5464.66   249.9 5464.69  251.89 5464.71
  253.89 5464.74  255.88 5464.76  257.87 5464.78  259.87 5464.81  261.86 5464.83
  263.85 5464.87  265.85  5464.9  267.84 5464.92  269.83 5464.98  271.83 5465.36
  273.82 5465.52  275.81 5465.59  277.81 5465.56   279.8 5465.55  281.79 5465.66
  283.79 5465.63  285.78 5465.65  287.77 5465.76  289.76 5465.75  291.76 5465.75
  293.75 5465.72  295.75 5465.71  297.74 5465.69  299.73 5465.66  301.72 5465.66
  303.72 5465.67  305.71 5465.71   307.7 5465.97   309.7  5466.2  311.69 5466.29
  313.68 5466.21  315.68 5466.31  317.67 5466.47  319.66 5466.64  321.66 5466.75
  323.65 5466.86  325.64 5466.87  327.64 5466.92  329.63 5466.97  331.62 5467.01
  333.62 5467.05  335.61 5467.09   337.6 5467.11   339.6 5467.11  341.59 5467.15
  343.58 5467.09  345.58 5467.04  347.57 5466.94  349.56 5466.78  351.56 5466.65
  353.55 5466.57  355.54 5466.55  357.54 5466.55  359.53 5466.59  361.52 5466.61
  363.52 5466.58  365.51 5466.52   367.5 5466.57   369.5 5466.53  371.49 5466.51
  373.48 5466.48  375.48 5466.47  377.47 5466.51  379.46 5466.59  381.46 5466.68
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  383.45 5466.73  385.44 5466.77  387.44 5466.64  389.43 5466.57  391.42 5466.58
  393.42 5466.45  395.41 5466.46   397.4 5466.52   399.4 5466.29  401.39 5466.11
  403.38 5466.04  405.38 5466.01  407.37 5465.99  409.36    5466  411.36 5466.26
  413.35 5466.34  415.34 5466.16  417.34 5465.92  418.91 5465.84  419.33 5465.82
  421.32 5465.84  423.32 5465.82  425.31 5465.78   427.3  5465.7   429.3 5465.74
  431.29 5465.89  433.28 5466.02  435.27 5466.08  437.27 5466.13  439.26 5466.19
  441.25 5466.26  443.25 5466.28  445.24 5466.32  447.23 5466.43  449.23 5466.48
  451.22 5466.51

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0     .13  418.91    .015

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        142.26  271.83           114.39  122.73   127.6             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
  242.06  260.485474.819       F
  291.63  320.895476.737       F
Blocked Obstructions     num=       5
   Sta L   Sta R    Elev   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0   21.135476.199   52.41   69.335474.992  123.93  129.975474.611
  320.89  341.615477.149  347.69  348.135476.923

CROSS SECTION


RIVER: TCC_S1
REACH: 6                   RS: 5821

INPUT
Description: 5821
Station Elevation Data    num=     159
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5461.94    1.99 5461.94    3.99 5461.94    5.98 5461.92    7.98 5461.96
    9.97 5462.06   11.97 5462.15   13.96 5461.87   15.95 5461.53   17.95 5461.19
   19.94 5460.44   21.94 5460.16   23.93 5460.11   25.92 5460.16   27.92 5460.17
   29.91 5460.13   31.91  5460.1    33.9 5460.15    35.9 5460.14   37.89 5460.16
   39.88 5460.21   41.88 5460.22   43.87 5460.31   45.87 5460.41   47.86  5460.4
   49.85 5460.43   51.85  5460.4   53.84 5460.42   55.84 5460.41   57.83 5460.44
   59.83 5460.46   61.82 5460.49   63.81 5460.52   65.81 5460.54    67.8 5460.56
    69.8 5460.57   71.79 5460.58   73.78  5460.6   75.78 5460.61   77.77 5460.62
   79.77 5460.75   81.76 5460.73   83.76 5460.67   85.75 5460.58   87.74 5460.56
   89.74 5460.54   91.73 5460.49   93.73 5460.42   95.72 5460.39   97.71 5460.36
   99.71 5460.35   101.7 5460.34   103.7 5460.45  105.69 5460.51  107.69 5460.64
  108.93 5460.78  109.68 5460.87  111.67 5461.01  113.67 5461.25  115.66  5461.4
  117.66  5461.4  119.65 5461.37  119.94 5461.39  121.64 5461.53  123.64 5461.59
  125.63 5461.67  127.63 5461.64  129.62 5461.67  131.62  5461.6  133.61 5461.49
   135.6 5461.35   137.6 5461.31  139.59 5461.28  141.59 5461.21  143.58 5461.15
  145.58 5461.16  147.57 5461.15  149.56 5461.12  151.56 5461.11  152.18 5461.09
  153.55 5461.05  155.55 5460.99  157.54 5460.84  159.53 5460.67  161.53  5460.7
  163.52 5460.76  165.52 5460.82  167.51 5460.93  169.51 5461.02   171.5 5461.09
  173.49 5461.15  175.49 5461.19  177.48 5461.28  179.48  5461.3  181.46 5461.32
  183.45 5461.38  185.44 5461.42  187.43 5461.46  189.42 5461.51  191.41 5461.56
   193.4 5461.61  195.39 5461.64  197.37 5461.66  199.36 5461.69  201.35 5461.75
  203.34 5461.81  205.33 5461.86  207.32  5461.9  209.31 5461.93  211.29 5461.98
  213.28 5462.01  215.27 5462.06  217.26 5462.12  219.25 5462.16  221.24 5462.21
  223.23 5462.26  225.22 5462.31   227.2 5462.33  229.19 5462.37  231.18 5462.43
  233.17 5462.49  235.16 5462.56  237.15  5462.6  239.14 5462.66  241.12  5462.7
  243.11 5462.73   245.1 5462.79  247.09 5462.83  249.08 5462.89  251.07 5462.92
  253.06 5462.98  255.04 5463.02  257.03 5463.05  259.02 5463.12  261.01 5463.16
     263 5463.21  264.99 5463.31  266.98 5463.33  268.97 5463.37  270.95 5463.43
  272.94 5463.47  274.93 5463.52  276.92 5463.57  278.91 5463.64   280.9 5463.69
  282.89 5463.72  284.87 5463.73  286.86 5463.78  288.85 5463.81  290.84 5463.85
  292.83 5463.88  294.82 5463.97  296.81 5464.02   298.8 5464.07  300.78 5464.11
  302.77 5464.17  304.76 5464.23  306.75 5464.26  308.74 5464.33

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0     .13  152.18    .015

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         83.76  115.66            68.35  124.13   54.57             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
  120.47  135.785471.347       F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
   39.84   95.13 5470.41

CROSS SECTION


RIVER: TCC_S1
REACH: 6                   RS: 5697

INPUT
Description: 5697
Station Elevation Data    num=     242
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5462.11    1.99 5462.02    3.99 5462.01    5.98 5461.95    7.97 5461.93
    9.97 5461.85   11.96 5461.82   13.95 5461.69   15.95 5461.67   17.94  5461.6
   19.94 5461.54   21.93  5461.5   23.92 5461.48   25.92 5461.41   27.91 5461.36
    29.9  5461.3    31.9 5461.28   33.89 5461.21   35.88 5461.12   37.88 5461.09
   39.87 5461.04   41.86 5461.01   43.86 5460.93   45.85 5460.88   47.84 5460.87
   49.84 5460.75   51.83 5460.75   53.83 5460.73   55.82 5460.67   57.81 5460.62
   59.81 5460.55    61.8 5460.52   63.79 5460.48   65.79 5460.42   67.78 5460.36
   69.77 5460.32   71.77 5460.24   73.76 5460.16   75.75 5460.13   77.75 5460.12
   79.74 5460.03   81.74 5459.95   83.73 5459.98   85.72 5459.89   87.72 5459.85
   89.71 5459.83    91.7 5459.75    93.7 5459.65   95.69  5459.6   97.68 5459.58
   99.68 5459.53  101.67  5459.5  103.66 5459.45  105.66 5459.41  107.65 5459.29
  109.64 5459.29  111.64 5459.19  113.63 5459.11  115.63 5459.09  117.62 5459.04
  119.61 5459.02  121.61 5458.94   123.6 5458.91  125.59 5458.88  127.59 5458.83
  129.58 5458.78  131.57 5458.72  133.57 5458.65  135.56 5458.61  137.55 5458.56
  139.55 5458.56  141.54 5458.49  143.53 5458.42  145.53 5458.37  147.52 5458.32
  149.52 5458.23  151.51 5458.17   153.5 5458.11   155.5 5457.98  157.49 5457.91
  159.48 5457.86  161.48 5457.72  163.47 5457.61  165.46 5457.54  167.46 5457.53
  169.45 5457.44  171.44 5457.33  173.44 5457.27  175.43  5457.2  177.42 5457.19
  179.42  5457.2  181.41 5457.24  182.27 5457.27  183.41  5457.3   185.4 5457.35
  187.39 5457.38  189.38 5457.42  191.38 5457.52  193.37  5457.6  195.36 5457.64
  197.36 5457.72  199.35 5457.73  201.34 5457.77  203.33  5457.8  205.33 5457.84
  207.32 5457.89  209.31 5457.98  211.31 5458.01  212.52 5458.04   213.3 5458.05
  215.29 5458.11  217.28 5458.16  219.28 5458.25  221.27 5458.29  223.26 5458.33
  225.26  5458.4  227.25 5458.44  229.24  5458.5  231.23 5458.56  233.23 5458.57
  235.22 5458.62  237.21 5458.67   239.2 5458.72   241.2 5458.81  243.19 5458.84
  245.18 5458.99  247.18 5459.01  249.17 5459.05  251.16  5459.1  253.15 5459.15
  255.15  5459.2  257.14 5459.21  259.13 5459.29  261.13 5459.34  263.12 5459.41
  265.11 5459.48   267.1 5459.54   269.1 5459.59  271.09 5459.65  273.08 5459.71
  275.08 5459.81  277.07 5459.81  279.06 5459.85  281.05 5459.89  283.05 5459.93
  285.04 5459.96  287.03 5459.97  289.03 5460.06  291.02  5460.1  293.01 5460.18
     295 5460.21     297 5460.18  298.99 5460.26  300.98 5460.28  302.98 5460.33
  304.97 5460.37  306.96 5460.47  308.95 5460.51  310.95 5460.52  312.94 5460.55
  314.93 5460.65  316.93 5460.71  318.92 5460.69  320.91 5460.75   322.9 5460.74
   324.9 5460.78  326.89 5460.86  328.88 5460.89  330.87 5460.92  332.87 5460.92
  334.86 5460.97  336.85 5461.02  338.85 5461.05  340.84 5461.08  342.83 5461.13
  344.82 5461.19  346.82 5461.23  348.81 5461.25   350.8 5461.31   352.8  5461.4
  354.79 5461.41  356.78 5461.45  358.77 5461.51  360.77 5461.53  362.76 5461.56
  364.75 5461.62  366.75 5461.66  368.74 5461.72  370.73 5461.74  372.72 5461.81
  374.72 5461.87  376.71 5461.91   378.7 5461.97   380.7    5462  382.69 5462.02
  384.68 5462.06  386.67 5462.12  388.67 5462.19  390.66 5462.21  392.65 5462.23
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  394.65  5462.3  396.64 5462.34  398.63 5462.41  400.62 5462.46  402.62 5462.49
  404.61 5462.53   406.6 5462.56   408.6 5462.64  410.59 5462.71  412.58 5462.74
  414.57 5462.76  416.57 5462.78  418.56 5462.83  420.55 5462.89  422.54 5462.95
  424.54    5463  426.53 5463.05  428.52  5463.1  430.52 5463.15  432.51 5463.17
   434.5 5463.25  436.49 5463.31  438.49 5463.36  440.48 5463.41  442.47 5463.44
  444.47 5463.49  446.46 5463.58  448.45 5463.63  450.44 5463.62  452.44 5463.67
  454.43 5463.71  456.42 5463.71  458.42 5463.75  460.41 5463.82   462.4 5463.88
  464.39 5463.93  466.39 5463.97  468.38 5464.01  470.37 5464.07  472.37 5464.12
  474.36 5464.15  476.35 5464.21

Manning's n Values        num=       1
     Sta   n Val
       0    .015

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        137.55  233.23           167.64  121.01  161.74             .1       .3

CROSS SECTION


RIVER: TCC_S1
REACH: 6                  RS: 5576

INPUT
Description: 5576
Station Elevation Data    num=     124
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5457.52    1.97 5457.47    3.95 5457.41    5.92 5457.35    7.89 5457.29
    9.87 5457.24   11.84 5457.18   13.81 5457.13   15.79 5457.08   17.76 5457.06
   19.74 5457.04   21.71 5456.99   23.68 5456.93   25.66 5456.86   27.63 5456.79
    29.6 5456.73   31.58 5456.66   33.55 5456.59   35.52 5456.53    37.5 5456.45
   39.47 5456.23   41.44 5456.15   43.42 5456.28   45.39 5456.32   47.37 5456.34
   49.34 5456.24   51.31 5456.12   53.29 5456.05   55.26 5456.03   57.23 5456.03
   59.21 5456.02   61.18 5455.91   63.15 5455.89   65.13 5455.84    67.1 5455.86
   69.07 5455.77   71.05 5455.78   73.02 5455.77      75 5455.84   76.97 5455.72
   78.94 5455.52   80.92  5455.3   82.89 5454.98   84.86 5454.61   86.84 5454.23
   88.81 5453.67   90.78 5453.37   92.52 5453.27   92.76 5453.25   94.73    5453
    96.7 5452.96   98.68 5453.12  100.65 5453.23  102.62 5453.34   104.6 5453.38
  106.57 5453.42  108.55 5453.43  110.52 5453.43   112.5 5453.49  114.47 5453.56
  116.45 5453.58  118.43 5453.57  120.41  5453.6  122.39 5453.65  124.36 5453.69
  126.34  5453.7  128.32 5453.74   130.3 5453.79  132.28 5453.84  134.25 5453.84
  136.23 5453.88  138.21 5453.87  140.19 5453.92  142.17 5453.94  144.14 5453.93
  146.12 5453.94   148.1 5453.93  148.64 5453.94  150.08 5453.97  152.06 5453.99
  154.03 5453.99  156.01 5453.99  157.99    5454  159.97    5454  161.95 5453.95
  163.92    5454   165.9 5454.07  167.13  5454.1  167.88 5454.12  169.86 5454.28
  171.84 5454.41  173.81 5454.49   175.5 5454.53  175.79 5454.53  177.77 5454.79
  179.75 5454.83  181.73  5454.8   183.7 5454.86  185.68    5455  187.66 5455.02
  189.64 5455.09  191.62 5455.44  193.59 5455.85  195.57 5456.08  197.55 5456.01
  199.53 5455.87  201.51 5455.79  203.48  5455.9  205.46 5455.95  207.44  5456.1
  209.42 5456.24   211.4 5456.31  213.37 5456.37  215.35 5456.36  217.33 5456.25
  219.31 5456.14  221.29 5456.07  223.26  5456.1  225.24 5456.19  227.22 5456.23
   229.2 5456.26  231.17 5456.33  233.15  5456.4  235.13 5456.44

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .06   92.52    .015  167.13     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          76.97  177.77           166.12     143  115.06             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
  219.06  233.545466.406       F
Blocked Obstructions      num=       1
   Sta L   Sta R    Elev
       0   37.615466.435

CROSS SECTION


RIVER: TCC_S1
REACH: 5                  RS: 5433

INPUT
Description: 5433
Station Elevation Data    num=      95
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5451.07    1.98 5451.07    3.96 5451.07    5.94 5451.06    7.92 5451.06
     9.9 5451.06   11.88 5451.07   13.86 5451.17   15.84 5451.24   17.82 5451.18
    19.8 5451.11   19.87 5451.11   21.78 5451.14   23.76 5451.16   25.74 5451.24
   27.72 5451.31    29.7 5451.36   29.89 5451.36   31.69 5451.42   33.67  5451.4
   35.65 5451.46   37.63 5451.59   39.61 5451.64   41.59 5451.64   43.57 5451.71
   45.55 5451.81   47.53  5451.9   49.51 5451.98   51.49 5452.07   53.47 5452.16
   55.45 5452.26   57.43 5452.38   59.41 5452.48   61.39 5452.58   63.37 5452.68
   65.35 5452.76   67.33  5452.8   69.31  5452.7   71.29 5452.64   73.27 5452.57
   75.25 5452.53   77.23 5452.46   79.21 5452.39   81.19 5452.43   83.17 5452.59
   85.15  5452.7   87.13 5452.62   89.11  5452.2   91.09  5451.9   93.08  5451.9
   95.06 5451.92   97.04 5451.94   99.02 5452.01     101 5452.27  102.98 5452.66
  104.96 5452.96  106.94 5453.07  108.92 5453.16   110.9 5453.24  112.88 5453.26
  114.86 5453.21  116.84 5453.09  118.82 5453.19   120.8 5453.52  122.78 5453.49
  124.76 5453.56  126.74 5453.59  128.72 5453.56   130.7 5453.49  132.68  5453.5
  134.66 5453.47  136.64 5453.41  138.62 5453.31   140.6 5453.26  142.58 5453.23
  144.56 5453.22  146.54 5453.18  148.52 5453.14   150.5  5453.2  152.49 5453.26
  154.47 5453.26  156.45 5453.26  158.43 5453.27  160.41 5453.32  162.39 5453.27
  164.37 5453.25  166.35 5453.27  168.33 5453.24  170.31 5453.28  172.29 5453.25
  174.27 5453.51  176.25 5453.58  178.23 5453.62  180.21 5453.83  182.19 5453.88

Manning's n Values        num=       1
     Sta   n Val
       0     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          15.84   59.41           133.05  145.34  176.22             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
   36.43   62.385462.631       F
  100.73  133.395463.493       F
Blocked Obstructions      num=       1
   Sta L   Sta R    Elev
       0   13.065461.115

CROSS SECTION


RIVER: TCC_S1
REACH: 5                  RS: 5288

INPUT
Description: 5288
Station Elevation Data    num=     186
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5448.31    1.99 5448.33    3.98 5448.31    5.97  5448.3    7.96 5448.21
    9.95  5448.1   11.94 5448.08   13.93 5448.06   15.92 5448.04   17.91 5447.98
    19.9 5447.91   21.89 5447.84   23.89 5447.78   25.88 5447.71   27.87 5447.63
   29.86 5447.58   31.85  5447.5   33.84 5447.47   35.83 5447.42   37.82 5447.37
   39.81 5447.34    41.8  5447.3   43.79 5447.26   45.78 5447.21   47.77 5447.17
   49.76 5447.08   51.75 5446.99   53.74 5446.96   55.73 5447.04   57.72 5446.92
   59.71 5446.98    61.7 5446.97   63.69 5446.96   65.69 5446.87   67.68 5446.98
   69.67 5446.99   71.66 5446.93   73.65 5446.89   75.64 5446.93   77.63 5446.93
   79.62 5446.91   81.61  5446.9    83.6 5446.89   85.59 5446.82   87.58 5446.69
   89.57 5446.57   90.14 5446.57   91.56 5446.56   93.55 5446.54   95.54 5446.45
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   97.53 5446.42   99.52 5446.49  100.36 5446.49  101.51 5446.48   103.5 5446.54
  105.49 5446.56  107.48 5446.61  109.47  5446.7  111.47 5446.69  113.46 5446.73
  115.45 5446.89  117.44 5446.92  119.43  5446.9  121.42 5446.78  123.41 5446.69
   125.4 5446.63  127.39 5446.71  129.38 5446.88  131.37    5447  133.36 5447.04
  135.35 5447.08  137.34 5447.09  139.33 5447.09  141.32 5447.11  143.31 5447.13
   145.3 5447.13  147.29 5447.15  149.28 5447.11  151.27 5447.05  153.26 5446.99
  155.26 5446.92  157.25 5446.89  159.24 5446.88  161.23 5446.89  163.22 5446.89
  165.21 5446.89   167.2 5446.88  169.18 5446.89  171.16 5446.91  173.14 5446.92
  175.12 5446.93   177.1 5446.95  179.08 5446.96  181.06 5446.97  183.04 5446.99
  185.02 5447.07     187 5447.27  188.98 5447.42  190.96  5447.6  192.94 5447.82
  194.92  5447.8   196.9 5447.82  198.88 5447.94  200.86 5448.04  202.84 5448.07
  204.82 5448.08   206.8 5448.08  208.78 5448.08  210.76 5448.08  212.74 5448.09
  214.72  5448.1   216.7  5448.1  218.68 5448.11  220.66 5448.11  222.64 5448.11
  224.62 5448.12   226.6 5448.12  228.58 5448.12  230.56 5448.12  232.54 5448.08
  234.52 5447.98   236.5 5447.79  238.48 5447.81  240.46 5447.72  242.44 5447.74
  244.42 5447.72   246.4  5447.7  248.38 5447.83  250.36 5447.95  252.34 5447.93
  254.32 5447.68   256.3 5447.75  258.28 5448.06  260.26 5448.25  262.25 5448.35
  264.23 5448.49  266.21 5448.48  268.19 5448.49  270.17 5448.46  272.15 5448.47
  274.13 5448.52  276.11 5448.63  278.09  5448.7  280.07 5448.65  282.05 5448.65
  284.03 5448.69  286.01 5448.63  287.99  5448.6  289.97 5448.59  291.95 5448.62
  293.93 5448.65  295.91 5448.66  297.89 5448.66  299.87 5448.65  301.85 5448.61
  303.83 5448.63  305.81 5448.67  307.79 5448.74  309.77 5448.89  311.75 5448.93
  313.73 5448.83  315.71 5448.93  317.69 5448.95  319.67 5449.24  321.65 5449.45
  323.63 5449.41  325.61 5449.33  327.59 5449.33  329.57 5449.48  331.55 5449.58
  333.53 5449.61  335.51 5449.64  337.49 5449.66  339.47 5449.67  341.45 5449.69
  343.43 5449.71  345.41 5449.72  347.39  5449.7  349.37 5449.63  351.35 5449.61
  353.33 5449.64  355.31 5449.65  357.29 5449.66  359.27 5449.67  361.25 5449.69
  363.23  5449.7

Manning's n Values         num=       1
     Sta   n Val
       0     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          83.6  131.37            182.27  165.66  111.88             .1       .3
Blocked Obstructions     num=       4
   Sta L   Sta R    Elev   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0    8.675458.163   130.8  185.585457.124  200.48  229.895458.125
  329.68  363.23  5459.7

CROSS SECTION


RIVER: TCC_S1
REACH: 5                   RS: 5122

INPUT
Description: 5122
Station Elevation Data    num=     190
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5446.33    1.99 5446.31    3.98 5446.22    5.96 5446.13    7.95 5446.03
    9.94 5445.94   11.93 5445.85   13.92 5445.73   15.91 5445.57   17.89  5445.4
   19.88 5445.22   21.87 5444.97   23.86 5444.78   25.85 5444.59   27.84 5444.26
   29.82 5444.25   31.81 5444.21    33.8 5444.14   35.79 5444.08   37.78 5444.04
   39.76 5443.99   41.75 5443.92   43.74 5443.93   45.73 5443.92   47.72 5443.95
   49.71 5443.93   51.69 5443.88   53.68 5443.89   55.67 5443.93   57.66 5443.97
   59.65 5443.91   61.64 5443.92   63.62  5443.9   65.61 5443.82    67.6 5443.75
   69.59 5443.69   71.58 5443.71   73.56 5443.73   75.55 5443.76   77.54 5443.79
   79.53 5443.76   81.52 5443.79   83.51 5443.76   85.49  5443.7   87.48 5443.67
   89.47 5443.59   91.46 5443.19   93.45 5442.98   95.44 5443.21   97.42 5443.44
   99.41 5443.32   101.4    5443  103.39 5442.96  105.38 5442.98  107.36 5442.98
  109.35 5442.96  111.34 5442.94  113.33 5442.92  115.32 5442.88  117.31 5442.78
  119.29 5442.72  121.28 5442.67  123.27 5442.66  125.26 5442.65  127.25 5442.71
  129.24 5442.61  131.22 5442.58  133.21 5442.52   135.2 5442.49  137.19 5442.47
  139.18 5442.46  141.16 5442.44  143.15 5442.47  145.14 5442.49  147.13 5442.51
  149.12 5442.59  151.11 5442.58  153.09 5442.57  155.08 5442.52  157.07  5442.5
  159.06 5442.48  161.05 5442.44  163.04 5442.41  165.02 5442.38  167.01 5442.34
     169 5442.31  170.99  5442.4  172.99 5442.52  174.98 5442.53  176.97 5442.52
  178.97 5442.49  180.96 5442.25  182.95 5442.18  184.95 5442.22  186.94 5442.32
  188.93 5442.36  190.93 5442.38  192.92 5442.61  194.91  5442.7  196.91 5442.76
   198.9 5442.77  200.89 5442.76  202.89 5442.76  204.88 5442.75  206.87 5442.75
  208.87 5442.74  210.86 5442.74  212.85 5442.74  214.85 5442.78  216.84 5442.83
  218.83 5442.88  220.83  5442.9  222.55 5442.89  222.82 5442.89  224.81 5442.91
  226.81 5442.94   228.8 5442.97   230.8    5443  232.56 5442.98  232.79 5442.98
  234.78 5442.99  236.78 5443.07  238.77 5443.13  240.76 5443.12  242.76 5443.01
  244.75    5443  246.74 5443.03  248.74 5442.95  250.73 5442.91  252.72 5442.84
  254.72 5442.85  256.71 5442.89   258.7 5442.94   260.7 5442.94  262.69 5442.96
  264.68 5442.96  266.68 5442.93  268.67 5442.94  270.66  5442.9  272.66 5442.99
  274.65 5443.21  276.64 5443.03  278.64 5442.85  280.63 5442.78  282.62 5442.78
  284.62 5442.78  286.61 5442.77   288.6 5442.77   290.6 5442.82  292.59 5442.89
  294.58  5442.9  296.58 5442.87  298.57 5442.85  300.56 5442.89  302.56 5442.93
  304.55 5442.95  306.54 5442.95  308.54 5443.02  310.53 5442.96  312.52 5443.02
  314.52 5442.94  316.51 5442.91  318.5 5442.84   320.5 5442.88  322.49 5442.91
  324.48 5442.88  326.48 5442.84  328.47 5442.86  330.46  5442.9  332.46  5442.9
  334.34 5442.91  334.45 5442.91  336.44 5442.99  338.44 5443.07  340.43 5443.13
  342.42 5443.18  344.42 5443.23  346.41 5443.27   348.4 5443.35   350.4 5443.42
  352.39 5443.48  354.38  5443.6  356.38 5443.67  358.37 5443.71  360.36 5443.73
  362.36 5443.75  364.35 5443.78  366.34 5443.79  368.34 5443.81  370.33 5443.83

Manning's n Values         num=       2
     Sta   n Val     Sta   n Val
       0     .13  334.34    .015

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         174.98  232.56            154.85  144.87  184.91             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
  235.82  261.435452.942       F
Blocked Obstructions     num=       3
   Sta L   Sta R    Elev   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0   17.895455.401  150.18  174.155452.536  193.86  225.695452.926

CROSS SECTION


RIVER: TCC_S1
REACH: 4                   RS: 4977

INPUT
Description: 4977
Station Elevation Data    num=      68
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5437.29     .73  5437.3       2 5437.32       4  5437.4       6 5437.47
    7.99 5437.56    9.99 5437.59   11.99 5437.64   13.99 5437.73   14.23 5437.74
   15.99 5437.79   17.99 5437.83   19.98 5437.88   21.98 5437.92   23.98 5437.96
   25.58    5438   25.98    5438   27.98 5438.02   29.98 5438.08   31.97 5438.15
   33.97 5438.16   34.12 5438.17   35.97  5438.2   37.97  5438.4   39.97 5438.91
   41.97 5439.15   43.96 5439.15   45.96 5439.01   47.96 5438.97   49.96 5439.03
   51.96 5439.05   53.96 5439.05   55.95 5439.06   57.95 5439.13   59.95  5439.2
   61.95 5439.23   63.95 5439.26   65.95 5439.34   67.94  5439.4   69.94 5439.47
   71.94 5439.52   73.94 5439.62   75.94 5439.78   77.94 5439.83   79.94 5439.85
   81.93 5439.67   83.93 5439.61   85.93  5439.6   87.93 5439.64   89.93 5439.65
   91.93 5439.67   93.92 5439.68   95.92 5439.68   97.92 5439.72   99.92  5439.8
  101.92 5439.82  103.92 5439.86  105.91 5439.84  107.91 5439.88  109.91 5440.01
  111.91 5440.28  113.91  5440.5  115.91  5440.6   117.9  5440.6   119.9 5440.48
   121.9 5440.37   123.9 5440.29   125.9 5440.34

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13     .73    .015   34.12     .13
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Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             0   39.97             42.09    42.6   43.08             .1       .3

CROSS SECTION


RIVER: TCC_S1
REACH: 4                   RS: 4935

INPUT
Description: 4935
Station Elevation Data    num=      59
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5437.53    1.99  5437.5    3.99 5437.47    5.98 5437.46    7.97 5437.45
    9.97 5437.51   11.96 5437.55   13.95 5437.44   15.95  5437.4   17.94 5437.42
   19.93 5437.52   21.93 5437.55   23.92  5437.5   25.91 5437.39    27.9 5437.43
    29.9 5437.75   31.89 5437.61   33.88 5437.19   35.64 5437.01   35.88 5436.99
   37.67 5436.72   37.87 5436.69   39.86 5436.71   41.86 5436.84   43.85 5437.01
   45.84 5437.18    47.8  5437.3   47.84  5437.3   49.83 5437.39   51.82 5437.46
   53.82 5437.52   55.81 5437.59    57.8 5437.64    59.8 5437.66   61.79 5437.69
   63.78 5437.69   65.78 5437.66   67.77 5437.71   68.88 5437.79   69.76 5437.85
   71.76 5438.08   73.75 5438.32   75.74 5438.57   77.73 5438.81   79.73 5438.89
   81.72 5438.86   83.71 5438.79   85.71 5438.81    87.7 5438.85   89.69 5438.83
   91.69 5438.77   93.68 5438.77   95.67 5438.84   97.67 5438.95   99.66 5438.98
  101.65 5438.99  103.65 5439.02  105.64 5439.04  107.63 5439.07

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   35.64    .015   68.88     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          29.9   77.73             58.5   58.58   58.65             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0    3.765447.474  100.97  107.635449.066

CROSS SECTION


RIVER: TCC_S1
REACH: 4                   RS: 4876

INPUT
Description: 4876
Station Elevation Data    num=      62
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5436.76    1.99 5436.87    3.97 5437.03    5.96 5437.22    7.94 5437.17
    9.93 5437.04   11.92 5436.95    13.9  5436.9   15.89 5437.01   17.88 5437.15
   19.86 5437.39   21.85 5437.47   23.83 5437.45   25.82 5437.39   27.81 5437.28
   29.79 5437.11   31.78 5436.85   33.76 5436.38    33.8 5436.37   35.75 5435.97
   36.44 5435.92   37.74 5435.84   39.72 5435.65   41.71 5435.79   43.69 5435.95
    43.8 5435.95   45.68 5436.06   47.67 5436.21   49.65  5436.3   51.64 5436.43
   53.63 5436.52   55.61 5436.56    57.6 5436.63   59.58 5436.63   61.57 5436.68
   63.56 5436.66   65.54 5436.67   67.53 5436.63   69.46 5436.85   69.51 5436.86
    71.5 5436.92   73.49 5436.92   75.47 5436.96   77.46 5437.04   79.44 5437.06
   81.43 5437.13   83.42 5437.15    85.4  5437.2   87.39 5437.22   89.38 5437.25
   91.36 5437.26   93.35 5437.26   95.33 5437.34   97.32 5437.35   99.31 5437.42
  101.29 5437.46  103.28 5437.57  105.26  5437.6  107.25 5437.67  109.24 5437.72
  111.22 5437.76  113.21  5437.9

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   36.44    .015   69.46     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          27.81   69.46             91.11   91.22   91.34             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0    3.165446.943  110.19  113.215447.904

CROSS SECTION


RIVER: TCC_S1
REACH: 4                   RS: 4785

INPUT
Description: 4785
Station Elevation Data    num=      40
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  5434.3    1.99 5434.33    3.97  5434.4    5.46  5434.4    5.96  5434.4
    7.95 5434.32    8.05 5434.31    9.93 5434.18   11.92  5434.2    13.9 5434.36
   15.46 5434.46   15.89 5434.48   17.88 5434.65   19.86 5434.77   21.85 5434.88
   23.84 5434.97   25.82 5435.03   27.81 5435.11   29.79 5435.15   31.78  5435.2
   33.77 5435.21   35.75 5435.22   37.74 5435.21   39.73 5435.22   40.73 5435.31
   41.71  5435.4    43.7  5435.6   45.68 5435.69   47.67 5435.87   49.66 5436.14
   51.64 5436.53   53.63 5436.68   55.62 5437.06    57.6 5437.16   59.59  5437.3
   61.58 5437.44   63.56 5437.49   65.55 5437.59   67.53 5437.37   69.52 5437.36

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13    8.05    .015   40.73     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             0    43.7            172.75  172.63  172.52             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
   66.24   69.525447.365

CROSS SECTION


RIVER: TCC_S1
REACH: 4                   RS: 4612

INPUT
Description: 4612
Station Elevation Data    num=      57
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5431.47    1.98 5431.47    3.96 5431.51    5.94  5431.6    7.91 5431.56
    9.89 5431.48   11.87 5431.46   13.85 5431.41   15.83 5431.38   17.81 5431.38
   19.79  5431.4   21.76 5431.37   23.74 5431.38   25.72 5431.37   27.59 5431.34
    27.7 5431.33   29.68 5431.27   31.14 5431.19   31.66 5431.15   33.64 5431.02
   35.62  5431.2   37.59 5431.42   39.57 5431.61   41.55 5431.78   43.53 5431.93
   45.51 5432.03   47.49 5432.11   49.47 5432.17   51.44 5432.23   53.42 5432.25
    55.4 5432.24   57.38 5432.23   59.36 5432.16   61.34 5432.02   63.17 5432.23
   63.32 5432.24    65.3 5432.31   67.27 5432.45   69.25 5432.54   71.23 5432.64
   73.21 5432.74   75.19 5432.81   77.17  5432.9   79.15 5432.89   81.12 5432.97
    83.1 5433.09   85.08 5433.19   87.06 5433.29   89.04  5433.4   91.02 5433.43
      93 5433.42   94.97 5433.41   96.95 5433.39   98.93 5433.44  100.91 5433.48
  102.89 5433.49  104.87  5433.5

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   31.14    .015   63.17     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          5.94   67.27             70.27   82.92   95.24             .1       .3
Blocked Obstructions     num=       2
```

```
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0     4.25441.528  101.29  104.875443.505

CROSS SECTION


RIVER: TCC_S1
REACH: 4                   RS: 4529

INPUT
Description: 4529
Station Elevation Data    num=      46
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5431.34    1.97 5431.28    3.94 5431.21    5.92 5431.14    7.89 5431.05
    9.86 5430.97   11.83 5430.91    13.8 5430.83   15.77 5430.71   17.75 5430.63
   19.72 5430.55   21.69 5430.48   23.66 5430.41   25.63 5430.33   27.61 5430.26
   29.58 5430.15   31.55 5430.02   33.52 5429.87   35.35 5429.72   35.49 5429.71
   35.64  5429.7   37.47 5429.62   39.44 5429.51   41.41 5429.41   43.38 5429.52
   45.35 5429.57   45.64 5429.57   47.32 5429.61    49.3 5429.59   51.27 5429.52
   53.24 5429.45   55.21 5429.37   57.18  5429.3   59.16  5429.2   61.13  5429.1
    63.1 5428.99   65.07 5428.89   67.04  5428.8   69.02 5428.78   70.99 5429.19
   71.57 5429.27   72.96 5429.45   74.93 5429.38    76.9 5429.31   78.87 5429.17
   80.85 5429.22

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   35.35    .015   71.57     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         35.64   72.96           100.85  100.61  100.37              .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
       0    3.775441.215

CROSS SECTION


RIVER: TCC_S1
REACH: 4                   RS: 4429

INPUT
Description: 4429
Station Elevation Data    num=      49
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5429.13    1.96 5429.06    3.93    5429    5.89 5428.98    7.85 5429.01
    9.82 5428.99   11.78 5428.93   13.75 5428.94   15.71 5428.74   17.67 5428.79
   19.64 5428.86    21.6 5428.85   23.56  5428.9   25.53 5428.85   27.49 5428.77
   29.46 5428.68   31.42  5428.5   33.38 5428.34   35.35 5428.26   37.31 5427.95
    37.9 5427.88   38.62 5427.78   39.27 5427.69   41.24 5427.61    43.2 5427.41
   45.17 5427.41   47.13 5427.48   48.63 5427.43   49.09 5427.42   51.06 5427.46
   53.02 5427.42   54.98 5427.34   56.95 5427.28   58.91  5427.2   60.88 5427.12
   62.84 5427.03    64.8 5426.96   66.77 5426.87   68.73 5426.75   70.69 5426.64
   72.66 5426.76   74.26 5426.94   74.62 5426.98   76.58 5427.04   78.55  5427.1
   80.51  5427.1   82.48 5427.06   84.44 5427.12    86.4 5427.11

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13    37.9    .015   74.26     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         38.62    86.4           107.72  104.93  102.12              .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
       0    6.045438.986

CROSS SECTION


RIVER: TCC_S1
REACH: 4                   RS: 4324

INPUT
Description: 4324
Station Elevation Data    num=      49
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  5426.4    1.98 5426.38    3.97 5426.38    5.95 5426.41    7.94 5426.36
    9.92 5426.17   11.91 5425.74   11.95 5425.74   13.89 5425.56   15.88 5425.49
   17.86 5425.25   19.85 5425.17   21.83 5425.24   22.68 5425.24   23.82 5425.24
    25.8 5425.25   27.78  5425.3   29.77 5425.33   31.75 5425.34   32.69 5425.31
   33.74 5425.27   35.72 5425.17   37.71 5425.12   39.69 5425.03   41.68 5424.97
   43.66 5424.84   45.65 5424.73   47.63 5424.62   49.62 5424.67   51.38 5425.03
    51.6 5425.08   53.58 5425.14   55.57 5425.16   57.55 5425.07   59.54    5425
   61.52 5425.02   63.51    5425   65.49 5424.93   67.48 5424.48   69.46 5423.83
   71.45 5423.29   73.43 5422.91   75.42 5422.67    77.4 5422.45   79.38 5421.89
   81.37 5421.72   83.35 5422.09   85.34 5422.37   87.32 5422.78

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   11.95    .015   51.38     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          9.92   55.57             19   18.81   18.61              .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
   55.57   87.32 5425.16       T
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
   80.59   87.325432.778

CROSS SECTION


RIVER: TCC_S1
REACH: 4                   RS: 4305

INPUT
Description: 4305
Station Elevation Data    num=      51
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  5425.8    1.96  5425.7    3.92 5425.68    5.87 5425.66    7.83 5425.54
    9.39 5425.19    9.79  5425.1   11.75 5425.03    13.7 5425.03   15.66    5425
   17.62 5424.73   19.58 5424.66   21.53  5424.7   23.49 5424.67   25.45 5424.64
   27.41 5424.65   29.18 5424.65   29.37 5424.65   31.32 5424.64   33.28 5424.59
   35.24 5424.51    37.2 5424.45   39.15 5424.38   39.18 5424.38   41.11 5424.29
   43.07 5424.25   45.03 5424.16   46.98 5424.24   48.94 5424.55   49.26 5424.59
    50.9 5424.78   52.86 5424.81   54.82 5424.83   56.77  5424.8   58.73 5424.78
   60.69 5424.79   62.65 5424.82    64.6 5424.99   66.56 5425.27   68.52 5425.48
   70.48 5425.55   72.44 5425.62   74.39 5425.69   76.35 5425.71   78.31 5425.71
   80.27 5425.73   82.22 5425.73   84.18 5425.32   86.14 5424.13    88.1 5423.66
   90.05 5423.66

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13    9.39    .015   49.26     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         15.66   66.56           128.77  119.06  109.23              .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
   78.84   90.05 5433.66
```

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CROSS SECTION


RIVER: TCC_S1
REACH: 3                    RS: 4186

INPUT
Description: 4186
Station Elevation Data    num=      86
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
        0 5425.22       2 5425.19       4 5424.99    5.99 5424.78    7.99  5424.6
     9.99 5424.32   11.99 5423.96   13.99 5423.57   15.98  5423.1   17.98 5422.62
    19.98 5422.38   21.98 5422.32   23.98 5422.31   25.97  5422.4   27.97  5422.6
    29.97 5422.73   31.97  5422.7   33.97 5422.59   35.96 5422.43   37.96 5422.34
    39.96 5422.34   41.96 5422.35   43.95 5422.37   44.45 5422.35   45.95  5422.3
    47.95 5422.12   49.95 5422.06   50.22 5422.07   51.95 5422.14   53.94 5422.22
    55.94 5422.27   56.02 5422.27   57.94 5422.32   59.94 5422.35   61.94 5422.39
    63.93 5422.45   65.93 5422.49   67.93 5422.53   69.93 5422.59   71.93 5422.62
    73.92 5422.61   75.92 5422.58   77.92 5422.51   79.92 5422.47   81.92 5422.46
    83.91 5422.44   85.91 5422.42   87.91 5422.37   89.91 5422.32   91.91 5422.25
     93.9  5422.5    95.9 5422.88   96.44 5422.89    97.9 5422.91    99.9 5422.82
    101.9 5422.83  103.89 5422.93  105.89 5423.15  107.89 5424.53  109.89 5425.99
   111.88 5426.26  113.88 5426.29  115.88 5426.25  117.88 5426.23  119.88 5425.71
   121.87 5424.85  123.87 5424.49  125.87 5424.52  127.87 5424.52  129.87 5424.52
   131.86  5424.6  133.86 5424.74  135.86 5424.86  137.86 5424.94  139.86 5425.06
   141.85 5425.16  143.85 5425.12  145.85 5425.15  147.85 5425.26  149.85 5425.33
   151.84 5425.43  153.84 5425.57  155.84 5425.71  157.84 5425.68  159.84 5425.56
   161.83 5425.54

Manning's n Values        num=       3
      Sta   n Val     Sta   n Val     Sta   n Val
        0     .06   50.22    .015   96.44     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          31.97    95.9           115.83  116.26  116.62             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
  156.33  161.835435.538

CROSS SECTION


RIVER: TCC_S1
REACH: 3                    RS: 4070

INPUT
Description: 4070
Station Elevation Data    num=      73
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
        0 5422.18    1.98 5421.77    3.96 5421.34    5.94 5420.78    7.92 5420.45
      9.9 5420.43   11.88 5420.41   13.85 5420.59   15.83 5420.88   17.81 5420.99
    19.79 5420.92   21.77 5420.78   23.75 5420.55   25.73 5420.38   27.24 5420.21
    27.71 5420.16   29.69 5419.82   31.67 5419.88   33.65 5419.96   35.63 5419.99
    37.21 5420.03   37.25 5420.03    37.6 5420.04   39.58 5420.08   41.56 5420.15
    43.54 5420.17   45.52  5420.2    47.5 5420.27   49.48 5420.25   51.46 5420.32
    53.44 5420.38   55.42 5420.44    57.4 5420.46   59.38 5420.43   61.36  5420.4
    63.33 5420.35   65.31 5420.31   67.29 5420.28   69.27 5420.25   71.25 5420.23
    73.23 5420.21   75.21 5420.17   77.19 5420.12   79.17 5420.28   81.15 5420.56
    83.13 5420.78   84.59  5420.8   85.11 5420.81   87.09  5420.8   89.06 5420.85
    91.04 5420.99   93.02 5421.16      95 5421.26   96.98  5421.4   98.96 5421.57
   100.94 5421.74  102.92 5421.89   104.9 5422.03  106.88 5422.14  108.86 5422.24
   110.84 5422.42  112.81 5422.58  114.79 5422.69  116.77 5422.81  118.75 5422.94
   120.73 5423.11  122.71 5423.33  124.69 5423.45  126.67 5423.48  128.65 5423.54
   130.63 5423.62  132.61 5423.65  134.59 5423.67

Manning's n Values        num=       3
      Sta   n Val     Sta   n Val     Sta   n Val
        0     .06   37.21    .015   84.59     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          19.79   83.13           154.76  154.76  154.76             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
  125.78  134.59 5433.67

CROSS SECTION


RIVER: TCC_S1
REACH: 3                    RS: 3915

INPUT
Description: 3915
Station Elevation Data    num=      78
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
        0 5416.23    1.98 5417.84    3.96 5418.61    5.94 5418.86    7.92 5418.82
      9.9 5418.72   11.88 5418.58   13.86 5418.46   15.83 5418.25   17.81  5418.2
    19.79 5418.21   21.77 5418.28   23.75 5418.14   25.73  5417.8   27.71 5417.71
    29.69 5417.64   31.67 5417.58   33.65 5417.51   35.35 5417.47   35.63 5417.46
    37.61 5417.14   39.59 5417.12   41.57 5417.17   43.55  5417.2   45.37 5417.23
    45.53 5417.23   45.72 5417.24   47.51 5417.28   49.48 5417.33   51.46 5417.41
    53.44 5417.46   55.42  5417.5    57.4 5417.54   59.38 5417.58   61.36 5417.67
    63.34 5417.72   65.32 5417.77    67.3 5417.78   69.28 5417.75   71.26 5417.71
    73.24 5417.69   75.22 5417.65    77.2 5417.61   79.18 5417.58   81.15 5417.57
    83.13 5417.54   85.11 5417.49   87.09  5417.5   89.07 5417.79   91.05 5418.14
    93.03 5418.25   94.67 5418.26   95.01 5418.26   96.99 5418.27   98.97 5418.35
   100.95 5418.48  102.93 5418.58  104.91 5418.66  106.89 5418.74  108.87 5418.79
   110.84 5418.82  112.82 5418.87   114.8 5418.94  116.78 5419.05  118.76 5419.13
   120.74 5419.08  122.72 5419.04   124.7 5419.17  126.68 5419.26  128.66 5419.24
   130.64 5419.33  132.62 5419.46   134.6 5419.48  136.58 5419.48  138.56 5419.48
   140.54 5419.52  142.52 5419.59  144.49 5419.63

Manning's n Values        num=       3
      Sta   n Val     Sta   n Val     Sta   n Val
        0     .06   45.72    .015   94.67     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          23.75   35.35           176.04  176.04  176.04             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0   11.095428.635  135.37  144.495429.634

CROSS SECTION


RIVER: TCC_S1
REACH: 3                    RS: 3739

INPUT
Description: 3739
Station Elevation Data    num=      85
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
        0 5414.62    1.99 5414.65    3.98 5414.68    5.98 5414.72    7.97  5414.8
     9.96 5414.86   11.95 5414.91   13.94 5414.95   15.94 5415.01   17.93 5415.08
    19.92 5415.01   21.91 5414.82    23.9 5414.81    25.9 5414.85   27.89 5414.89
    29.88 5414.85   31.87 5414.88   33.86 5414.82   35.86  5414.8   37.85 5414.79
    39.84 5414.83   41.83 5414.91   43.82 5414.89   45.81  5414.8    45.9 5414.78
    47.81 5414.46   49.32 5414.16    49.8 5414.06   51.79 5414.15   53.78 5414.19
    55.77 5414.26    55.9 5414.27   57.77 5414.33   59.76  5414.4   61.75 5414.43
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   63.74 5414.49   65.73 5414.54   67.73 5414.61   69.72 5414.72   71.71 5414.73
    73.7 5414.67   75.69 5414.62   77.69 5414.59   79.68 5414.55   81.67 5414.51
   83.66 5414.45   85.65 5414.43   87.65 5414.41   89.64 5414.34   91.63 5414.32
   93.62 5414.64   95.61 5414.97   97.61 5415.13    99.6 5415.16  100.04 5415.18
  101.59 5415.22  103.58 5415.37  105.57 5415.54  107.57 5415.69  109.56 5415.82
  111.55 5415.89  113.54 5415.92  115.53 5415.95  117.53 5415.94  119.52    5416
  121.51  5416.1   123.5 5416.19  125.49 5416.26  127.49  5416.3  129.48 5416.43
  131.47 5416.54  133.46 5416.61  135.45 5416.73  137.44 5416.81  139.44 5416.82
  141.43 5416.93  143.42 5416.98  145.41 5417.01   147.4 5417.04   149.4 5417.05
  151.39 5416.98  153.38 5416.86  155.37 5416.66  157.36 5416.61  159.36 5416.67

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .06   49.32    .015  100.04     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          45.9   97.61           201.99  201.95  201.91             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
  144.59  152.045426.941       F
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0    12.25424.913  152.04  159.365426.669

CROSS SECTION


RIVER: TCC_S1
REACH: 3                  RS: 3537

INPUT
Description: 3537
Station Elevation Data    num=      82
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5410.85    1.98 5411.01    3.97 5411.11    5.95 5411.12    7.94 5411.13
    9.92 5411.14    11.9 5411.07   13.89 5411.08   15.87 5410.86   17.85 5410.84
   19.84 5410.86   21.82 5410.91   23.81 5410.92   25.79 5410.99   27.77 5410.97
   29.76 5410.97   31.74 5411.02   33.72 5411.02   35.71 5411.03   37.69 5411.05
   39.68  5411.2   41.66 5411.42   43.64 5411.65   45.63 5411.73   47.61 5411.67
    49.6 5411.41   51.58 5411.32   53.56 5411.43   55.55 5411.61   57.53 5411.75
   59.51 5411.83    61.5 5411.69   62.73 5411.53   63.48 5411.43   64.32 5411.29
   65.47 5411.11   67.45 5411.03   69.43 5411.08   71.42 5411.13    73.4 5411.18
   74.32 5411.21   75.38 5411.25   77.37 5411.31   79.35 5411.38   81.34 5411.44
   83.32 5411.52    85.3 5411.57   87.29 5411.57   89.27 5411.51   91.26 5411.45
   93.24 5411.39   95.22 5411.33   97.21 5411.26   99.19  5411.2  101.17 5411.15
  103.16 5411.08  105.14 5411.03  107.13 5411.02  109.11  5411.3  110.57 5411.55
  111.09 5411.64  113.08 5411.62  115.06 5411.53  117.04 5411.57  119.03 5411.73
  121.01 5411.93     123 5412.12  124.98 5412.34  126.96 5412.66  128.95 5413.04
  130.93 5413.25  132.92 5413.28   134.9 5413.38  136.88 5413.46  138.87 5413.46
  140.85 5413.46  142.83 5413.46  144.82 5413.47   146.8 5413.47  148.79 5413.48
  150.77 5413.48  152.75 5413.49

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   62.73    .015  110.57     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          59.51  111.09           201.49  203.16  204.82             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0   11.865421.072  144.91  152.755423.485

CROSS SECTION


RIVER: TCC_S1
REACH: 3                  RS: 3334

INPUT
Description: 3334
Station Elevation Data    num=      82
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5406.06    1.99 5405.87    3.98 5405.65    5.97 5405.43    7.97  5405.2
    9.96 5404.98   11.95 5404.75   13.94 5404.53   15.93 5404.51   17.92  5404.6
   19.92 5404.71   21.91 5404.82    23.9 5404.95   25.89 5405.11   27.88 5405.25
   29.87 5405.57   31.86 5406.13   33.86 5406.34   35.85 5406.51   37.84 5406.97
   39.83 5407.55   41.82  5407.8   43.81 5407.75   45.81 5407.84    47.8 5408.14
   49.79 5408.37   51.65 5408.41   51.78 5408.41   53.77 5408.28   55.76 5407.97
   57.75  5407.5   59.37 5407.26   59.75  5407.2   61.74 5407.26   63.73 5407.28
   65.72 5407.32   67.71 5407.38   69.53 5407.42    69.7 5407.43    71.7 5407.45
   73.69 5407.54   75.68  5407.6   77.67 5407.67   79.66 5407.73   81.65 5407.67
   83.64 5407.64   85.64 5407.58   87.63 5407.52   89.62 5407.47   91.61 5407.42
    93.6 5407.35   95.59  5407.3   97.58 5407.25   99.58 5407.16  101.57 5407.34
  103.56 5407.57  105.55 5407.63  106.63 5407.65  107.54 5407.66  109.53 5407.67
  111.53  5407.7  113.52 5407.61  115.51 5407.54   117.5 5407.52  119.49 5407.52
  121.48 5407.48  123.47 5407.44  125.47  5407.4  127.46 5407.37  129.45 5407.33
  131.44 5407.24  133.43 5407.15  135.42 5407.13  137.42  5407.2  139.41 5407.26
   141.4 5407.31  143.39 5407.27  145.38 5406.94  147.37 5406.36  149.36 5405.81
  151.36 5405.65  153.35 5405.27

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   51.65    .015  106.63     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          51.78  111.53           164.69   176.5  187.34             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
       0   51.78 5408.41       F
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0   16.815414.547  142.48  153.355415.271

CROSS SECTION


RIVER: TCC_S1
REACH: 3                  RS: 3157

INPUT
Description: 3157
Station Elevation Data    num=      69
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5403.27       2 5403.26       4 5403.16       6 5403.03       8 5402.94
      10 5402.84      12 5402.76      14 5402.83      16 5402.79      18  5402.8
      20 5402.79      22 5402.77      24 5402.71      26 5402.65      28  5402.6
   28.38 5402.58      30 5402.54      32 5402.49      34 5402.35      36    5402
      38 5402.08      40 5402.16   40.35 5402.18      42 5402.24      44 5402.32
      46 5402.34      48 5402.39      50 5402.43   50.36 5402.42      52 5402.41
      54 5402.37      56 5402.34      58 5402.26      60 5402.17      62 5402.13
      64 5402.05      66 5401.92      68 5402.02      70 5402.26    70.1 5402.26
      72  5402.3   73.99 5402.35      76 5402.49   77.99 5402.55   79.99 5402.61
   81.99 5402.85   83.99 5403.05   85.99 5402.99   87.99 5402.93   89.99 5402.99
   91.99 5403.11   93.99 5403.12   95.99 5403.19   97.99 5403.23   99.99  5403.3
  101.99 5403.41  103.99 5403.45  105.99 5403.42  107.99 5403.55  109.99 5403.64
  111.99 5403.65  113.99 5403.69  115.99 5403.75  117.99 5403.79  119.99 5403.95
  121.99 5403.97  123.99 5403.99  125.99 5404.02  127.99 5404.05

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
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       0     .13   28.38    .015    70.1     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           24    83.99             193.12  193.11   193.1             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0   13.745412.827  121.05  127.995414.053

CROSS SECTION


RIVER: TCC_S1
REACH: 3                   RS: 2964

INPUT
Description: 2964
Station Elevation Data    num=      65
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5403.75    1.98 5403.73    3.96 5403.65    5.95 5403.56    7.93 5403.47
    9.91 5403.38   11.89 5403.26   13.87  5403.2   15.85 5403.09   17.84 5402.98
   19.82 5402.98    21.8 5403.01   23.78 5402.94   25.76 5402.72   27.75 5402.47
   29.73  5402.2   31.71 5401.92   33.69 5401.71   35.67 5401.55   36.36 5401.44
   37.65 5401.23   39.64 5400.95   41.62 5400.69    43.6  5400.7   44.91 5400.81
   45.58 5400.86   47.56 5400.94   49.55 5401.02   51.53 5401.05   53.51 5401.06
   54.92 5401.08   55.49 5401.08   57.47  5401.1   59.45 5401.09   61.44 5401.06
   63.42    5401    65.4 5400.95   67.38 5400.93   69.36 5400.87   71.35  5400.8
   73.33 5400.76   75.31 5400.81    76.7 5400.88   77.29 5400.91   79.27 5401.04
   81.26 5401.25   83.24 5401.34   85.22 5401.41    87.2 5401.54   89.18 5401.61
   91.16 5401.63   93.15 5401.63   95.13 5401.61   97.11  5401.5   99.09 5401.44
  101.07 5401.43  103.06 5401.51  105.04 5401.58  107.02 5401.62     109 5401.64
  110.98  5401.6  112.96  5401.6  114.95 5401.62  116.93 5401.61  118.91 5401.57

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   36.36    .015    76.7     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          29.73   89.18             242.27  242.32  242.38             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0    4.92 5413.61  109.76  118.915411.573

CROSS SECTION


RIVER: TCC_S1
REACH: 3                   RS: 2722

INPUT
Description: 2722
Station Elevation Data    num=      63
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  5400.7    1.99 5400.65    3.99  5400.6    5.98 5400.56    7.97 5400.52
    9.97 5400.45   11.96  5400.5   13.95 5400.45   15.94 5400.33   17.94  5400.2
   19.93 5400.34   21.92  5399.9   23.92 5399.56   25.91 5399.34    27.9 5399.03
    29.9  5398.6   31.89 5398.18   33.18 5397.97   33.88 5397.86   35.88 5397.74
   37.87 5397.49   38.23  5397.5   39.86 5397.55   41.85 5397.62   43.85 5397.69
   45.84 5397.76   47.83 5397.81   48.23 5397.82   49.83 5397.85   51.82 5397.87
   53.81 5397.89   55.81 5397.88    57.8 5397.83   59.79 5397.81   61.79 5397.77
   63.78 5397.72   65.77 5397.66   67.76 5397.55   69.76 5397.56   71.75 5397.74
   73.74 5397.82   74.05 5397.82   75.74 5397.86   77.73 5397.85   79.72  5398.1
   81.72 5398.32   83.71 5398.44    85.7 5398.56    87.7  5398.7   89.69 5398.86
   91.68  5398.9   93.67 5398.91   95.67 5398.92   97.66 5398.93   99.65 5398.88
  101.65 5398.85  103.64 5398.86  105.63 5398.92  107.63 5399.01  109.62 5399.08
  111.61 5399.11  113.61 5399.12   115.6 5399.13

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   33.18    .015   74.05     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           27.9    87.7             169.29  169.21  169.14             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0    9.335410.476  104.91   115.6 5409.13

CROSS SECTION


RIVER: TCC_S1
REACH: 3                   RS: 2553

INPUT
Description: 2553
Station Elevation Data    num=      88
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5397.54    1.94  5397.5    3.88 5397.45    5.82 5397.37    7.76 5397.34
     9.7 5397.29   11.64  5397.2   13.58 5397.06   15.52 5397.05   17.46 5396.94
   19.39 5396.87   21.33 5396.85   23.27 5396.79   25.21 5396.69   27.15 5396.53
   29.09 5396.49   31.03 5396.48   32.97 5396.43   34.91 5396.35   36.85  5396.3
   38.79 5396.22   40.73 5396.12   42.67 5396.03   44.61 5395.99   46.55 5395.94
   48.49 5396.02   50.43 5396.02   52.37 5395.94   54.31 5395.77   56.25 5395.54
   58.18 5395.55   60.12 5395.61   62.06 5395.59   64.06 5395.64   66.05 5395.54
   68.04 5395.25   70.03 5395.12   72.02 5394.99   74.01 5394.88   76.01 5394.71
   76.26 5394.69      78 5394.57   79.62 5394.49   79.99 5394.47   81.98 5394.27
   83.97 5394.35   85.96 5394.41   87.95 5394.44   89.62 5394.51   89.95 5394.52
   91.94 5394.58   93.93 5394.57   95.92 5394.59   97.91 5394.59    99.9 5394.53
   101.9 5394.47  103.89 5394.46  105.88 5394.39  107.87 5394.28  109.86 5394.16
  111.85 5394.11  113.85 5394.27  115.84 5394.52  116.63  5394.6  117.83 5394.72
  119.82 5395.09  121.81 5394.96   123.8 5394.78   125.8 5394.73  127.79 5394.49
  129.78 5394.37  131.77 5394.38  133.76 5394.32  135.75  5394.3  137.75 5394.33
  139.74 5394.34  141.73 5394.32  143.72 5394.38  145.71 5394.51   147.7 5394.55
  149.69 5394.56  151.69 5394.56  153.68 5394.55  155.67 5394.54  157.66 5394.53
  159.65 5394.52  161.64 5394.51  163.64  5394.5

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   76.26    .015  116.63     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          66.05  119.82             131.89  131.82  131.76             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0    4.745407.414  151.58  163.645404.497

CROSS SECTION


RIVER: TCC_S1
REACH: 3                   RS: 2421

INPUT
Description: 2421
Station Elevation Data    num=      72
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5390.06       2  5389.6    3.99 5389.14    5.99  5388.7    7.99 5388.31
    9.99 5388.01   11.98 5387.99   13.98 5388.33   15.98 5389.15   17.97 5390.41
   19.97  5391.8   21.97  5393.1   23.96  5393.8   25.96 5393.69   27.96 5393.43
   29.96 5393.18   31.95 5393.04   33.95 5392.88   35.95 5392.79   37.94 5392.95
   39.94 5393.06   41.94 5393.08   43.93 5392.99   45.93 5392.78   47.93 5392.61
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   49.93 5392.53   51.92 5392.27   53.84 5392.12   53.92 5392.11   55.31 5391.96
   55.92 5391.89   57.91 5391.92   59.91 5392.01   61.91 5392.05   63.91 5392.11
   65.31 5392.14    65.9 5392.15    67.9 5392.19    69.9 5392.22   71.89 5392.22
   73.89 5392.17   75.89 5392.07   77.88 5392.02   79.88 5391.99   81.88 5391.94
   83.88 5391.86   85.87 5391.71   87.87 5391.69   89.87 5391.94   91.36  5392.1
   91.86 5392.16   93.86 5392.26   95.86 5392.22   97.85 5392.11   99.85 5392.14
  101.85 5392.26  103.85 5392.45  105.84 5392.62  107.84 5392.65  109.84 5392.59
  111.83 5392.64  113.83 5392.79  115.83  5392.6  117.83 5391.93  119.82  5391.6
  121.82  5391.6  123.82 5391.59  125.81 5391.58  127.81 5391.62  129.81 5391.81
   131.8 5392.01   133.8 5392.13

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   53.84    .015   91.36     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         43.93  103.85            94.17   93.56   92.95             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
       0   23.96  5393.8       F
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0   12.425398.002   130.8   133.85402.131

CROSS SECTION


RIVER: TCC_S1
REACH: 3                  RS: 2327

INPUT
Description: 2327
Station Elevation Data    num=      82
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5392.19    1.96  5392.1    3.91 5392.06    5.87 5391.98    7.82 5391.93
    9.78 5391.96   11.73 5391.94   13.69 5391.96   15.64 5392.06    17.6 5392.18
   19.55 5392.23   21.51 5392.19   23.46 5392.16   25.42 5392.12   27.37 5392.08
   29.33 5392.03   31.28 5391.92   33.24 5391.43   35.19 5391.11   37.15 5391.06
    39.1 5391.04   41.06 5391.04   43.01 5390.93   44.97  5390.9   46.92 5390.91
   48.88 5390.92   50.83 5390.92   52.79 5391.04   54.74 5391.15    56.7  5391.2
   58.65 5391.25   60.61 5390.95   62.57 5390.53   64.52 5390.37   65.28 5390.31
   66.48 5390.21   67.93 5390.15   68.43 5390.13   70.39 5390.25   72.34 5390.29
    74.3 5390.33   76.25 5390.41   77.96 5390.45   78.21 5390.45   80.16 5390.51
   82.12  5390.5   84.09 5390.56   86.06 5390.53   88.03 5390.52   89.99 5390.51
   91.96  5390.5   93.93 5390.47    95.9 5390.39   97.87 5390.35   99.84 5390.31
  101.81 5390.21  103.78 5390.29  105.75 5390.43  107.72 5390.62  107.93 5390.63
  109.69 5390.76  111.66 5390.97  113.63 5391.17   115.6 5391.23  117.57 5391.18
  119.54 5391.26  121.51  5391.4  123.48 5391.45  125.44 5391.55  127.41 5391.81
  129.38 5392.07  131.35 5392.12  133.32 5392.22  135.29 5392.41  137.26 5392.55
  139.23 5392.65   141.2 5392.63  143.17  5392.6  145.14 5392.59  147.11 5392.58
  149.08 5392.58  151.05 5392.57

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   65.28    .015  107.93     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         58.65  113.63            90.05   84.11   78.16             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0   15.415402.044  139.24  151.055402.573

CROSS SECTION


RIVER: TCC_S1
REACH: 3                  RS: 2243

INPUT
Description: 2243
Station Elevation Data    num=     138
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5391.07    1.99 5391.06    3.99 5391.05    5.98 5391.04    7.97 5391.03
    9.97 5391.05   11.96 5391.13   13.95 5391.21   15.95 5391.28   17.94 5391.33
   19.93 5391.35   21.93 5391.32   23.92 5391.28   25.91 5391.24   27.91  5391.2
    29.9 5391.15   31.89  5391.1   33.89 5391.02   35.88 5390.94   37.87  5390.8
   39.87 5390.66   41.86 5390.49   43.85 5390.34   45.85 5390.13   47.84 5389.91
   49.83  5389.8   51.83 5389.55   53.82 5389.26   55.81 5388.97   57.81 5388.67
    59.8 5388.65   61.64  5388.5    61.8 5388.49   63.79  5388.4   65.78 5388.38
   67.78  5388.5   69.77 5388.59   71.39 5388.67   71.76 5388.69   73.76 5388.78
   75.75 5388.84   77.74 5388.86   79.74 5388.91   81.73 5388.98   83.72    5389
   83.89    5389   85.72 5389.02   87.71 5389.08    89.7  5389.1   91.69 5389.11
   93.68 5389.08   95.68  5389.1   97.67 5389.07   99.66 5389.06  101.65    5389
  103.64 5388.96  105.63 5388.92  107.63  5388.9  109.62 5388.99  111.61 5389.15
  113.11 5389.25   113.6 5389.28  115.59 5389.37  117.58 5389.48  119.58 5389.21
  121.57 5389.02  123.56 5389.19  125.55 5389.34  127.54 5389.37  129.54 5389.33
  131.53 5389.34  133.52 5389.39  135.51  5389.4   137.5 5389.37  139.49 5389.41
  141.49 5389.39  143.48 5389.42  145.47 5389.41  147.46 5389.33  149.45 5389.18
  151.44    5389  153.44 5388.95  155.43 5388.98  157.42 5389.06  159.41 5389.19
   161.4  5389.3  163.39 5389.21  165.39 5389.23  167.38  5389.3  169.37 5389.39
  171.36 5389.44  173.35 5389.46  175.34 5389.48  177.34 5389.57  179.33  5389.7
  181.32 5389.98  183.31 5390.04   185.3 5390.13  187.29 5390.14  189.29 5390.13
  191.28  5390.1  193.27 5390.13  195.26 5390.15  197.25 5390.18  199.24 5390.12
  201.24 5390.07  203.23 5389.98  205.22 5389.91  207.21 5389.79   209.2 5389.62
   211.2 5389.86  213.19 5390.38  215.18 5390.85  217.17 5391.15  219.16 5391.35
  221.15 5391.35  223.15 5391.22  225.14 5390.96  227.13 5390.34  229.12 5390.16
  231.11 5390.25   233.1 5390.32   235.1 5390.41  237.09 5390.49  239.08 5390.56
  241.07 5390.65  243.06 5390.66  245.05 5390.65  247.05  5390.6  249.04  5390.6
  251.03 5390.72  253.02 5390.72  255.01 5390.66     257  5390.6     259 5390.52
  260.99 5390.43  262.98 5390.34  264.97 5390.25

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   61.64    .015  113.11     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         47.84  117.58            73.61   70.47     67             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
  141.06  168.365399.333       F
  184.72  198.815400.136       F
Blocked Obstructions     num=       4
   Sta L   Sta R    Elev   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0    21.85401.319  182.87  208.075399.714  230.52  243.255400.656
  251.79  264.975400.253

CROSS SECTION


RIVER: TCC_S1
REACH: 2                  RS: 2173

INPUT
Description: 2173
Station Elevation Data    num=      49
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5387.77    1.99  5387.8    3.99 5387.85    5.99 5387.79    7.98 5387.51
       9 5387.38    9.98 5387.26   11.97 5387.23   13.97 5387.18   15.96 5387.18
   17.96 5387.31   19.71 5387.35   19.95 5387.35   21.95 5387.44   23.94 5387.48
   25.94 5387.53   27.93 5387.59   29.89 5387.62   29.93 5387.62   31.92 5387.66
```

```
   33.92 5387.71   35.91 5387.75   37.91 5387.76    39.9 5387.74    41.9 5387.67
   43.89 5387.51   45.89 5387.48   47.88 5387.73   49.88 5387.77   50.79 5387.85
   51.87 5387.94   53.87 5388.47   55.86 5388.77   57.86 5388.62   59.85 5388.61
   61.85 5388.64   63.84 5388.67   65.84 5388.69   67.83 5388.72   69.83 5388.73
   71.82 5388.76   73.82 5388.72   75.81 5388.73   77.81 5388.85    79.8 5388.89
    81.8 5388.89   83.79 5388.92   85.79 5388.71   87.78 5388.47

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13       9    .015   50.79     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          5.99   55.86             31.46   29.55    27.6             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
   75.52   87.785398.475

CROSS SECTION


RIVER: TCC_S1
REACH: 2                  RS: 2143

INPUT
Description: 2143
Station Elevation Data    num=      64
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5387.12    1.97 5387.16    3.94  5387.2     5.9 5387.25    7.87 5387.29
    9.84 5387.31   11.81 5387.42   13.77 5387.33   15.74 5387.27   17.71  5387.3
   19.68 5387.33   21.65 5387.37   23.61 5387.36   25.58 5387.31   27.55 5387.28
   29.52 5387.24   31.48 5387.24   33.45 5387.16   35.42  5387.1   37.39 5387.02
   39.36 5386.91   40.09 5386.89   41.32 5386.86   42.53 5386.79   43.29 5386.74
   45.26 5386.64   47.23 5386.76   49.19 5386.89   51.16 5386.99   52.53 5387.08
   53.13 5387.11    55.1 5387.19   57.07 5387.24   59.03 5387.28      61 5387.27
   62.97 5387.27   64.94 5387.29    66.9 5387.27   68.87 5387.22   70.84 5387.17
   72.81 5387.09   74.78 5387.15   76.74 5387.31   78.71 5387.41   79.17 5387.45
   80.68 5387.58   82.65 5387.79   84.61 5387.88   86.58 5387.98   88.55 5388.05
   90.52 5388.08   92.49 5388.16   94.45 5388.28   96.42 5388.47   98.39 5388.66
  100.36 5388.76  102.32 5388.79  104.29 5388.42  106.26 5387.75  108.23 5387.52
   110.2 5387.25  112.16 5386.96  114.13 5386.67   116.1 5386.38

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   40.09    .015   79.17     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         35.42   82.65             84.84    84.2   83.56             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0     9.35397.296  102.74   116.15396.375

CROSS SECTION


RIVER: TCC_S1
REACH: 2                  RS: 2059

INPUT
Description: 2059
Station Elevation Data    num=     111
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5386.98    1.96 5386.94    3.91 5386.89     5.87 5386.85    7.83 5386.81
    9.78 5386.75   11.74 5386.73    13.7 5386.64   15.66 5386.53   17.61 5386.43
   19.57 5386.36   21.53  5386.3   23.48 5386.26   25.44 5386.28    27.4 5386.22
   29.35 5385.95   31.31 5385.93   33.27 5385.86   35.23 5385.88   37.18 5385.88
   39.14 5385.82    41.1 5385.78   43.05 5385.59   45.01 5385.57   46.97 5385.46
   48.92 5385.35   50.88 5385.33   52.84 5385.37   54.79  5385.4   56.75 5385.42
   58.71 5385.41   60.67 5385.39   62.62 5385.36   64.58 5385.33   66.54  5385.3
   68.51 5385.34   70.48 5385.38   72.44 5385.42   74.41 5385.45   76.38 5385.52
   78.35 5385.43   80.32  5385.4   82.29 5385.39   84.26  5385.5   86.23  5385.6
    88.2 5385.66   90.17 5385.69   92.14 5385.74   94.11 5385.75   96.08 5385.79
   98.04 5385.81  100.01 5385.86  101.98 5385.85   102.8 5385.82  103.95 5385.76
  104.24 5385.74  105.92  5385.6  107.89 5385.44  109.86  5385.5  111.83 5385.64
   112.8 5385.69   113.8 5385.73  115.77 5385.82  117.74 5385.91  119.71    5386
  121.68 5386.01  123.64 5385.99  125.61 5386.03  127.58 5386.05  129.55 5386.01
  131.52 5385.94  133.49 5385.89  135.46 5385.82  137.43  5385.8   139.4 5385.98
  141.37 5386.07  141.59 5386.09  143.34 5386.18  145.31 5386.32  147.28 5386.43
  149.24 5386.53  151.21 5386.61  153.18 5386.69  155.15 5386.85  157.12 5387.03
  159.09 5387.02  161.06 5387.31  163.03 5387.48     165 5387.66  166.97 5387.79
  168.91 5387.84  170.86 5387.89   172.8 5387.91  174.75 5387.91   176.7 5387.89
  178.64 5387.87  180.59 5387.86  182.53 5387.84  184.48 5387.83  186.42 5387.81
  188.37  5387.8  190.31 5387.78  192.26 5387.77  194.21 5387.75  196.15 5387.73
   198.1 5387.72  200.04 5387.73  201.99 5387.83  203.93 5387.97  205.88 5388.08
  207.82 5388.12

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13  104.24    .015  141.59     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         102.8  149.24             75.63   75.68   75.74             .1       .3
Blocked Obstructions     num=       3
   Sta L   Sta R    Elev   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0    7.925396.802   54.38   77.445395.492  171.63  207.825398.116

CROSS SECTION


RIVER: TCC_S1
REACH: 2                  RS: 1983

INPUT
Description: 1983
Station Elevation Data    num=      66
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5385.09    1.98 5385.12    3.96 5385.15     5.94 5385.18    7.92 5385.21
     9.9 5385.21   11.88  5385.2   13.86  5385.2   15.84 5385.17   17.82 5385.18
    19.8 5385.19   21.78 5385.17   23.75 5385.21   25.73 5385.26   27.71 5385.24
   29.69 5385.07   31.67 5384.93   33.65    5385   35.63 5385.14   37.61 5385.22
   39.59 5385.15   41.57 5384.95   43.33 5384.81   43.55 5384.79   44.97 5384.71
   45.53 5384.68   47.51 5384.51   49.49 5384.48   51.47 5384.62   53.34 5384.73
   53.45 5384.74   55.43 5384.83   57.41 5384.89   59.39 5384.98   61.37 5385.05
   63.35 5385.08   65.33 5385.07   67.31 5385.09   69.28 5385.09   71.26 5385.03
   73.24 5384.96   75.22 5384.92    77.2 5384.95   79.18 5385.21   80.91 5385.42
   81.16 5385.45   83.14 5385.99   85.12 5386.37    87.1 5386.77   89.08 5386.76
   91.06 5386.58   93.04 5386.58   95.02 5386.67      97 5386.87   98.98 5386.97
  100.96 5387.09  102.94 5387.24  104.92 5387.15   106.9 5387.19  108.88 5387.48
  110.86 5387.92  112.83 5387.89  114.81 5387.56  116.79 5387.38  118.77 5387.32
  120.75 5387.32

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   44.97    .015   80.91     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         39.59   83.14             79.45   79.09   78.73             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
       0   11.785395.201
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CROSS SECTION


RIVER: TCC_S1
REACH: 2                    RS: 1904

INPUT
Description: 1904
Station Elevation Data    num=     100
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
        0 5384.98    1.96 5384.96    3.91 5384.94    5.87 5384.92    7.83  5384.9
     9.79 5384.85   11.74 5384.79    13.7  5384.8   15.66  5384.8   17.62  5384.7
    19.57 5384.59   21.53 5384.52   23.49 5384.52   25.45 5384.45    27.4 5384.22
    29.36    5384   31.32  5383.9   33.28 5383.85   35.23 5383.92   37.19 5383.92
    39.15 5383.96   41.11 5384.01   43.06 5384.08   45.02 5384.14   46.98 5384.21
    48.94 5384.27   50.89 5384.34   52.85  5384.4   54.81 5384.41   56.77 5384.41
    58.72 5384.42   60.68 5384.43   62.64  5384.5    64.6 5384.59   66.55 5384.58
    68.51 5384.55   70.47 5384.52   72.43  5384.5   74.38 5384.46   76.36 5384.48
    78.33 5384.52   80.31 5384.55   82.29 5384.57   84.26 5384.45   86.24 5384.38
    88.21 5384.36   90.19 5384.31   92.17 5384.25   94.14 5384.19   96.12 5384.13
     98.1 5384.09  100.07 5384.04  102.05 5384.04  104.02 5384.04     106    5384
   107.98  5383.9  109.15 5383.88  109.95 5383.86   111.4 5383.79  111.93 5383.77
    113.9 5383.55  115.88 5383.76  117.86 5383.85  119.17 5383.95  119.83    5384
   121.81 5384.14  123.78  5384.2  125.76 5384.28  127.74 5384.31  129.71 5384.34
   131.69 5384.33  133.66 5384.35  135.64 5384.31  137.62 5384.28  139.59 5384.16
   141.57 5384.09  143.54 5384.38  145.52 5384.52  145.88 5384.54   147.5 5384.62
   149.47 5384.69  151.45 5384.86  153.42 5385.03   155.4 5385.08  157.38 5385.13
   159.35 5385.18  161.33 5385.26  163.31 5385.32  165.28 5385.41  167.26  5385.5
   169.23 5385.63  171.21 5385.82  173.19 5385.95  175.16 5385.98  177.14 5385.93
   179.11 5385.88  181.09  5385.9  183.07 5385.97  185.04 5386.04  187.02 5386.09

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   111.4    .015  145.88     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         90.19  153.42             58.97    66.9   73.67             .1       .3
Blocked Obstructions     num=       3
   Sta L   Sta R    Elev   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0    13.75394.795   43.97   81.075394.574  176.99  187.025396.093

CROSS SECTION


RIVER: TCC_S1
REACH: 2                    RS: 1837

INPUT
Description: 1837
Station Elevation Data    num=     127
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
        0 5384.82    1.99 5384.82    3.97  5384.8    5.96 5384.76    7.94  5384.7
     9.93 5384.66   11.91 5384.63    13.9 5384.64   15.89 5384.62   17.87 5384.34
    19.86 5384.36   21.84 5384.32   23.83 5384.27   25.81 5384.41    27.8 5384.24
    29.79    5384   31.77 5383.83   33.76 5383.75   35.74 5383.52   37.73 5383.48
    39.71 5383.43    41.7  5383.7   43.69 5383.94   45.67 5384.07   47.66 5384.06
    49.64 5384.06   51.63 5384.12   53.61 5384.18    55.6 5384.22   57.59 5384.22
    59.57 5384.23   61.56 5384.27   63.54 5384.33   65.53 5384.35   67.51 5384.33
     69.5  5384.3   71.49 5384.27   73.47 5384.25   75.46 5384.22   77.44 5384.19
    79.43 5384.16   81.41 5384.13    83.4  5384.1   85.39 5384.07   87.35 5384.06
    89.31 5384.03   91.28 5383.99   93.24 5384.01   95.21  5383.9   97.17 5383.88
    99.13 5383.87   101.1 5383.86  103.06 5383.82  105.03 5383.78  106.99  5383.7
   108.95  5383.6  110.92 5383.46  112.88 5383.28  114.85 5383.15  116.81 5383.07
   118.77 5383.02  120.74 5382.97   122.7 5382.98  124.67 5382.78  125.47 5382.73
   126.63 5382.65  128.59 5382.68  130.56  5382.8  130.68  5382.8  132.52 5382.84
   134.49 5382.92  136.45 5382.95  138.33 5382.96  138.41 5382.96  140.38 5382.95
   142.34    5383  144.31 5383.03  146.27 5383.01  148.23 5382.98   150.2 5382.96
   152.16  5382.9  154.13  5382.8  156.09 5382.74  158.05  5382.7  160.02 5382.63
   160.78 5382.63  161.98 5382.62  163.95 5382.82  165.91 5382.97  167.87 5383.07
   169.84 5383.26   171.8 5383.37  173.75 5383.42  175.69 5383.43  177.64 5383.47
   179.58  5383.5  181.53 5383.54  183.47 5383.55  185.41 5383.59  187.36 5383.59
    189.3 5383.61  191.25  5383.6  193.19 5383.67  195.14 5383.68  197.08 5383.68
   199.03 5383.75  200.97 5383.83  202.92 5383.88  204.86 5383.89  206.81 5383.87
   208.75 5383.89   210.7 5383.96  212.64 5383.99  214.58 5383.95  216.53 5383.99
   218.47 5384.04  220.42 5384.05  222.36 5384.06  224.31 5384.07  226.25 5384.06
    228.2 5384.06  230.14 5384.12  232.09 5384.14  234.03 5384.14  235.98 5384.09
   237.92 5384.07  239.87 5384.05

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   130.68    .015  160.78     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         110.92  171.8              70.97   74.95   78.93             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
  196.54  224.08 5394.07        F
Blocked Obstructions     num=       3
   Sta L   Sta R    Elev   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0   17.015394.408   46.93   92.735394.022   99.48  110.485393.515

CROSS SECTION


RIVER: TCC_S1
REACH: 2                    RS: 1762

INPUT
Description: 1762
Station Elevation Data    num=     124
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
        0 5383.53    1.96 5383.48    3.92 5383.41    5.88 5383.25    7.84 5383.12
     9.8 5383.15   11.76 5383.23   13.71 5383.08   15.67 5382.96   17.63 5382.94
    19.59 5382.88   21.55 5382.78   23.51 5382.69   25.47 5382.67   27.43 5382.67
    29.39 5382.71   31.35 5382.84   33.31 5382.98   35.27 5383.04   37.23 5383.02
    39.19 5382.97   41.14 5382.95    43.1 5382.94   45.06 5382.93   47.02 5382.87
    48.98 5382.79   50.94 5382.79    52.9 5382.78   54.86 5382.79   56.82 5382.83
    58.78 5382.83   60.74 5382.92    62.7 5382.86   64.66 5382.88   66.62  5382.8
    68.57 5382.84   70.53 5382.84   72.49 5382.81   74.45 5382.81   76.41 5382.82
    78.37 5382.83   80.33 5382.73   82.29 5382.73   84.28 5382.72   86.26 5382.78
    88.25 5382.79   90.24 5382.86   92.22 5382.93   94.21 5382.89    96.2 5382.85
    98.18 5382.78  100.17 5382.69  102.16 5382.59  104.14  5382.4  106.13 5382.19
   108.12 5382.07   110.1 5381.97  110.38 5381.95  112.09 5381.83  114.08 5381.53
   116.07 5381.22   117.6 5381.29  118.05 5381.31  120.04 5381.39  120.73 5381.41
   122.03 5381.46  124.01 5381.53     126 5381.55  127.99 5381.55  129.97 5381.56
   131.96 5381.55  133.95 5381.48  135.93 5381.43  137.92 5381.33  139.91  5381.3
   141.89 5381.18  142.83 5381.11  143.88 5381.05  145.87 5381.19  147.85 5381.35
   149.84 5381.36  151.83 5381.35  153.82 5381.45  155.81 5381.63   157.8 5382.01
   159.79 5382.25  161.78 5382.42  163.77 5382.48  165.75 5382.44  167.74 5382.46
   169.73 5382.55  171.72 5382.66  173.71 5382.78   175.7 5382.96  177.69 5383.04
   179.68 5383.07  181.67 5383.14  183.66 5383.23  185.65 5383.31  187.64 5383.35
   189.62 5383.37  191.61 5383.38   193.6 5383.34  195.59  5383.3  197.58 5383.29
   199.57 5383.29  201.56 5383.29  203.55 5383.29  205.54 5383.29  207.53 5383.29
   209.52 5383.29  211.51 5383.29  213.49 5383.29  215.48 5383.25  217.47 5383.18
   219.46 5383.16  221.45 5383.11  223.44 5383.07  225.43 5383.03  227.42    5383
   229.41 5382.96   231.4 5382.92  233.39 5382.91  235.38 5382.87

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   117.6    .015  142.83     .13
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Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        102.16  163.77             85.28   80.29   74.36             .1       .3
Ineffective Flow     num=        1
   Sta L   Sta R    Elev  Permanent
   81.32   93.585392.919       F
Blocked Obstructions      num=       1
   Sta L   Sta R    Elev
  187.82  235.385392.871

CROSS SECTION


RIVER: TCC_S1
REACH: 2                    RS: 1682

INPUT
Description: 1682
Station Elevation Data    num=      86
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5380.82    1.94 5380.87    3.88 5380.93    5.83 5380.92    7.77 5380.82
    9.71 5380.86   11.65 5380.92   13.59 5380.91   15.54 5380.95   17.48 5381.04
   19.42 5381.19   21.36 5381.39    23.3  5381.3   25.25 5380.76   27.19  5380.4
   29.13 5380.43   29.65 5380.43   31.07 5380.42   33.01 5380.49   34.96 5380.54
    36.9  5380.6   38.84 5380.79   39.82 5380.84   40.78 5380.89   42.72 5380.97
   44.67 5380.98   46.61 5381.11   48.55 5381.11   50.49 5381.07   52.46 5381.12
   54.42 5381.17   56.39 5381.23   58.36 5381.28   60.32 5381.31   62.29 5381.23
   64.26 5381.12   66.22 5381.18   68.19 5381.18   70.16 5381.19   72.12  5381.2
   74.09 5381.21   76.06 5381.28   78.02 5381.36   79.99 5381.39   81.96 5381.41
   83.92 5381.33   85.89 5381.27   87.85 5381.17   89.82 5381.09   91.79    5381
   93.75 5380.83   95.72 5380.78   97.69 5380.79   99.65 5380.75  101.62 5380.69
  103.59 5380.89  105.55 5381.36  107.52 5382.25  109.49  5382.6  111.45 5382.69
  113.42 5382.71  115.39 5382.74  117.35 5382.76  119.32 5382.79  121.29 5382.81
  123.25 5382.84  125.22 5382.86  127.18 5382.91  129.15 5382.98  131.12 5383.06
  133.08 5383.11  135.05 5383.11  137.02 5383.09  138.98 5383.07  140.95 5383.09
  142.92  5383.1  144.88 5383.12  146.85 5383.12  148.82 5383.12  150.78 5383.12
  152.75  5383.1  154.72 5383.07  156.68 5383.04  158.65 5383.02  160.62 5382.99
  162.58 5382.96

Manning's n Values        num=       1
     Sta   n Val
       0     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         23.3   39.82             93.4   97.03  100.48             .1       .3
Ineffective Flow     num=       4
   Sta L   Sta R    Elev  Permanent
    7.86   21.185391.389       F
   43.18   43.44 5390.99       F
    65.6   75.845391.264       F
  106.77  110.415392.665       F
Blocked Obstructions     num=       3
   Sta L   Sta R    Elev   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0    7.865390.816   43.44    65.65391.151  110.41  162.585392.964

CROSS SECTION


RIVER: TCC_S1
REACH: 2                    RS: 1585

INPUT
Description: 1585
Station Elevation Data    num=      88
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5379.01    1.98    5379    3.96 5378.98    5.95 5378.94    7.93 5378.91
    9.91  5378.8   11.89 5378.65   13.87 5378.56   15.85 5378.42   17.84  5378.3
   19.82 5378.28    21.8 5378.25   23.78 5378.21   25.76 5378.21   27.75 5378.18
   29.73 5378.15   31.71 5378.19   33.69 5378.21   35.67 5378.32   37.66 5378.29
   39.64 5378.26   41.62  5377.6   43.57 5376.93    43.6 5376.92   45.58 5376.67
   47.56 5376.44   49.55 5376.45   51.53 5376.59   53.51 5376.62   55.49 5376.67
   57.47 5376.76   57.88 5376.78   59.46 5376.86   61.44 5376.94   63.42 5377.03
    65.4 5377.04   67.38 5377.05   68.21 5377.07   69.36  5377.1   71.35 5377.16
   73.33 5377.23   75.31 5377.32   77.29 5377.31   79.27 5377.38   81.26 5377.37
   83.24 5377.38   85.22 5377.38    87.2 5377.37   89.18 5377.36   91.17  5377.4
   93.15 5377.41   95.13 5377.33   97.11 5377.34   99.09 5377.31  101.07 5377.27
  103.06 5377.25  105.04 5377.23  107.02  5377.2     109 5377.15  110.98 5377.09
   111.8 5377.07  112.97 5377.03  114.95 5376.95  116.93 5376.83  118.91 5377.11
  120.89 5377.24  122.87 5377.35  124.86 5377.43  126.84 5377.43  128.82 5377.46
   130.8 5377.39  132.78 5377.38  134.77 5377.36  136.75 5377.34  138.73 5377.35
  140.71 5377.35  142.69 5377.39  144.68 5377.43  146.66  5377.4  148.64 5377.42
  150.62 5377.51   152.6 5377.82  154.58 5377.83  156.57 5377.89  158.55 5377.89
  160.53 5377.86  162.51 5377.83  164.49  5377.8

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   43.57    .015   111.8     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         39.64  128.82            119.04   122.5  125.95             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0   14.635388.518  156.37  164.495387.801

CROSS SECTION


RIVER: TCC_S1
REACH: 2                    RS: 1462

INPUT
Description: 1462
Station Elevation Data    num=      68
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5377.58    1.97 5377.56    3.95 5377.56    5.92  5377.6     7.9 5377.68
    9.87 5377.62   11.84  5377.5   13.82 5377.38   15.79 5377.18   17.77 5377.09
   19.74  5376.9   21.71  5376.8   23.69 5376.61   25.66 5376.46   27.64 5376.33
   29.61 5376.12   31.58    5376   33.56 5375.84   35.53 5375.64    37.5  5375.5
   39.48 5375.41   41.45 5375.31   43.28 5375.16   43.43 5375.15    44.6 5375.02
    45.4 5374.93   47.37 5375.02   49.35 5375.08   51.32 5375.11   53.28 5375.13
    53.3 5375.13   55.27 5375.15   57.24 5375.18   59.22 5375.16   61.19 5375.06
   63.17 5375.04   65.14 5375.01   67.11 5375.04   69.09 5374.97   71.06 5374.94
   73.04 5374.87   75.01 5374.75   76.98 5375.09   77.28 5375.11   78.96  5375.2
   80.93 5375.28   82.91 5375.43   84.88 5375.51   86.85 5375.54   88.83 5375.65
    90.8 5375.77   92.78 5375.92   94.75 5375.99   96.72 5376.02    98.7 5376.09
  100.67 5376.23  102.65 5376.39  104.62 5376.44  106.59 5376.36  108.57 5376.32
  110.54 5376.26  112.51 5376.16  114.49 5376.14  116.46 5376.17  118.44 5376.19
  120.41 5376.22  122.38 5376.25  124.36 5376.27

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13    44.6    .015   77.28     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         35.53   84.88            138.53  126.64  114.57             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0   12.645387.467  108.09  124.365386.273

CROSS SECTION
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RIVER: TCC_S1
REACH: 2                    RS: 1336

INPUT
Description: 1336
Station Elevation Data    num=      61
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
        0  5374.4    1.97 5374.47    3.94 5374.55    5.91 5374.51    7.88  5374.4
     9.85 5374.39   11.82 5374.45   13.79  5374.5   15.76 5374.39   17.73 5374.24
     19.7 5374.23   21.68 5374.17   23.65 5374.13   25.62 5374.14   27.59 5374.13
    29.56 5374.13   31.53  5374.1    33.5 5374.06   35.47 5374.01   37.44 5373.98
    38.61 5373.95   39.41 5373.92   39.68 5373.91   41.38 5373.86   43.35 5373.81
    45.32  5373.7   47.29 5373.79   48.62 5373.88   49.26 5373.93   51.23 5374.11
     53.2 5374.27   55.17 5374.34   57.14  5374.4   59.11 5374.35   61.08 5374.34
    63.05  5374.3   65.03 5374.27      67 5374.23   68.97 5374.19   70.94 5374.14
    72.91 5374.07   74.88 5374.02   76.85 5374.22   78.82 5374.35   80.19 5374.45
    80.79 5374.49   82.76 5374.63   84.73 5374.76    86.7  5374.9   88.67 5375.02
    90.64 5375.12   92.61 5375.18   94.58 5375.33   96.55 5375.44   98.52 5375.54
   100.49  5375.6  102.46 5375.66  104.43  5375.8   106.4 5375.81  108.38 5375.85
   110.35 5375.94

Manning's n Values        num=       3
      Sta   n Val     Sta   n Val     Sta   n Val
        0     .13   39.68    .015   80.19     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          13.79   82.76            121.25  120.61  119.97             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0    5.685384.532     104  110.355385.937

CROSS SECTION


RIVER: TCC_S1
REACH: 2                    RS: 1215

INPUT
Description: 1215
Station Elevation Data    num=      92
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
        0 5372.02    1.99    5372    3.99 5371.92    5.98 5371.71    7.97 5371.82
     9.97 5372.03   11.96 5372.12   13.95 5372.14   15.95 5372.12   17.94 5372.21
    19.93 5372.31   21.93 5372.34   23.92 5372.38   25.91 5372.48   27.91 5372.57
     29.9 5372.72   31.89 5372.69   33.89 5372.73   35.88 5372.94   37.87 5373.09
     37.9 5373.09   39.86 5373.26   41.86 5373.23   42.16 5373.23   43.85  5373.2
    45.84 5372.83   47.84 5373.03    47.9 5373.04   49.83 5373.22   51.82 5373.38
    53.82 5373.54   55.81 5373.66    57.8 5373.74    59.8  5373.8   61.79 5373.85
    63.78 5373.88   65.78 5373.76   67.77 5373.76   69.76 5373.72   71.76  5373.6
    73.75 5373.53   75.74 5373.35   77.74 5373.44   79.73 5373.72   81.72 5373.74
    83.03 5373.82   83.72 5373.86   85.71 5373.86    87.7  5373.9    89.7 5373.96
    91.69 5373.99   93.68 5374.04   95.68 5374.04   97.67 5374.04   99.66 5374.11
   101.66 5374.18  103.65 5374.18  105.64 5374.21  107.64 5374.24  109.63 5374.27
   111.62 5374.34  113.61 5374.17  115.61 5372.22   117.6 5370.13  119.59 5370.79
   121.59 5370.84  123.58 5371.32  125.57 5371.97  127.57 5372.63  129.56 5373.28
   131.55 5373.92  133.55 5374.29  135.54 5374.37  137.53 5374.39  139.53 5374.41
   141.52 5374.42  143.51 5374.44  145.51 5374.46   147.5 5374.47  149.49 5374.49
   151.49 5374.51  153.48 5374.53  155.47 5374.54  157.47 5374.54  159.46 5374.51
   161.45 5374.48  163.45  5374.5  165.44 5374.52  167.43 5374.52  169.43 5374.56
   171.42 5374.54  173.41  5374.5

Manning's n Values        num=       3
      Sta   n Val     Sta   n Val     Sta   n Val
        0     .13   42.16    .015   83.03     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          42.16   79.73             94.84   101.4   107.6             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0    7.385381.784  116.91  173.41  5384.5

CROSS SECTION


RIVER: TCC_S1
REACH: 2                    RS: 1114

INPUT
Description: 1114
Station Elevation Data    num=     111
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
        0 5372.31      2 5372.31    3.99 5372.34    5.99 5372.37    7.99 5372.42
     9.98 5372.48   11.98  5372.5   13.98 5372.55   15.97 5372.41   17.97  5372.2
    19.97 5372.12   21.96 5372.12   23.96 5372.11   25.96 5372.11   27.95  5372.1
    29.95  5372.1   31.95  5372.1   33.94 5372.14   35.94 5372.14   37.93 5372.19
    39.93 5372.23   41.93 5372.26   43.92 5372.23   45.92 5372.34   47.92 5372.39
    49.91 5372.42   51.91 5372.39   53.91  5372.5    55.9 5372.74    57.9 5372.93
     59.9 5372.91   61.89 5372.93   63.89 5372.98   65.89 5373.02   67.88 5372.99
    69.88 5373.07   71.88 5373.13   73.87 5373.17   75.75 5373.19   75.87  5373.2
    77.87 5373.05   79.86 5372.76   81.86 5372.56   82.62 5372.51   83.86 5372.42
    85.85 5372.46   86.12 5372.47   87.85 5372.57   89.85 5372.62   91.84 5372.58
    93.84 5372.55   95.84 5372.64   97.83  5372.7   99.83 5372.78  101.83 5372.81
   103.82 5372.95  105.82 5373.09  107.82 5373.15  109.81 5373.23  111.81 5373.28
    113.8 5373.31   115.8 5373.31   117.8 5373.34  119.79 5373.36  121.79 5373.37
   123.79 5373.38  125.78  5373.4  127.78 5373.39  129.78 5373.31  131.77 5373.29
   133.25 5373.28  133.77 5373.27  135.77 5373.21  137.76 5373.13  139.76 5373.09
   141.76 5373.16  143.75 5373.35  145.75 5373.42  147.75 5373.66  148.11 5373.73
   149.74 5374.04  151.74 5374.42  153.74  5374.6  155.73 5374.74  157.73 5374.96
   159.73  5375.1  161.72 5375.18  163.72 5375.31  165.72 5375.64  167.71 5375.65
   169.71 5375.74  171.71 5375.85   173.7 5375.99   175.7 5376.17   177.7 5376.33
   179.69 5376.44  181.69 5376.53  183.68 5376.65  185.68 5376.68  187.68 5376.81
   189.67  5376.9  191.67 5376.92  193.67 5377.02  195.66 5377.13  197.66 5377.27
   199.66 5377.43  201.65 5377.49  203.65 5377.51  205.65 5377.44  207.64 5377.41
   209.64 5377.35

Manning's n Values        num=       4
      Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
        0     .13   82.62    .015  133.25    .015  148.11     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          75.75  151.74             54.41   60.69   67.11             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0   12.365382.514   195.7  209.645387.352

CROSS SECTION


RIVER: TCC_S1
REACH: 2                    RS: 1053

INPUT
Description: 1053
Station Elevation Data    num=      64
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
        0 5372.47    1.97 5372.53    3.94 5372.56    5.91 5372.55    7.88 5372.57
     9.85 5372.64   11.83  5372.7    13.8 5372.69   15.77 5372.66   17.74  5372.6
    19.71 5372.52   21.68 5372.47   23.65 5372.45   25.62 5372.44   27.59 5372.45
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   29.56 5372.42   31.54 5372.45   33.51 5372.45   35.48 5372.38   37.45 5372.29
   39.42 5372.17   40.08 5372.05   41.39 5371.82   41.43 5371.82   43.36 5371.75
   45.33 5371.52    47.3 5371.67   49.27 5371.73   50.08 5371.74   51.25 5371.75
   53.22 5371.78   55.19 5371.81   57.16 5371.81   59.13 5371.83    61.1 5371.87
   63.07 5371.84   65.04 5371.81   67.01 5371.76   68.98 5371.75   70.96 5371.72
   72.93 5371.61    74.9 5371.46   76.87 5371.49   78.84 5371.64   80.24 5371.72
   80.81 5371.75   82.78 5371.78   84.75 5371.78   86.72 5371.99   88.69 5372.21
   90.67 5372.36   92.64 5372.43   94.61 5372.54   96.58 5372.62   98.55 5372.73
  100.52 5372.82  102.49 5373.01  104.46 5373.13  106.43 5373.21   108.4 5373.28
  110.37 5373.34  112.35 5373.41  114.32 5373.48  116.29 5373.54

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   41.43    .015   80.24     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         33.51   90.67           119.16  119.19  119.22             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0    9.175382.616  105.82  116.295383.541

CROSS SECTION


RIVER: TCC_S1
REACH: 2                  RS: 934

INPUT
Description: 934
Station Elevation Data    num=      60
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5370.97    1.97 5370.85    3.95  5370.8    5.92 5370.74     7.9 5370.83
    9.87 5371.01   11.84 5370.93   13.82 5370.78   15.79 5370.82   17.77 5370.77
   19.74  5370.7   21.71 5370.62   23.69 5370.55   25.66 5370.34   27.64 5370.13
   29.61 5369.96   31.58  5369.8   33.56 5369.51   35.53 5369.33   35.86 5369.31
   36.43 5369.28    37.5 5369.22   39.48 5369.04   41.45 5369.11   43.43 5369.22
    45.4 5369.28   45.86  5369.3   47.37 5369.35   49.35 5369.42   51.32 5369.44
    53.3 5369.49   55.27 5369.53   57.24 5369.53   59.22 5369.52   61.19  5369.5
   63.17 5369.46   65.14 5369.43   67.11 5369.38   69.09 5369.23   71.06 5369.19
   73.04 5369.31   73.49 5369.36   75.01 5369.51   76.98 5369.86   78.96 5370.12
   80.93 5370.15   82.91 5370.17   84.88 5370.27   86.85 5370.47   88.83 5370.58
    90.8  5370.6   92.77 5370.61   94.75 5370.75   96.72 5370.86    98.7 5370.83
  100.67 5370.78  102.64 5370.78  104.62 5370.77  106.59 5370.74  108.57 5370.72

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   36.43    .015   73.49     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         23.69   86.85           132.11  132.26  132.42             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0   11.43 5380.95   99.07  108.575380.721

CROSS SECTION


RIVER: TCC_S1
REACH: 2                  RS: 802

INPUT
Description: 802
Station Elevation Data    num=      54
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5368.72    1.97  5368.7    3.93 5368.68     5.9 5368.65    7.86 5368.55
    9.83 5368.33    11.8  5368.3   13.76  5368.1   15.73 5368.02   17.69 5367.86
   19.66 5367.78   21.62 5367.42   23.59 5367.14   24.45 5367.08   25.56    5367
   26.91 5366.89   27.52 5366.84   29.49 5366.91   31.45 5366.95   33.42 5367.01
   34.46 5367.02   35.39 5367.03   37.35 5367.04   39.32 5367.04   41.28 5367.05
   43.25 5367.01   45.21 5366.97   47.18  5366.9   49.15 5366.83   51.11 5366.72
   53.08 5366.63   55.04 5366.52   57.01  5366.4   58.98  5366.5   60.94 5366.63
   61.48 5366.68   62.91 5366.79   64.87 5367.06   66.84 5367.26   68.81 5367.34
   70.77 5367.45   72.74 5367.62    74.7 5367.73   76.67 5367.81   78.63 5367.89
    80.6 5367.96   82.57 5367.97   84.53 5368.05    86.5 5368.08   88.46 5368.09
   90.43 5368.09    92.4 5368.08   94.36 5368.06   96.33 5368.02

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   26.91    .015   61.48     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         19.66   76.67            98.45    98.4   98.35             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0    9.84 5378.33   89.37   96.335378.025

CROSS SECTION


RIVER: TCC_S1
REACH: 2                  RS: 703

INPUT
Description: 703
Station Elevation Data    num=      59
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5366.92    1.97 5366.94    3.94 5366.96    5.91 5366.93    7.87 5366.88
    9.84 5366.88   11.81 5366.69   13.78 5366.58   15.75 5366.45   17.72 5366.25
   19.69  5366.1   21.66 5365.95   23.62 5365.56   25.35 5365.38   25.59 5365.36
   27.56  5365.2   28.02 5365.18   29.53 5365.11    31.5 5365.29   33.47 5365.37
   35.35 5365.42   35.44 5365.43   37.41 5365.49   39.37 5365.52   41.34 5365.54
   43.31 5365.55   45.28 5365.54   47.25 5365.47   49.22 5365.47   51.19 5365.45
   53.15  5365.4   55.12 5365.32   57.09  5365.2   59.06  5365.1   61.03 5365.24
      63 5365.34   64.77 5365.39   64.97  5365.4   66.94 5365.44    68.9 5365.46
   70.87 5365.51   72.84 5365.54   74.81 5365.56   76.78 5365.61   78.75 5365.71
   80.72 5365.81   82.69 5365.86   84.65 5365.93   86.62    5366   88.59 5366.03
   90.56 5366.08   92.53 5366.13    94.5 5366.41   96.47 5366.75   98.43 5366.76
   100.4 5366.72  102.37 5366.65  104.34  5366.6  106.31 5366.56

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   28.02    .015   64.77     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         21.66    94.5            107.9  100.65   93.08             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0     8.95376.893   99.47  106.315376.555

CROSS SECTION


RIVER: TCC_S1
REACH: 1                  RS: 603

INPUT
Description: 603
Station Elevation Data    num=     125
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5365.52    1.99 5365.58    3.98 5365.64    5.98  5365.7    7.97 5365.76
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    9.96 5365.75   11.95 5365.82   13.95 5365.65   15.94 5365.32   17.93 5365.11
   19.92 5365.07   21.91 5365.15   23.91 5365.41    25.9 5365.57   27.89 5364.83
   29.88 5364.13   31.88 5364.01   33.87 5364.16   35.86 5363.91   37.85 5364.03
   39.84 5363.46   41.84 5363.07   43.83 5362.74   45.82  5362.4   47.81 5362.73
   49.81 5363.18    51.8  5363.4   53.79 5363.63   55.78 5363.89   57.77 5364.13
   59.77 5364.34   61.76 5364.62   63.75  5364.9   65.74 5365.17   67.72  5365.3
    69.7 5365.19   71.68 5365.02   73.66 5364.92   75.64 5364.88   77.62 5364.88
    79.6 5364.81   81.58 5364.79   83.56  5364.7   85.54 5364.65   87.52 5364.57
    89.5  5364.5   91.48 5364.48   93.46  5364.4   95.44 5364.31   97.42 5364.22
    99.4 5364.19  101.38 5364.06  103.36 5364.02  105.33 5363.97  107.31 5363.92
  109.29  5363.9  111.27 5363.88  113.25 5363.74  113.87 5363.73  115.23 5363.71
  117.21 5363.47  119.19  5363.4  121.17  5363.4  123.15 5363.51  123.84 5363.55
  124.51 5363.59  125.13 5363.63  127.11 5363.78  129.09 5363.84  131.07 5363.94
  133.05 5364.04  135.03 5364.19  137.01 5364.29  138.99 5364.32  140.97 5364.35
  142.95  5364.4  144.93 5364.41  146.91 5364.49  148.89  5364.5  150.87 5364.48
  152.85 5364.45  154.82 5364.51   156.8 5364.56  158.78 5364.62  160.76 5364.58
  162.74 5364.58  164.72 5364.58   166.7 5364.54  168.68 5364.51  170.66 5364.54
  172.64 5364.46  174.62  5364.4   176.6 5364.51  178.58 5364.66  179.64 5364.77
  180.56 5364.86  182.54 5364.92  184.52 5364.89   186.5 5364.81  188.48 5364.94
  190.46 5365.12  192.44 5365.26  194.42 5365.29   196.4 5365.29  198.38 5365.32
  200.35 5365.39  202.33 5365.47  204.31 5365.57  206.29 5365.62  208.27 5365.72
  210.25 5365.79  212.23 5365.89  214.21 5365.95  216.19 5365.98  218.17 5366.05
  220.15 5366.08  222.13 5366.14  224.11 5366.23  226.09 5366.37  228.07 5366.49
  230.05 5366.54  232.03 5366.55  234.01 5366.56  235.99 5366.56  237.97  5366.6

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13  123.84    .015  179.64     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          99.4  137.01             55.49   61.38    66.4             .1       .3
Blocked Obstructions     num=       3
   Sta L   Sta R    Elev   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0   13.295375.795   28.31   69.33 5375.22  228.89  237.975376.599

CROSS SECTION


RIVER: TCC_S1
REACH: 1                   RS: 541

INPUT
Description: 541
Station Elevation Data    num=     129
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5363.25    1.98 5363.24    3.96 5363.25    5.94 5363.29    7.91 5363.31
    9.89 5363.33   11.87 5363.34   13.85 5363.37   15.83 5363.43   17.81 5363.43
   19.79 5363.36   21.76 5363.21   23.74 5363.09   25.72 5362.93    27.7 5362.75
   29.68 5362.58   31.66 5362.32   33.64 5362.24   33.83 5362.21   35.13 5362.03
   35.62 5361.96   37.59 5361.82   39.57 5361.88   41.55 5361.96   43.53 5361.97
   44.03 5361.98   45.51 5362.01   47.49 5362.03   49.47 5362.07   51.44 5362.12
   53.42 5362.16    55.4 5362.15   57.38 5362.09   59.36  5362.1   61.34 5362.12
   63.32 5362.06    65.3 5362.01   67.27 5361.99   69.25 5361.99   71.23 5362.14
    73.1 5362.23   73.21 5362.24   75.19 5362.37   77.17 5362.42   79.15 5362.47
   81.12 5362.48    83.1 5362.48   85.08 5362.51   87.06 5362.52   89.04 5362.57
   91.02 5362.56     93 5362.59   94.97 5362.65   96.95 5362.69   98.93 5362.69
  100.91 5362.71  102.89 5362.75  104.87 5362.79  106.85 5362.87  108.83 5362.94
   110.8 5362.95  112.78 5362.88  114.76 5362.87  116.73  5362.9  118.71 5362.98
  120.68 5363.03  122.66 5363.08  124.63 5363.13   126.6 5363.24  128.58 5363.39
  130.55 5363.54  132.52 5363.58   134.5  5363.6  136.47 5363.76  138.45 5363.91
  140.42 5363.91  142.39 5363.68  144.37 5363.47  146.34 5363.41  148.31 5363.45
  150.29 5363.42  152.26 5363.44  154.24 5363.56  156.21 5363.61  158.18 5363.54
  160.16 5363.43  162.13 5363.25   164.1 5363.12  165.49 5363.22  166.08 5363.26
  168.05 5363.45  170.03  5363.6    172 5363.76  173.97 5363.88  175.95 5363.98
  177.92 5364.12  179.89 5364.18  181.87 5364.22  183.84 5364.22  185.82 5364.25
  187.79 5364.22  189.76 5364.16  191.74 5364.12  193.71 5364.05  195.68 5363.92
  197.66 5364.14  199.52 5364.27  199.63 5364.27  201.61 5364.43  203.58 5364.62
  205.55 5364.69  207.53 5364.79   209.5  5364.9  211.47    5365  213.45 5365.13
  215.42 5365.29   217.4 5365.46  219.37 5365.67  221.34 5365.81  223.32 5365.88
  225.29 5365.89  227.26 5365.91  229.24 5365.98  231.21 5366.03  233.19 5366.09
  235.16 5366.19  237.13 5366.19  239.11 5366.04  241.08 5365.98

Manning's n Values         num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   35.13    .015    73.1     .13  165.49    .015  199.52     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          27.7   77.17             81.85   81.88   81.91             .1       .3
Blocked Obstructions     num=       3
   Sta L   Sta R    Elev   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0   16.895373.438  110.14  121.95373.063  235.85  241.085375.984

CROSS SECTION


RIVER: TCC_S1
REACH: 1                   RS: 459

INPUT
Description: 459
Station Elevation Data    num=     126
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5361.71    1.98 5361.63    3.95 5361.54    5.93 5361.54    7.91 5361.49
    9.89 5361.51   11.86  5361.5   13.84 5361.56   15.82 5361.53   17.79 5361.42
   19.77 5361.33   21.75 5361.59   23.72 5361.89    25.7 5361.89   27.68 5362.01
   29.66 5362.02   31.63 5361.98   33.61 5361.88   35.59 5361.27   37.56 5361.28
   39.54 5361.35   41.52 5361.45   43.49 5361.62   45.47 5361.65   47.45 5361.69
   49.43 5361.67    51.4 5361.69   53.38 5361.67   55.36 5361.61   57.33 5361.67
   59.31 5361.52   61.29 5361.47   63.26 5361.54   65.24 5361.43   67.22 5361.35
    69.2 5361.33   71.17 5361.27   73.15 5361.25   75.13 5361.26    77.1 5361.16
   79.08 5361.18   81.06 5361.25   83.03 5361.07   85.01 5361.04   86.99 5361.07
   88.97 5361.07   90.94 5361.05   92.92 5361.04    94.9 5361.03   96.87    5361
   98.85 5360.96  100.83 5360.93   102.8 5360.89  104.78 5360.85  106.76 5360.82
  108.74 5360.76  110.71 5360.66  112.69  5360.6  114.67 5360.57  116.65 5360.56
  118.64 5360.56  120.62 5360.53   122.6 5360.48  124.58 5360.49  126.57 5360.48
  128.55 5360.44  130.53 5360.42  132.51  5360.4  134.49  5360.4  136.48  5360.4
  138.46 5360.38  140.44 5360.32  142.42 5360.24   144.4 5360.21  146.39 5360.16
  148.37 5360.14  150.35 5360.11  152.33 5359.95  153.31 5359.94  154.32 5359.94
  154.54 5359.89   156.3 5359.56  158.28 5359.61  160.26 5359.72  162.24 5359.79
   163.5 5359.88  164.23 5359.93  166.21 5360.09  168.19 5360.09  170.17  5360.1
  172.15 5360.12  174.14  5360.1  176.12 5360.06   178.1 5360.04  180.08 5359.99
  182.07 5359.98  184.05 5359.97  186.03 5359.95  188.01 5359.89  189.99 5360.07
  191.98 5360.26  193.44 5360.45  193.96 5360.52  195.94 5360.79  197.92 5360.86
  199.91 5361.02  201.89 5361.19  203.87 5361.25  205.85 5361.22  207.83 5361.21
  209.82  5361.3   211.8 5361.44  213.78 5361.49  215.76 5361.52  217.75 5361.55
  219.73 5361.62  221.71 5361.72  223.69 5361.73  225.67 5361.75  227.66 5361.75
  229.64 5361.61  231.62 5361.45   233.6  5361.5  235.58 5361.44  237.57  5361.4
  239.55 5361.45

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13  154.54    .015  193.44     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         118.64  195.94             79.16   80.16   81.16             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
   92.98  113.425370.588  233.24  239.555371.452

CROSS SECTION
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RIVER: TCC_S1
REACH: 1                    RS: 379

INPUT
Description: 379
Station Elevation Data    num=     119
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
        0 5361.61    1.98  5361.5    3.95 5361.36    5.93 5361.21    7.91 5361.06
     9.89 5360.84   11.86 5360.67   13.84 5360.63   15.82 5360.51    17.8 5360.49
    19.77 5360.49   21.75 5360.46   23.73 5360.44   25.71 5360.45   27.68 5360.47
    29.66 5360.49   31.64 5360.51   33.62 5360.54   35.59 5360.57   37.57  5360.6
    39.55 5360.69   41.53 5360.71    43.5 5360.65   45.48 5360.63   47.46 5360.62
    49.43 5360.61   51.41  5360.6   53.39 5360.58   55.37 5360.58   57.34 5360.57
    59.32 5360.56    61.3 5360.56   63.28 5360.53   65.25 5360.44   67.23 5360.47
    69.21 5360.49   71.19 5360.56   73.16 5360.44   75.14 5360.49   77.12 5360.45
     79.1 5360.35   81.07 5360.32   83.05  5360.3   85.03 5360.28   87.01 5360.27
    88.98 5360.25   90.96 5360.24   92.94 5360.22   94.92 5360.21   96.89 5360.19
    98.87 5360.18  100.85 5360.16  102.82 5360.15   104.8 5360.13  106.78 5360.12
   108.76  5360.1  110.73 5360.11  112.71  5360.2  114.69 5360.13  116.67 5360.05
   118.65 5359.99  120.64 5359.91  122.62 5359.78   124.6 5359.65  126.58 5359.53
   128.56  5359.4  130.54 5359.25  132.52 5359.07   134.5 5358.91  136.49 5358.73
   138.47 5358.54  140.45 5358.26  142.43 5358.02  143.88 5357.94  144.41 5357.91
   144.66 5357.89  146.39  5357.7  148.37 5357.46  150.35 5357.43  152.33 5357.49
   153.91 5357.57  154.32 5357.59   156.3 5357.71  158.28 5357.76  160.26 5357.78
   162.24 5357.82  164.22 5357.83   166.2 5357.81  168.18 5357.78  170.16 5357.75
   172.15 5357.76  174.13 5357.71  176.11 5357.58  178.09  5357.5  180.07  5357.6
   182.05 5357.77  183.87 5357.94  184.03 5357.96  186.01 5358.36  187.99 5358.59
   189.98 5358.74  191.96  5358.9  193.94 5358.99  195.92 5359.22   197.9 5359.35
   199.88 5359.51  201.86 5359.54  203.84 5359.51  205.83 5359.57  207.81 5359.55
   209.79 5359.54  211.77 5359.52  213.75 5359.53  215.73 5359.61  217.71 5359.57
   219.69  5359.6  221.67 5359.67  223.66 5359.74  225.64 5359.81

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13  144.66    .015  183.87     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        132.52  195.92            126.78  127.32  127.87             .1       .3
Blocked Obstructions      num=       4
   Sta L   Sta R    Elev   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0   7.885371.062    22.1   67.245370.472   82.15  112.025370.158
  209.57  225.645369.813

CROSS SECTION


RIVER: TCC_S1
REACH: 1                    RS: 252

INPUT
Description: 252
Station Elevation Data    num=      66
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
        0 5358.72    1.99 5358.73    3.99 5358.71    5.98 5358.61    7.98 5358.56
     9.97 5358.52   11.96 5358.42   13.96 5358.33   15.95 5358.21   17.95 5358.07
    19.94 5357.89   21.93 5357.58   23.93 5357.22   25.92 5356.88   27.92 5356.51
    29.91 5356.09    31.9 5355.71    33.9 5355.31   35.89 5354.92   37.89  5354.6
    38.51 5354.51   39.61 5354.35   39.88 5354.32   41.87 5354.12   43.87 5354.13
    45.86 5354.25   47.85 5354.36   48.51  5354.4   49.85 5354.47   51.84 5354.56
    53.84  5354.6   55.83 5354.62   57.82 5354.62   59.82  5354.6   61.81 5354.56
    63.81  5354.5    65.8 5354.42   67.79 5354.34   69.79  5354.3   71.78 5354.31
    73.78 5354.37   75.77  5354.47   77.76 5354.54   79.76 5354.66   80.85 5354.73
    81.75  5354.8   83.75 5354.92   85.74 5355.05   87.73 5355.26   89.73 5355.45
    91.72 5355.57   93.72 5355.68   95.71 5355.76    97.7 5355.88    99.7    5356
   101.69 5356.14  103.69 5356.25  105.68 5356.34  107.67 5356.42  109.67 5356.49
   111.66 5356.59  113.66  5356.7  115.65 5356.76  117.64 5356.76  119.64 5356.77
   121.63 5356.77

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   39.61    .015   80.85     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          31.9   93.72            77.21   77.03   76.86             .1       .3
Blocked Obstructions      num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0   6.055368.604  112.87  121.635366.769

CROSS SECTION


RIVER: TCC_S1
REACH: 1                    RS: 175

INPUT
Description: 175
Station Elevation Data    num=      97
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
        0 5357.34    1.99  5357.3    3.98 5357.35    5.97 5357.35    7.96 5357.28
     9.95 5357.33   11.94 5357.34   13.94 5357.32   15.93 5357.26   17.92  5357.2
    19.91 5357.06    21.9 5356.95   23.89 5356.93   25.88 5356.84   27.87 5356.63
    29.86 5356.35   31.85 5356.03   33.84 5355.57   35.83 5355.27   37.83 5354.85
    39.82 5354.42   41.81 5353.54   43.47 5353.13   43.66 5353.09    43.8 5353.06
    45.79 5352.99   47.78  5352.6   49.77 5352.65   51.76 5352.76   53.47 5352.81
    53.75 5352.82   55.74 5352.85   57.73 5352.91   59.72 5352.97   61.72    5353
    63.71 5352.99    65.7    5353   67.69 5353.03   69.68 5352.95   71.67 5352.88
    73.66 5352.78   75.65 5352.73   77.64 5352.66   79.63 5352.81   81.62 5352.99
    83.61 5353.25   84.96 5353.36   85.61 5353.42    87.6 5353.49   89.59 5353.46
    91.58  5353.5   93.57 5353.58   95.56  5353.7   97.55 5353.84   99.54  5353.9
   101.53 5353.88  103.52 5354.03  105.51 5354.42   107.5 5354.45  109.49  5354.6
   111.49 5354.63  113.48 5354.72  115.47 5354.69  117.46 5354.72  119.45 5354.71
   121.45 5354.66  123.44 5354.61  125.44 5354.55  127.44 5354.49  129.43 5354.49
   131.43  5354.5  133.43 5354.49  135.42 5354.48  137.42 5354.47  139.42 5354.45
   141.42 5354.43  143.41 5354.42  145.41 5354.39  147.41 5354.38   149.4 5354.36
    151.4 5354.34   153.4 5354.35  155.39 5354.38  157.39 5354.64  159.39 5355.65
   161.38 5355.86  163.38 5356.24  165.38 5356.23  167.38 5356.24  169.37 5356.26
   171.37 5356.25  173.37  5356.3  175.36 5356.33  177.36 5356.36  179.36  5356.4
   181.35 5356.43  183.35 5356.45

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   43.66    .015   84.96     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         39.82  105.51            70.97   70.31   69.66             .1       .3
Blocked Obstructions      num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
  118.57  148.035364.377  173.72  183.355366.451

CROSS SECTION


RIVER: TCC_S1
REACH: 1                    RS: 105

INPUT
Description: 105
Station Elevation Data    num=      72
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     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5353.14    1.99  5353.2    3.98 5353.24    5.96 5353.21    7.95 5352.99
    9.94 5352.93   11.93 5353.16   13.91 5353.34    15.9 5353.35   17.89 5353.45
   19.88 5353.43   21.86 5353.28   23.85 5353.13   25.84 5352.88   27.83 5352.87
   29.82 5353.03    31.8 5353.23   33.79  5353.3   35.78 5353.32   37.77  5353.3
   39.75 5353.19   41.74 5353.08   43.73 5352.85   45.72 5352.49    47.7 5352.21
   49.33 5351.93   49.69 5351.87   49.99 5351.86   51.68 5351.83   53.67 5351.43
   55.65 5351.49   57.64 5351.56   59.63 5351.71   60.04 5351.72   61.62 5351.76
   63.61 5351.84   65.59 5351.88   67.58 5351.93   69.57 5351.97   71.56 5351.93
   73.54  5351.9   75.53 5351.87   77.52 5351.81   79.51 5351.73   81.49 5351.67
   83.48 5351.58   85.47 5351.75   87.46 5351.88   89.45 5352.05    90.9 5352.11
   91.43 5352.13   93.42 5352.23   95.41  5352.3    97.4 5352.44   99.38 5352.54
  101.37  5352.6  103.36 5352.67  105.35 5352.72  107.33  5352.8  109.32 5352.89
  111.31    5353   113.3 5353.06  115.29 5353.09  117.27    5353  119.26 5353.12
  121.25 5353.33  123.24 5353.33  125.22 5353.32  127.21 5353.41   129.2 5353.47
  131.19 5353.47  133.17 5353.47

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   49.33    .015    90.9     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         43.73  107.33             40.77  104.51   40.02             .1       .3
Blocked Obstructions      num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0    5.775363.228  125.22  133.175363.467

CROSS SECTION


RIVER: TCC_S1_4TH
REACH: 1                  RS: 415

INPUT
Description: 415
Station Elevation Data    num=      37
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5582.29    1.95 5582.32    3.91  5582.3    5.86 5582.32    7.82 5582.32
    9.77 5582.33   11.73 5582.35   12.65 5582.34   13.68 5582.33   15.64 5582.33
   17.42  5582.2   17.59 5582.19   19.55 5582.11    21.5 5582.11   23.45 5582.21
   23.89 5582.24   25.41 5582.33   27.36 5582.32   29.32 5582.33   31.27 5582.39
   33.23 5582.44   35.18 5582.47   37.14 5582.42   39.09 5582.34   41.04 5582.21
      43 5581.99   44.95 5581.91   46.91 5581.83   48.86 5581.79   50.82 5581.84
   52.77 5581.92   54.73 5581.92   56.68 5582.12   58.64 5582.62   60.59 5583.26
   62.54 5583.69    64.5 5584.09

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0    .015   17.42     .09

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         15.64   35.18             76.9   81.58   85.92             .1       .3

CROSS SECTION


RIVER: TCC_S1_4TH
REACH: 1                  RS: 334

INPUT
Description: 334
Station Elevation Data    num=      73
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5579.5    1.97 5579.45    3.95 5579.39    5.92 5579.35     7.9 5579.29
    9.87 5579.23   11.84 5579.19   13.82 5579.11   15.79 5578.97   17.56 5578.86
   17.77 5578.85   19.74 5578.75   21.71  5578.7   23.69 5578.69   25.66 5578.72
   27.64 5578.87   29.61 5578.97   31.58 5578.85   33.56 5578.72   35.53 5578.75
   37.51 5579.14   39.48 5579.12   41.45 5578.71   43.43 5578.29   44.88 5578.13
    45.4 5578.08   47.38 5577.98   49.35 5577.93   51.32 5577.91    53.3 5577.86
   54.93 5577.83   55.27 5577.82   57.25 5577.82   59.22 5577.91   61.19 5578.16
   63.17  5578.2   65.15  5578.4   67.13 5578.47   69.11 5578.46   71.09 5578.47
   73.07  5578.5   75.05 5578.54   77.03 5578.57   79.01  5578.6      81 5578.65
   82.98 5578.74   84.96 5578.77   86.94 5578.85   88.92 5578.89    90.9 5578.93
   92.88    5579   94.86 5579.01   96.84 5579.03   98.82 5579.17   100.8 5579.23
  102.78 5579.33  104.77 5579.34  106.75 5579.38  108.73 5579.36  110.71 5579.37
  112.69 5579.52  114.67 5579.56  116.65 5579.61  118.63  5579.7  120.61 5579.83
  122.59 5579.88  124.57 5579.92  126.56 5579.98  128.54 5580.06  130.52 5580.19
   132.5  5580.3  134.48 5580.25  136.46 5580.19

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0    .015   17.56     .09

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         39.48  102.78             84.95   73.04   60.67             .1       .3

CROSS SECTION


RIVER: TCC_S1_4TH
REACH: 1                  RS: 260

INPUT
Description: 260
Station Elevation Data    num=      37
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5573.27    1.97  5573.3    3.94 5573.33    5.47 5573.34    5.91 5573.34
    7.88 5573.26    9.85 5573.23   11.82 5573.33   13.18 5573.44   13.79 5573.49
   15.76 5573.56   17.73 5573.58    19.7 5573.58   21.67 5573.55   23.18 5573.54
   23.64 5573.53   25.61 5573.53   27.58 5573.59   29.47  5573.7   29.55  5573.7
   31.52 5573.89   33.49 5574.12   35.46 5574.38   37.43 5574.64    39.4 5574.86
   41.37 5575.02   43.34 5575.29   45.31 5575.61   47.28 5576.01   49.25  5576.6
   51.22 5577.11   53.19 5577.43   55.16 5577.59   57.13 5577.71    59.1 5577.81
   61.07 5577.79   63.04 5577.72

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13    5.47    .015   29.47     .09

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
              0   35.46             70.52   70.73   70.94             .1       .3

CROSS SECTION


RIVER: TCC_S1_4TH
REACH: 1                  RS: 190

INPUT
Description: 190
Station Elevation Data    num=      30
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5570.35    1.98 5570.27    2.46 5570.24    3.95 5570.16    5.93 5569.98
    7.91 5569.86    9.88  5569.7   10.29  5569.7   11.86 5569.71   13.84 5569.72
   15.81 5569.74   17.79 5569.69   19.77 5569.59    20.3 5569.58   21.74 5569.57
   23.72 5569.56    25.7 5569.53   27.67 5569.53   29.29 5569.58   29.65 5569.59
   31.63 5569.68    33.6 5569.77   35.58 5569.91   37.56 5570.02   39.53 5570.09
   41.51 5570.24   43.49 5570.52   45.46 5570.75   47.44 5571.02   49.42 5571.24

Manning's n Values        num=       3
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     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13    2.46    .015   29.29     .09

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             0   43.49              111  110.45  109.89             .1       .3

CROSS SECTION


RIVER: TCC_S1_4TH
REACH: 1                  RS: 79

INPUT
Description: 79
Station Elevation Data    num=      24
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5565.73    1.94 5565.55    3.89 5565.22    4.39 5565.18    5.83 5565.08
    7.78  5565.1    9.72 5565.13   11.66 5565.15   13.61 5565.15    14.4 5565.17
   15.55 5565.19    17.5 5565.26   19.44 5565.31   21.38 5565.33   23.33 5565.35
   25.27 5565.42   27.22 5565.56    27.5 5565.59   29.16 5565.76   31.11 5565.86
   33.05 5565.92   34.99 5565.95   36.94 5566.02   38.88 5566.23

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0    .015    27.5     .09

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             0   29.16             34.6    79.3    33.1             .1       .3

CROSS SECTION


RIVER: TCC_S1_ELDER
REACH: 1                  RS: 1548

INPUT
Description: 1548
Station Elevation Data    num=      44
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5390.38    1.95 5390.33     3.9 5390.27    5.86 5390.21    7.81 5390.15
    9.76 5390.03   11.71 5389.43   13.66  5388.4   15.62    5388   17.57 5388.66
   19.52  5389.4   21.47 5389.58   23.42 5389.41   25.38 5389.11   27.33 5388.74
   29.28 5388.45   31.23 5388.28   33.18 5388.12   34.25 5388.01   35.14 5387.92
   37.09 5387.68   39.04 5387.74   40.99 5387.79   42.95 5387.88    44.9 5387.87
   46.85 5387.89    48.8 5387.92   50.75 5387.94   51.83 5387.91   52.71 5387.89
   54.66 5387.85   56.61 5387.75   58.56 5387.67   60.51 5387.53   61.45 5387.47
   62.47  5387.4   64.42  5387.3   66.37 5387.18   68.32 5387.26   70.27 5387.46
   70.74  5387.5   72.23 5387.63   74.18 5387.83   76.13 5387.77

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   34.25    .015   70.74     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          25.38   74.18           111.88  111.98  111.87             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
       0   21.47 5389.58       F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
       0    4.775400.243

CROSS SECTION


RIVER: TCC_S1_ELDER
REACH: 1                  RS: 1436

INPUT
Description: 1436
Station Elevation Data    num=      45
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5387.31    1.96 5387.28    3.93 5387.25    5.89 5387.22    7.85 5387.21
    9.82 5387.21   11.78 5387.09   13.75 5387.05   15.71 5387.05   17.67 5387.02
   19.64 5386.92    21.6 5386.79   23.56 5386.67   25.53 5386.63   27.49 5386.63
   29.45  5386.6   31.42 5386.58   33.38 5386.61   35.34 5386.58   37.31 5386.34
   39.27 5386.26   41.24 5386.37    43.2 5386.38   45.16 5386.39   47.13 5386.44
   49.09 5386.43   51.05 5386.41   53.02 5386.37   54.98 5386.29   56.94  5386.2
   58.91  5386.1   60.87 5385.98   62.83 5385.86    64.8 5385.78   65.11 5385.76
   66.76 5385.64   68.73 5385.59   70.69 5385.86   72.65 5386.05   73.29 5386.13
   74.62  5386.3   75.11 5386.31   76.58 5386.35   78.54 5386.29   80.51 5386.32

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   37.31    .015   73.29     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          35.34   75.11           139.8   139.8   139.8             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
       0    2.735397.265

CROSS SECTION


RIVER: TCC_S1_ELDER
REACH: 1                  RS: 1296

INPUT
Description: 1296
Station Elevation Data    num=      40
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5384.95    1.99 5384.94    3.98 5385.05    5.98 5384.93    7.97 5384.82
    9.96 5384.77   11.95 5384.66   13.95 5384.58   15.94 5384.53   17.93 5384.46
   19.92 5384.35   21.91 5384.26   23.91 5384.28    25.9 5384.34   27.89 5384.23
   28.51 5384.18   29.88 5384.08   31.88 5383.93   33.87 5383.82   35.86 5384.13
   37.85 5384.21   39.84 5384.29   41.84 5384.32   43.83 5384.33   45.82 5384.34
   47.81  5384.3   49.81 5384.24    51.8 5384.13   53.79 5384.12   55.29 5384.06
   55.78 5384.04   57.77 5383.86   59.77 5383.63   61.76 5383.35   63.75 5383.71
   63.93 5383.72   65.29  5383.8   65.74 5383.82   67.74 5383.64   69.73 5383.58

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   28.51    .015   63.93     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          25.9   65.29           128.41  128.42  128.43             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
       0    3.355395.038

CROSS SECTION


RIVER: TCC_S1_ELDER
REACH: 1                  RS: 1168

INPUT
Description: 1168
Station Elevation Data    num=      55
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     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5382.86    1.99 5382.73    3.97 5382.78    5.96 5382.71    7.95 5382.62
    9.94 5382.56   11.92 5382.52   13.91 5382.49    15.9 5382.44   17.89 5382.43
   19.87 5382.37   21.86 5382.36   23.85 5382.37   25.84 5382.42   27.82 5382.36
   29.81 5382.24    31.8 5382.11   31.89  5382.1   33.79  5381.9   35.77 5381.92
   37.76 5382.08   39.75 5382.13   41.74 5382.24   43.72 5382.22   45.71 5382.27
    47.7 5382.24   49.68 5382.23   51.67  5382.1   53.66 5382.05   55.65 5381.97
   57.36 5381.87   57.63 5381.86   59.62  5381.7   61.61  5381.5    63.6 5381.54
   65.58 5381.84   66.61  5381.9   67.36 5381.95   67.57 5381.96   69.56 5382.35
   71.55 5382.43   73.53 5382.36   75.52 5382.35   77.51 5382.35    79.5 5382.33
   81.48 5382.45   83.47 5382.62   85.46 5382.52   87.45 5382.38   89.43 5382.32
   91.42 5382.32   93.41 5382.33    95.4 5382.37   97.38 5382.27   99.37 5382.19

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   31.89    .015   66.61     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         25.84   69.56            139.82  139.63  139.43             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0    3.115392.776   95.32   99.375392.187

CROSS SECTION


RIVER: TCC_S1_ELDER
REACH: 1                  RS: 1028

INPUT
Description: 1028
Station Elevation Data    num=      41
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5382.07    1.98 5382.08    3.97  5382.1    5.95 5382.05    7.94 5381.95
    9.92 5382.18   11.91 5382.58   13.89 5382.97   15.88 5383.16   17.86 5382.94
   19.84 5382.49   21.83  5382.1   23.81 5381.67    25.8 5381.17   27.78 5380.49
   27.83 5380.49   29.77 5380.38   31.75 5380.09   33.74 5380.17   35.72 5380.25
    37.7 5380.34   39.69 5380.43   41.67 5380.49   43.66 5380.53   45.64 5380.55
   47.63 5380.49   49.61 5380.45    51.6 5380.36   53.58  5380.3   55.56 5380.23
   55.98  5380.2   57.55 5380.09   59.53 5379.97   61.52 5379.99    63.5 5380.32
   65.49 5380.61    65.7 5380.68   65.98 5380.78   67.47 5381.32   69.46 5381.42
   71.44 5381.57

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   27.83    .015    65.7     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         25.8   67.47            147.22  147.52  147.82             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
       0     5.15392.111

CROSS SECTION


RIVER: TCC_S1_ELDER
REACH: 1                  RS: 880

INPUT
Description: 880
Station Elevation Data    num=      43
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5380.81    1.98 5380.86    3.95 5380.88    5.93  5380.8    7.91 5380.65
    9.88 5380.36   11.86  5380.2   13.84 5380.08   15.81 5379.99   17.79 5379.85
   19.77 5379.71   21.75 5379.46   23.72  5379.2    25.7 5378.97   27.68 5378.64
   29.65 5378.47   29.82 5378.44   31.63 5378.17   33.61  5378.2   35.58 5378.32
   37.56 5378.42   39.54 5378.52   41.51 5378.61   43.49  5378.7   45.47 5378.78
   47.44 5378.76   49.42 5378.66    51.4 5378.63   53.37 5378.58   55.35 5378.46
   57.33 5378.38   59.31  5378.3   59.48 5378.29   61.28 5378.25   63.26 5378.46
   65.24 5378.64   67.21 5378.72   67.49 5378.72   69.19 5378.74   69.49 5378.74
   71.17 5378.75   73.14 5378.77   75.12 5378.81

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   29.82    .015   67.49     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         21.75   69.49            108.42  108.32  108.21             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
       0    5.785390.811

CROSS SECTION


RIVER: TCC_S1_ELDER
REACH: 1                  RS: 772

INPUT
Description: 772
Station Elevation Data    num=      49
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5379.74    1.98 5379.74    3.97 5379.76    5.95 5379.74    7.93  5379.7
    9.91 5379.63    11.9 5379.56   13.88 5379.46   15.86 5379.36   17.85 5379.26
   19.83 5379.14   21.81  5378.9   23.79 5378.69   25.78 5378.42   27.76 5378.22
   29.74 5378.02   31.72 5377.98   33.71 5377.95   34.84 5377.59   35.69 5377.32
   37.67 5377.03   39.66 5376.76   41.64 5376.84   43.62 5376.94    45.6 5376.97
   47.59  5377.1   49.57 5377.11   51.55 5377.19   53.54 5377.23   55.52 5377.22
    57.5 5377.23   59.48  5377.2   61.47 5377.15   63.45 5377.12   65.43 5377.06
   66.14 5377.03   67.42 5376.98    69.4 5376.88   71.38 5376.91   72.37 5377.01
   73.36 5377.11   75.35 5377.35   76.14 5377.45   77.33 5377.59   79.31 5377.78
    81.3 5377.85   83.28 5377.86   85.26 5377.84   87.24 5377.94

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   34.84    .015   72.37     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         33.71   79.31            114.33  101.79   88.22             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
       0    5.345389.749

CROSS SECTION


RIVER: TCC_S1_ELDER
REACH: 1                  RS: 670

INPUT
Description: 670
Station Elevation Data    num=      59
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5377.41    1.97 5377.34    3.94 5377.27    5.91  5377.2    7.88 5377.13
    9.86 5377.08   11.83    5377    13.8 5376.89   15.77 5376.71   17.74 5376.52
   19.71 5376.44   21.68 5376.29   23.65 5376.08   25.63 5375.83    27.6 5375.58
   29.57 5375.33   31.54 5375.11   33.51 5374.92   35.48 5374.84   37.45 5374.64
   39.42  5374.8   41.39 5374.96   42.83    5375   43.37 5375.02   45.34 5375.07
   47.31  5375.1   49.28 5375.08   51.25  5375.1   53.22 5375.12   55.19 5375.12
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   57.16 5375.12   59.14 5375.09   61.11 5375.02   61.86 5374.99   63.08 5374.96
   65.05 5374.95   67.02 5374.81   68.99 5374.96   70.96 5375.05   71.87 5375.12
   71.93 5375.13   72.93 5375.21    74.9 5375.41   76.88 5375.57   78.85 5375.76
   80.82 5375.93   82.79 5376.11   84.76 5376.32   86.73 5376.47    88.7  5376.7
   90.67 5376.89   92.64 5377.12   94.62  5377.3   96.59 5377.48   98.56 5377.67
  100.53 5377.83   102.5 5377.98  104.47 5378.17  106.44 5378.28

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   42.83    .015   71.93     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         23.65   80.82           129.96  134.48  138.97             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0    2.675387.307  104.33  106.445388.276

CROSS SECTION


RIVER: TCC_S1_ELDER
REACH: 1                  RS: 536

INPUT
Description: 536
Station Elevation Data    num=      58
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  5373.6    1.97 5373.56    3.94 5373.53     5.9  5373.5    7.87 5373.47
    9.84 5373.48   11.81  5373.4   13.77 5373.34   15.74 5373.29   17.71 5373.26
   19.68 5373.11   21.65    5373   23.61 5372.83   25.58 5372.64   27.55 5372.45
   29.52 5372.29   31.49  5372.1   33.45 5371.89   35.42 5371.81   36.89 5371.66
   37.39 5371.61   39.36 5371.58   41.33 5371.63   43.29 5371.65   45.26  5371.7
   47.23 5371.74    49.2 5371.73   51.16  5371.7   53.13 5371.65    55.1 5371.61
   57.07 5371.63   59.04 5371.61      61 5371.61   61.84  5371.6   62.97 5371.58
   64.94 5371.55   66.91 5371.49   68.88 5371.34   70.84 5371.52   71.72 5371.56
    71.9 5371.57   72.81 5371.61   74.78 5371.68   76.75 5371.86   78.71 5372.01
   80.68 5372.15   82.65 5372.24   84.62 5372.29   86.59 5372.24   88.55 5372.28
   90.52 5372.36   92.49 5372.35   94.46 5372.39   96.42 5372.46   98.39 5372.53
  100.36 5372.51  102.33 5372.48   104.3 5372.72

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   36.89    .015   71.72     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         27.55   82.65            80.8   76.55   72.06             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0    5.485383.509  100.96   104.35382.722

CROSS SECTION


RIVER: TCC_S1_ELDER
REACH: 1                  RS: 459

INPUT
Description: 459
Station Elevation Data    num=      55
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5368.89    1.96 5368.93    3.92  5368.9    5.88 5368.87    7.85 5368.76
    9.81 5368.59   11.77 5368.32   13.73 5367.98   15.69  5367.7   17.65  5367.5
   19.61  5367.3   21.58 5366.99   23.54  5366.8    25.5  5366.7   27.46 5366.83
   29.42 5366.99   30.86 5367.05   31.38 5367.07   33.34 5367.18    35.3 5367.22
   37.27  5367.2   39.23 5367.18   41.19 5367.17   43.15 5367.19   45.11 5367.21
   47.07 5367.18   47.47 5367.17   49.03 5367.11      51 5367.02   52.96 5366.93
   54.92 5366.83   56.88 5366.74   57.76 5366.77   58.84 5366.82    60.8 5367.08
   62.76 5367.35   64.73 5367.95   66.69 5368.46   67.43 5368.56   68.65 5368.73
   70.61 5368.93   72.57 5369.12   74.53 5369.31   76.49  5369.5   78.45 5369.68
   80.42 5369.94   82.38  5370.2   84.34 5370.47    86.3 5370.59   88.26 5370.69
   90.22  5370.8   92.18 5370.96   94.15    5371   96.11 5371.21   98.07 5371.32

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   30.86    .015   67.43     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         13.73   66.69           139.12  139.33  139.72             .1       .3

CROSS SECTION


RIVER: TCC_S1_ELDER
REACH: 1                  RS: 320

INPUT
Description: 320
Station Elevation Data    num=      69
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5366.98    1.99 5367.01    3.98 5367.06    5.97 5367.16    7.96 5367.17
    9.94 5367.01   11.93 5366.96   13.92 5366.98   15.91 5366.79    17.9 5366.66
   19.89 5366.51   21.88 5366.36   23.87 5366.25   25.85 5366.11   27.84 5365.97
   29.83 5365.85   31.82 5365.71   33.81 5365.56    35.8 5365.44   37.79 5365.31
   39.78 5365.22   41.77 5365.09   43.75 5364.99   44.29 5364.94   45.74 5364.79
   47.73 5364.85   49.72 5364.99   51.71 5365.11    53.7 5365.21   55.69 5365.25
   57.68 5365.27   59.66 5365.27   61.65 5365.27   63.64 5365.25   65.63 5365.21
   67.62 5365.16   68.44 5365.13   69.61  5365.1    71.6 5365.01   73.59 5364.91
   75.57 5364.79   77.56 5364.83   78.46  5364.9   79.55 5364.98   79.84    5365
   81.54 5365.09   83.53  5365.2   85.52 5365.24   87.51 5365.22    89.5 5365.25
   91.49 5365.34   93.47 5365.45   95.46 5365.53   97.45  5365.6   99.44 5365.63
  101.43 5365.65  103.42  5365.7  105.41 5365.74   107.4  5365.8  109.38 5365.89
  111.37 5365.93  113.36 5365.91  115.35  5365.9  117.34 5365.88  119.33 5365.88
  121.32 5365.93  123.31 5365.96  125.29 5365.98  127.28    5366

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   44.29    .015   79.84     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         33.81   97.45            86.69   86.45   86.22             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0     8.45377.164     115  127.285376.001

CROSS SECTION


RIVER: TCC_S1_ELDER
REACH: 1                  RS: 234

INPUT
Description: 234
Station Elevation Data    num=      71
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5366.75    1.97 5366.76    3.95 5366.76    5.92 5366.78     7.9 5366.81
    9.87  5366.9   11.85 5366.78   13.82 5366.62   15.79 5366.43   17.77 5366.24
   19.74 5366.08   21.72 5365.77   23.69 5365.59   25.67 5365.41   27.64 5365.23
   29.61 5365.07   31.59 5364.94   33.56 5364.79   35.54 5364.59   37.51 5364.45
   39.49  5364.3   41.46  5364.1   43.43 5363.89   45.41 5363.74   47.38 5363.57
   47.86 5363.59   49.36 5363.64   51.33  5363.8   53.31 5363.91   55.28 5363.99
```

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   57.25 5364.06   59.23  5364.1    61.2 5364.14   63.18 5364.17   65.15 5364.13
   67.13 5364.11    69.1  5364.1   71.08 5364.07   71.66 5364.04   73.05 5363.99
   75.02 5363.89      77 5363.79   78.97 5363.69   80.95 5363.76   81.66 5363.81
   82.36 5363.86   82.92 5363.89   84.89 5363.98   86.87 5364.05   88.84 5364.09
   90.82 5364.15   92.79 5364.21   94.77 5364.31   96.74  5364.4   98.71  5364.5
  100.69  5364.6  102.66 5364.67  104.64 5364.74  106.61 5364.78  108.59 5364.85
  110.56 5364.87  112.54  5364.9  114.51 5364.95  116.48 5364.97  118.46 5364.97
  120.43  5365.1  122.41 5365.13  124.38 5365.28  126.36 5365.39  128.33 5365.45
   130.3 5365.58

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   47.86    .015   82.36     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         33.56   98.71             71.85   71.77   71.68             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0   11.415376.804  125.85   130.3 5375.58

CROSS SECTION


RIVER: TCC_S1_ELDER
REACH: 1                  RS: 162

INPUT
Description: 162
Station Elevation Data    num=      72
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5365.91    1.97 5365.94    3.94 5365.96    5.91 5365.92    7.89 5365.79
    9.86 5365.66   11.83 5365.54    13.8 5365.39   15.77 5365.26   17.74 5365.12
   19.71 5364.99   21.69 5364.85   23.66 5364.69   25.63 5364.53    27.6 5364.39
   29.57 5364.24   31.54 5364.09   33.52 5363.93   35.49 5363.79   37.46 5363.66
   39.43 5363.49    41.4 5363.41   43.37 5363.42   45.34 5363.38   46.49 5363.32
   47.32 5363.29   49.29 5363.31   51.26 5363.41   53.23 5363.51    55.2 5363.55
   57.17 5363.58   59.14 5363.64   61.12 5363.66   63.09 5363.63   65.06 5363.55
   67.03 5363.55   68.69  5363.5      69 5363.49   70.97 5363.43   72.94 5363.38
   74.92  5363.3   76.89 5363.12   78.69 5363.27   78.86 5363.28   80.14 5363.41
   80.83 5363.48    82.8 5363.53   84.77 5363.58   86.74  5363.7   88.72 5363.77
   90.69  5363.9   92.66 5363.98   94.63 5364.04    96.6 5364.12   98.57 5364.21
  100.54 5364.27  102.52 5364.36  104.49 5364.48  106.46 5364.59  108.43 5364.65
   110.4 5364.69  112.37 5364.79  114.35 5364.88  116.32    5365  118.29 5365.11
  120.26 5365.19  122.23 5365.29   124.2 5365.36  126.17 5365.45  128.15 5365.53
  130.12 5365.57  132.09 5365.58

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   46.49    .015   80.14     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          27.6   94.63             70.38   70.49    70.6             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0    9.885375.663  125.75  132.095375.584

CROSS SECTION


RIVER: TCC_S1_ELDER
REACH: 1                  RS: 91

INPUT
Description: 91
Station Elevation Data    num=      72
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  5365.7    1.97  5365.7    3.94 5365.63    5.92 5365.54    7.89 5365.45
    9.86 5365.36   11.83 5365.27    13.8 5365.18   15.78 5365.09   17.75    5365
   19.72 5364.95   21.69 5364.82   23.67 5364.66   25.64 5364.62   27.61  5364.5
   29.58 5364.46   31.55 5364.36   33.53 5364.25    35.5 5364.12   37.47    5364
   39.44  5363.9   41.41 5363.78   43.39 5363.63   45.36 5363.47   47.33 5363.37
   47.87 5363.39    49.3 5363.44   51.28 5363.55   53.25 5363.65   55.22 5363.75
   57.19 5363.84   59.16  5363.9   61.14 5363.94   63.11 5363.97   65.08 5363.96
   67.05 5363.92   69.02 5363.88   70.08 5363.85      71 5363.83   72.97 5363.75
   74.94 5363.68   76.91 5363.66   78.88 5363.66   80.08 5363.68    80.7 5363.69
   80.86  5363.7   82.83  5363.8    84.8 5363.99   86.77 5364.16   88.75 5364.27
   90.72 5364.43   92.69 5364.69   94.66 5364.91   96.63 5365.08   98.61 5365.19
  100.58  5365.3  102.55 5365.37  104.52 5365.44  106.49 5365.51  108.47 5365.56
  110.44 5365.62  112.41 5365.69  114.38 5365.75  116.36 5365.75  118.33 5365.88
   120.3 5365.84  122.27 5365.75  124.24 5365.62  126.22 5365.49  128.19 5365.47
  130.16 5365.43  132.13 5365.38

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   47.87    .015    80.7     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         29.58   96.63             69.5   91.27   76.83             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0    9.595375.372  125.23  132.135375.382

CROSS SECTION


RIVER: TCC_S1_GRAPE
REACH: 2                  RS: 766

INPUT
Description: 766
Station Elevation Data    num=      45
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5439.82    1.99 5439.86    3.98 5439.86    5.97 5439.87    7.96 5439.85
    9.96 5439.92   11.95  5439.9   13.94 5439.93   15.93 5439.88   17.92 5439.74
   19.91 5439.66    21.9  5439.6   23.89 5439.64   25.89 5439.51   27.88 5439.31
   29.87 5439.18   31.86 5439.03   33.85 5438.85   35.84 5438.52   37.83 5438.33
   39.17 5438.22   39.82 5438.16   41.81 5438.05   43.81 5438.17    45.8 5438.29
   47.79 5438.32   49.78 5438.32   51.77 5438.32   53.76 5438.33   55.75  5438.3
   57.63 5438.26   57.74 5438.25   59.74 5438.17   61.73 5438.12   63.72 5438.01
   65.71 5437.88    67.7 5437.67   68.04 5437.63   69.69 5437.45   71.68 5437.27
   73.67 5437.12   75.67 5437.14   76.94 5437.22   77.66 5437.26   79.65  5437.3

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   39.17    .015   76.94     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         33.85   79.65             14.73   14.68   14.63             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
       0    5.165449.861

CROSS SECTION


RIVER: TCC_S1_GRAPE
REACH: 2                  RS: 751

INPUT
Description: 751
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```
Station Elevation Data    num=      53
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  5439.7    1.97 5439.58    3.94 5439.57    5.92 5439.51    7.89 5439.47
    9.86 5439.45   11.83  5439.4    13.8 5439.35   15.78 5439.36   17.75  5439.3
   19.72 5439.27   21.69 5439.21   23.66 5439.12   25.64 5438.97   27.61 5438.89
   29.58 5438.84   31.55 5438.77   33.52 5438.71    35.5 5438.62   37.47  5438.6
   39.44 5438.46   41.41 5438.35   43.38 5438.29   45.36 5438.19   47.33 5438.08
    49.3 5438.08   50.52 5438.01   51.27 5437.96   53.24 5437.76   55.22 5437.93
   57.19 5437.96   59.16 5438.05   61.13 5438.03    63.1 5438.05   65.07 5438.03
   67.05 5438.03   69.02 5437.97   70.99  5437.9   71.34 5437.88   72.96  5437.8
   74.93 5437.73   76.91 5437.58   78.88 5437.46   80.85 5437.33    81.5 5437.26
   82.82  5437.1   84.79 5437.05   86.77 5437.21   88.45 5437.32   88.74 5437.34
   90.71 5437.58   92.68  5437.7   94.65 5437.71

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   50.52    .015   88.45     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         43.38   94.65           86.65    86.3   85.93             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
    2.73   16.735449.331       F
Blocked Obstructions      num=       1
   Sta L   Sta R    Elev
       0    2.735449.584

CROSS SECTION


RIVER: TCC_S1_GRAPE
REACH: 2                  RS: 665

INPUT
Description: 665
Station Elevation Data    num=      54
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5438.35    1.99 5438.26    3.97 5438.21    5.96 5438.16    7.94 5438.04
    9.93 5437.97   11.91 5437.88    13.9 5437.82   15.88 5437.77   17.87 5437.68
   19.85 5437.61   21.84 5437.55   23.82 5437.44   25.81 5437.35   27.79 5437.27
   29.78 5437.19   31.77 5437.12   33.75 5437.01   35.74 5436.96   37.72 5436.89
   39.71 5436.81   41.69 5436.74   43.68 5436.66   45.66 5436.59   47.65 5436.52
   49.63  5436.4   49.93 5436.36   51.62 5436.08    53.6  5436.2   55.59 5436.32
   57.57  5436.4   59.56 5436.46   61.54 5436.48   63.53 5436.52   65.52 5436.55
    67.5 5436.54   69.49 5436.46   71.47 5436.41   73.46 5436.33   75.44 5436.21
   77.43 5436.16   77.96 5436.13   79.41 5436.05    81.4 5435.85   83.38 5435.63
   85.37  5435.4   87.35 5435.62   87.97 5435.67   88.82 5435.75   89.34  5435.8
   91.32 5435.94   93.31 5436.06    95.3 5436.11   97.28  5436.1

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   49.93    .015   88.82     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         39.71   97.28           41.46   41.99   42.53             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
     .68   14.325447.813       F

CROSS SECTION


RIVER: TCC_S1_GRAPE
REACH: 2                  RS: 623

INPUT
Description: 623
Station Elevation Data    num=      57
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5437.74    1.98 5437.73    3.95 5437.69    5.93 5437.69     7.9 5437.67
    9.88 5437.63   11.86 5437.59   13.83 5437.54   15.81 5437.49   17.78 5437.44
   19.76  5437.4   21.74  5437.4   23.71 5437.37   25.69 5437.32   27.67 5437.16
   29.64 5436.99   31.62  5436.9   33.59 5436.79   35.57 5436.67   37.55 5436.58
   39.52 5436.53    41.5 5436.57   43.47 5436.61   45.45 5436.56   47.43  5436.5
    49.4 5436.49   51.38 5436.49   53.36 5436.42   55.33 5436.12   57.31 5435.77
   58.96  5435.6   59.28 5435.56   61.26 5435.38   63.24 5435.44   65.21 5435.61
   67.19 5435.71   69.16 5435.78   71.14 5435.78   73.12 5435.77   75.09 5435.78
   77.07 5435.74   79.04 5435.69   81.02 5435.61      83 5435.53   84.97 5435.44
   86.95 5435.37   88.93 5435.25   89.69  5435.2    90.9 5435.12   92.88 5434.95
   94.85  5434.7   96.83 5434.76   98.31 5434.99   98.81 5435.06   99.73 5435.21
  100.78 5435.38  102.76 5435.52

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   58.96    .015   98.31     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         53.36  102.76           90.73      90   89.28             .1       .3
Blocked Obstructions      num=       1
   Sta L   Sta R    Elev
       0   22.165447.406

CROSS SECTION


RIVER: TCC_S1_GRAPE
REACH: 2                  RS: 533

INPUT
Description: 533
Station Elevation Data    num=      65
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5436.42    1.99 5436.42    3.98 5436.42    5.98 5436.44    7.97 5436.45
    9.96 5436.44   11.95 5436.41   13.95 5436.37   15.94 5436.34   17.93 5436.34
   19.92 5436.44   21.92 5436.48   23.91 5436.26   25.9 5436.02   27.89    5436
   29.88 5435.95   31.88 5435.84   33.87 5435.63   35.86 5435.38   37.85 5435.21
   39.85 5434.94   41.84 5434.46   43.83 5433.99   45.82 5433.89   46.13 5433.88
   47.82  5433.8   49.81 5433.66    51.8  5433.7   53.79 5433.76   55.79 5433.82
   57.78 5433.85   59.77 5433.89   61.76 5433.91   63.75 5433.95   65.75 5433.94
   67.74 5433.92   69.73  5433.9   71.72 5433.89   73.72 5433.81   75.71 5433.77
    77.7 5433.69   79.69 5433.62   81.69 5433.56   83.68 5433.48   85.67 5433.44
   85.85 5433.43   87.66 5433.32   89.65  5433.3   91.02 5433.47   91.65 5433.55
   93.64 5433.57   95.63 5433.69   95.85 5433.71   97.62 5433.87   99.62 5433.76
  101.61 5433.74   103.6 5433.75  105.59 5433.62  107.59 5433.44  109.58 5433.38
  111.57 5433.29  113.56 5433.22  115.56 5433.29  117.55 5433.29  119.54 5433.36

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   46.13    .015   91.02     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         41.84   97.62          103.61   91.62   79.11             .1       .3
Blocked Obstructions      num=       1
   Sta L   Sta R    Elev
       0   19.535446.407

CROSS SECTION


RIVER: TCC_S1_GRAPE
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```
REACH: 1                  RS: 441

INPUT
Description: 441
Station Elevation Data    num=      66
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5431.05    1.98 5430.97    3.97 5431.01    5.95 5431.01    7.94 5430.98
    9.92 5430.96   11.9 5430.89   13.89 5430.89   15.87 5430.94   17.86 5430.83
   19.84 5430.42   21.36 5430.25   21.83  5430.2   23.81 5430.29   25.79 5430.36
   27.78 5430.42   29.76  5430.5   31.75 5430.57   33.73 5430.64   35.71 5430.74
    37.7 5430.82   39.68 5430.91   41.67 5430.99   43.65 5430.99   45.63 5430.94
   47.62 5430.88    49.6 5430.82   51.59 5430.78   53.57 5430.74   55.56 5430.72
   57.54 5430.68   59.52 5430.66   60.24 5430.64   61.51 5430.61   63.49 5430.64
   65.48 5430.96   67.46 5431.16   69.44 5431.32   70.41 5431.35   71.43 5431.38
   73.41 5431.44   73.95  5431.5    75.4 5431.67   77.38 5432.04   79.36 5432.35
   81.35  5432.4   83.33 5432.38   85.32 5432.32    87.3 5432.32   89.29 5432.36
   91.27 5432.43   93.25 5432.42   95.24 5432.38   97.22 5432.38   99.21 5432.37
  101.19 5432.41  103.17 5432.48  105.16  5432.6  107.14 5432.72  109.13 5432.94
  111.11 5433.11  113.09 5433.11  115.08 5433.05  117.06 5433.07  119.05 5433.12
  121.03 5433.29

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .06   21.36    .015   73.95     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         15.87   70.41             96.67   96.69   96.72             .1       .3

CROSS SECTION


RIVER: TCC_S1_GRAPE
REACH: 1                  RS: 345

INPUT
Description: 345
Station Elevation Data    num=      58
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5428.74    1.97 5428.75    3.94 5428.69    5.91 5428.64    7.88 5428.75
    9.84 5428.96   11.81 5428.45   13.26 5428.21   13.78 5428.12   15.75 5428.19
   17.72 5428.28   19.69 5428.35   21.66 5428.42   23.63 5428.52    25.6 5428.61
   27.56 5428.68   29.53 5428.76    31.5 5428.85   33.47  5428.9   35.44 5428.89
   37.41 5428.87   39.38 5428.83   41.35 5428.78   43.32 5428.75   45.29 5428.72
   47.25 5428.68   49.22 5428.66   51.19 5428.63   51.51 5428.62   53.16 5428.58
   55.13 5428.64    57.1 5428.93   59.07    5429   61.04 5429.05   61.51 5429.07
   63.01 5429.13   64.97 5429.15   65.69 5429.19   66.94 5429.24   68.91 5429.44
   70.88 5429.96   72.85 5430.44   74.82 5430.68   76.79 5430.83   78.76 5430.86
   80.73 5430.98    82.7    5431   84.66 5431.19   86.63  5431.4    88.6 5431.52
   90.57 5431.72   92.54 5431.73   94.51 5431.21   96.48 5431.14   98.45 5431.24
  100.42 5431.29  102.38  5431.4  104.35  5431.4

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05   13.26    .015   65.69     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          9.84   61.51            118.6  118.54  118.49             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
   99.16  104.355441.396

CROSS SECTION


RIVER: TCC_S1_GRAPE
REACH: 1                  RS: 226

INPUT
Description: 226
Station Elevation Data    num=      60
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5426.38        2 5426.34    3.99 5426.36    5.99 5426.45    7.98 5426.67
    9.98 5426.27   11.81 5425.82   11.98 5425.78   13.97 5425.84   15.97 5425.92
   17.96 5425.98   19.96 5426.05   21.96 5426.17   23.95 5426.26   25.95 5426.31
   27.94 5426.38   29.94 5426.48   31.93 5426.55   33.93 5426.54   35.93  5426.5
   37.92 5426.47   39.92 5426.45   41.91 5426.44   43.91 5426.43   45.91 5426.41
    47.9 5426.37   49.31 5426.37    49.9 5426.37   51.89 5426.33   53.89  5426.6
   55.89 5427.11   57.88 5427.32   59.31 5427.35   59.88 5427.36   61.87 5427.48
   63.87 5427.62   64.04 5427.65   65.86 5427.94   67.86 5428.45   69.86 5428.72
   71.85 5428.74   73.85 5428.79   75.84 5428.81   77.84 5428.58   79.84 5428.45
   81.83 5428.49   83.83 5428.48   85.82 5428.45   87.82 5428.54   89.82  5428.7
   91.81 5428.77   93.81  5428.8    95.8 5428.88    97.8    5429    99.8 5428.97
  101.79 5428.82  103.79 5428.76  105.78 5428.81  107.78  5428.8  109.77 5428.77

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05   11.81    .015   64.04     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          7.98   59.31             99.1   99.18   99.25             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
  104.91  109.775438.766

CROSS SECTION


RIVER: TCC_S1_GRAPE
REACH: 1                  RS: 127

INPUT
Description: 127
Station Elevation Data    num=      86
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5424.53    1.99 5424.59    3.97 5424.65    5.96 5424.69    7.94 5424.64
    9.93  5424.6   11.92 5424.79    13.9 5424.88   15.89 5424.93   17.87  5424.9
   19.86 5424.88   21.84 5424.96   23.83 5425.05   25.82 5425.09    27.8 5425.14
   29.79 5425.14   31.77 5425.16   33.76 5425.14   35.75 5425.14   37.73 5425.19
   39.72 5425.31    41.7  5425.4   43.69 5425.58   45.67  5425.7   47.66 5425.75
   49.65 5425.71   51.63 5425.55   53.62 5425.46    55.6 5425.35   57.59 5425.12
   59.58 5424.67   60.69 5424.46   61.56 5424.28   63.55 5424.41   65.53 5424.43
   67.52 5424.48    69.5 5424.56   71.49 5424.62   73.48 5424.69   75.46 5424.77
   77.45 5424.83   79.43 5424.88   81.42 5424.94   83.41    5425   85.39 5424.94
   87.38 5424.89   89.36 5424.88   91.35 5424.83   93.33 5424.79   95.32 5424.78
   97.31 5424.76   98.74 5424.75   99.29 5424.74  101.28 5424.65  103.26 5424.72
  105.25  5425.1  107.24 5425.26  108.74 5425.31  109.22 5425.33  111.21 5425.43
  112.76 5425.53  113.19 5425.55  115.18 5425.84  117.16 5426.21  119.15 5426.41
  121.14 5426.52  123.12  5426.6  125.11 5426.68  127.09 5426.77  129.08 5426.84
  131.07 5426.92  133.05 5426.91  135.04 5427.03  137.02 5427.44  139.01 5427.62
  140.99 5427.72  142.98 5427.69  144.97 5427.76  146.95 5427.81  148.94 5427.84
  150.92 5427.94  152.91 5428.01   154.9 5427.83  156.88  5427.7  158.87 5427.71
  160.85 5427.64

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .06   60.69    .015  112.76     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         49.65  117.16             52.62   52.42   52.27             .1       .3
Blocked Obstructions     num=       2
```

```
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0   10.945434.703  154.75  160.855437.644

CROSS SECTION


RIVER: TCC_S1_GRAPE
REACH: 1                   RS: 75

INPUT
Description: 75
Station Elevation Data    num=      95
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5423.68    1.99 5423.64    3.98  5423.6    5.96 5423.64    7.95 5423.93
    9.94 5424.22   11.93 5424.14   13.92 5423.89    15.9 5423.83   17.89 5423.81
   19.88 5423.77   21.87 5423.74   23.86 5423.74   25.84 5423.74   27.83 5423.76
   29.82 5423.89   31.81    5424    33.8 5424.23   35.78 5424.41   37.77 5424.44
   39.76 5424.47   41.75 5424.47   43.74 5424.56   45.72 5424.59   47.71 5424.58
    49.7  5424.6   51.69 5424.62   53.68 5424.63   55.66 5424.63   57.65 5424.68
   59.64 5424.66   61.63 5424.61   63.61  5424.5    65.6 5424.23   67.39 5423.85
   67.59  5423.8   69.58 5423.64   71.57  5423.7   73.55  5423.8   75.54 5423.87
   77.53 5423.91   79.52 5423.93   81.51 5424.01   83.49 5424.13   85.48 5424.21
   87.47 5424.27   89.46 5424.29   91.45 5424.32   93.43 5424.29   95.42 5424.22
   97.41 5424.19    99.4 5424.17  101.39 5424.14  103.37 5424.11  105.36 5424.08
  105.72 5424.07  107.35 5424.05  109.34 5424.03  111.33 5424.21  113.31 5424.44
   115.3 5424.51  115.89 5424.51  117.29 5424.53  119.28 5424.64  119.37 5424.66
  121.27 5425.11  123.25 5425.92  125.24  5426.6  127.23 5426.83  129.22 5426.75
  131.21 5426.57  133.19 5426.26  135.18 5425.97  137.17 5425.78  139.16  5425.7
  141.15 5425.78  143.13 5425.88  145.12 5425.93  147.11 5425.96   149.1    5426
  151.09 5426.05  153.07 5426.15  155.06 5426.26  157.05 5426.33  159.04  5426.4
  161.03 5426.45  163.01 5426.44     165 5426.41  166.99  5426.4  168.98 5426.44
  170.96 5426.52  172.95 5426.58  174.94 5426.62  176.93 5426.71  178.92 5426.87

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .06   67.39    .015  119.37     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         61.63  121.27             51.72   74.52   45.17             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0    8.195433.969  174.96  178.925436.875

CROSS SECTION


RIVER: TCC_S1_HAWTHORN
REACH: 1                   RS: 984

INPUT
Description: 984
Station Elevation Data    num=      63
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5454.62    1.98 5454.59    3.96 5454.63    5.94 5454.61    7.92 5454.61
    9.89  5454.6   11.87 5454.68   13.85 5454.61   15.83 5454.37   17.81 5454.07
   19.79 5453.83   21.77 5453.55   23.75 5453.09   25.73  5452.2    27.7 5452.06
   28.59 5452.02   29.68 5451.98   31.66 5451.58   33.64 5451.76   35.62 5451.94
    37.6 5452.01   39.58 5452.13   41.56 5452.18   43.53 5452.13   45.51  5452.2
   47.49 5452.21   49.47 5452.17   51.45 5452.17   53.43 5452.16    54.1 5452.15
   55.41 5452.12   57.39 5452.11   59.37 5452.08   61.34 5452.05   63.31 5452.01
   63.32 5452.01   64.22 5452.02    65.3 5452.03   67.28 5452.11   69.26 5452.19
   71.24 5452.05   73.22 5451.89    75.2  5451.8   77.17 5451.78   79.15  5451.8
   81.13 5451.83   83.11  5451.8   85.09 5451.76   87.07  5451.7   89.05 5451.59
   91.03 5451.53   93.01 5451.52   94.98 5451.46   96.96 5451.37   98.94 5451.27
  100.92 5451.33   102.9 5451.39  104.88 5451.42  106.86 5451.45  108.84 5451.48
  110.81  5451.5  112.79 5451.49  114.77 5451.46

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .06   28.59    .015   63.31     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         23.75   69.26            220.91  220.97  220.83             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
  103.07  114.775461.465

CROSS SECTION


RIVER: TCC_S1_HAWTHORN
REACH: 1                   RS: 763

INPUT
Description: 763
Station Elevation Data    num=      64
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5449.48    1.99  5449.4    3.97 5449.37    5.96 5449.32    7.95 5449.25
    9.94 5449.22   11.92 5449.22   13.91 5449.14    15.9 5448.98   17.89 5448.83
   19.87 5448.63   21.86 5448.47   23.85 5448.31   25.84 5448.15   27.82 5448.06
   29.81    5448    31.8  5447.9   33.43 5447.75   33.79 5447.72   35.77 5447.42
   37.76 5447.48   39.75  5447.7   41.74 5447.78   43.72 5447.88   45.71 5447.89
    47.7 5447.94   49.69 5447.95   51.67 5447.99   53.66 5448.01   55.65 5447.98
   57.64 5447.97   57.68 5447.97   59.62 5447.91   61.61 5447.87    63.6 5447.75
   65.59 5447.63   67.57 5447.53   67.68 5447.55   68.52 5447.71   69.56 5447.92
   71.55 5448.03   73.54 5448.49   75.52 5448.59   77.51 5448.67    79.5 5448.57
   81.48 5448.59   83.47 5448.59   85.46 5448.73   87.45 5448.69   89.43 5448.74
   91.42 5448.81   93.41 5448.93    95.4 5448.85   97.38  5448.7   99.37 5448.47
  101.36 5448.22  103.35    5448  105.33  5447.9  107.32 5447.94  109.31 5447.97
   111.3 5448.01  113.28 5447.99  115.27 5447.95  117.26 5447.91

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .06   33.43    .015   68.52     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         21.86   73.54            223.26  223.43   223.6             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
  107.64  117.265457.915

CROSS SECTION


RIVER: TCC_S1_HAWTHORN
REACH: 1                   RS: 539

INPUT
Description: 539
Station Elevation Data    num=      60
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5444.16        2 5444.12    3.99 5444.08    5.99 5443.99    7.99 5443.91
    9.98 5443.81   11.98 5443.72   13.98 5443.62   15.97 5443.52   17.97 5443.39
   19.97 5443.27   21.96 5443.28   23.96 5443.23   25.96 5443.16   27.95    5443
   28.34 5442.95   29.95 5442.76   31.95 5442.72   33.94 5442.96   35.94 5443.05
   37.94  5443.1   39.93 5443.13   41.93 5443.14   43.93 5443.17   45.92 5443.23
   47.92 5443.28   49.92 5443.29   51.91 5443.27   53.01 5443.23   53.91  5443.2
   55.91 5443.12    57.9 5443.04    59.9 5442.92    61.9 5442.89   63.01 5442.99
   63.82 5443.07   63.89 5443.07   65.89 5443.19   67.89 5443.34   69.88 5443.26
   71.88 5443.14   73.88 5443.05   75.87 5443.02   77.87 5443.05   79.87 5443.04
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   81.87  5443.1   83.86 5443.23   85.86 5443.24   87.86 5443.25   89.85 5443.26
   91.85 5443.26   93.85 5443.32   95.84 5443.43   97.84 5443.51   99.84 5443.45
  101.83 5443.44  103.83 5443.37  105.83 5443.28  107.82 5443.22  109.82 5443.13

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .06   28.34    .015   63.82     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          15.97   67.89            173.1  173.04  172.98             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
  101.88  109.825453.128

CROSS SECTION


RIVER: TCC_S1_HAWTHORN
REACH: 1                  RS: 366

INPUT
Description: 366
Station Elevation Data    num=      70
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5441.83    1.96 5441.81    3.91 5441.85    5.87 5441.84    7.82 5441.75
    9.78 5441.64   11.73 5441.52   13.69 5441.38   15.64 5441.28    17.6  5441.2
   19.56 5441.09   21.51 5440.93   23.47 5440.46   25.42 5439.64   27.38 5439.56
    27.6  5439.5   29.33 5439.01   31.29 5439.21   33.24 5439.34    35.2 5439.33
   37.16 5439.39   39.11 5439.42   41.07 5439.46   43.02 5439.44   44.98 5439.45
   46.93 5439.42   48.89 5439.41   50.84 5439.35    52.8 5439.31   54.76 5439.29
   55.12 5439.28   56.71 5439.25   58.67  5439.2   60.62 5439.49   62.58 5439.66
   63.37 5439.73   64.53 5439.85   65.13    5440   66.49 5440.35   68.44 5440.67
    70.4 5440.78   72.36 5440.84   74.31 5440.86   76.31 5440.93   78.31 5440.94
    80.3  5440.9    82.3 5440.69    84.3 5440.51   86.29 5440.37   88.29 5440.27
   90.29 5440.19   92.28 5440.19   94.28 5440.17   96.28 5440.17   98.27 5440.21
  100.27  5440.3  102.27 5440.28  104.26 5440.28  106.26 5440.23  108.26 5440.18
  110.26 5440.12  112.25 5440.08  114.25 5440.09  116.25 5440.15  118.24 5440.21
  120.24 5440.25  122.24 5440.24  124.23  5440.3  126.23 5440.33  128.23 5440.35

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .06    27.6    .015   63.37     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          21.51   68.44            121.42  108.98   96.16             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
  115.47  128.235450.352

CROSS SECTION


RIVER: TCC_S1_HAWTHORN
REACH: 1                  RS: 257

INPUT
Description: 257
Station Elevation Data    num=      71
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5436.98    1.97 5436.98    3.95 5436.94    5.92 5436.87    7.89 5436.98
    9.86 5436.94    11.8 5436.67   11.84 5436.67   13.81 5436.64   15.78  5436.7
   17.75 5436.79   19.73 5436.81    21.7 5436.92   23.67 5436.99   25.65 5437.04
   27.62 5437.13   29.59 5437.21   31.56 5437.25   33.54 5437.35   35.51  5437.3
   37.48 5437.25   39.45 5437.23   41.43 5437.15    43.4 5437.13   45.37 5437.11
   46.17 5437.08   47.34 5437.04   49.32 5437.03   51.29 5436.99   53.26 5436.94
   55.24  5437.1   56.17 5437.25   57.21  5437.4   59.18 5437.51   61.15 5437.44
   63.13 5437.42   64.87 5437.63    65.1 5437.66   67.07 5438.04   69.04 5438.21
   71.02 5438.32   72.99 5438.43   74.96 5438.37   76.94 5438.34   78.91 5438.32
   80.88 5438.28   82.85 5438.33   84.83 5438.39    86.8 5438.44   88.77 5438.49
   90.74 5438.53   92.72 5438.57   94.69 5438.62   96.66 5438.71   98.64  5438.8
  100.61 5438.87  102.58 5438.93  104.55 5438.97  106.53 5439.06  108.38 5439.17
  110.24  5439.2   112.1 5439.37  113.96 5439.65  115.82 5439.69  117.68 5439.67
  119.54  5439.6   121.4 5439.62  123.26 5439.65  125.12 5439.66  126.98 5439.72
  128.83 5439.82

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05    11.8    .015   64.87     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           9.86   59.18            100.35  100.28  100.2             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
  119.43  128.835449.823

CROSS SECTION


RIVER: TCC_S1_HAWTHORN
REACH: 1                  RS: 157

INPUT
Description: 157
Station Elevation Data    num=      69
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5434.92    1.97 5434.83    3.95 5434.73    5.92 5434.81     7.9 5434.93
    9.87 5434.68   11.14 5434.51   11.84 5434.42   13.82 5434.48   15.79 5434.56
   17.77 5434.65   19.74 5434.71   21.71 5434.78   23.69 5434.86   25.66 5434.92
   27.64 5434.99   29.61 5435.07   31.58 5435.11   33.56  5435.1   35.53 5435.07
    37.5 5435.01   39.48 5434.97   41.45 5434.95   43.43 5434.89    45.4 5434.84
   45.44 5434.84   47.37 5434.83   49.35 5434.78   51.32 5434.68    53.3  5434.7
   55.27 5435.09   55.45  5435.1   57.24  5435.2   59.22 5435.22   61.19 5435.18
   63.17 5435.21   64.04 5435.35   65.14 5435.54   67.11 5436.19   69.09 5436.58
   71.06 5436.81   73.04 5436.96   75.01 5437.01   76.98 5437.09   78.96 5437.14
   80.93 5437.14   82.91 5437.19   84.88 5437.21   86.85 5437.25   88.83 5437.24
    90.8 5437.42   92.78 5437.49   94.75 5437.54   96.72 5437.61    98.7 5437.72
  100.67 5437.83  102.65 5437.93  104.62 5438.03  106.59 5438.18  108.57 5438.34
  110.54 5438.56  112.51 5438.88  114.49 5438.77  116.46 5438.74  118.44 5438.86
  120.41 5438.91  122.38 5438.94  124.36 5438.93  126.33 5438.89

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05   11.14    .015   64.04     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           7.9   67.11            110.81  110.68  110.55             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
  121.49  126.335448.887

CROSS SECTION


RIVER: TCC_S1_HAWTHORN
REACH: 1                  RS: 46

INPUT
Description: 46
Station Elevation Data    num=      76
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
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```
       0 5432.57    1.99 5432.57    3.98 5432.51    5.97 5432.44    7.96 5432.58
    9.95  5432.7   11.94 5432.33    13.8 5431.84   13.92 5431.81   15.91 5431.89
    17.9 5431.98   19.89 5432.03   21.88 5432.08   23.87  5432.2   25.86  5432.3
   27.85 5432.37   29.84 5432.44   31.83 5432.53   33.82  5432.6   35.81 5432.62
    37.8 5432.58   39.78  5432.5   41.77 5432.48   43.76 5432.45   45.75  5432.4
   47.74 5432.36   49.73 5432.33   51.72 5432.29   52.13 5432.27   53.71 5432.23
    55.7 5432.17   57.69 5432.15   59.68 5432.15   61.67 5432.19   62.13  5432.2
   63.66 5432.25   65.64 5432.33   66.52 5432.39   67.63 5432.46   69.62  5432.6
   71.61 5432.78    73.6 5432.87   75.59 5432.97   77.58 5432.96   79.57    5433
   81.56    5433   83.55  5433.1   85.54 5433.12   87.53 5433.16    89.5 5433.11
   91.48  5433.1   93.46 5433.11   95.44 5433.11   97.41 5433.05   99.39 5432.99
  101.37 5432.97  103.35 5433.34  105.32 5433.53   107.3 5433.63  108.43 5433.89
  109.28 5434.08  111.25 5434.86  113.23 5435.17  115.21  5435.3  117.19 5435.41
  119.16 5435.47  121.14 5435.62  123.12 5435.78   125.1  5435.9  127.07 5436.02
  129.05 5436.08  131.03 5436.13  133.01 5436.21  134.98  5436.3  136.96  5436.4
  138.94 5436.36

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .06    13.8    .015   66.52    .015  108.43     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          9.95   71.61             26.84   46.25   25.18             .1       .3

CROSS SECTION


RIVER: TCC_S2
REACH: 1                  RS: 7815

INPUT
Description: 7815
Station Elevation Data    num=      63
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5515.06    1.99 5514.85    3.97 5514.71    5.96 5514.62    7.95 5514.69
    9.93 5514.61   11.92 5514.63   13.91 5514.62    15.9  5514.6   17.88 5514.62
   19.87 5514.58   21.86 5514.54   23.84 5514.48   25.83 5514.45   27.82 5514.38
    29.8 5514.37   31.79 5514.46   33.78 5514.57   35.76 5514.57   37.75 5514.45
   39.74 5514.28   41.72 5514.21   43.71 5514.19    45.7 5513.99   47.69 5514.02
   49.67    5514   51.66 5513.83   53.65 5513.63   55.63  5513.5   57.62  5513.4
   59.61 5513.23   61.59  5513.1   61.73 5513.09   63.58 5513.06   65.57 5513.11
   67.55 5513.18   69.48 5513.24    71.4 5513.31   72.77 5513.34   73.32 5513.36
   75.24 5513.39   77.16 5513.44   79.08 5513.49      81 5513.59   82.92 5513.62
   84.84 5513.64   85.83 5513.66   86.76 5513.67   88.68 5513.73    90.6 5513.76
   92.53 5513.75   94.45  5513.8   96.37 5513.89   98.29 5513.92   98.73 5513.91
  100.21 5513.89  102.13 5513.93  104.05 5513.83  105.97 5513.77  107.89  5513.7
  109.81 5513.74  111.73 5513.71  113.65 5513.61

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   61.73    .015   98.73     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         49.67   88.68             38.69   49.13   60.03             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
       0    7.945524.691

CROSS SECTION


RIVER: TCC_S2
REACH: 1                  RS: 7766

INPUT
Description: 7766
Station Elevation Data    num=      60
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5512.07    1.96 5512.08    3.93 5512.01    5.89  5511.9    7.85 5511.84
    9.81  5511.8   11.64  5511.8   11.77  5511.8   13.74 5511.82    15.7 5511.81
   17.66 5511.82   19.62 5511.87   21.59 5511.86   23.55 5511.89   25.51  5511.9
   27.48  5511.9   29.44 5511.86    31.4 5511.81   32.11 5511.76   33.36 5511.65
   35.33 5511.42   37.29  5510.8   39.25 5509.87   41.21 5509.68   42.16 5509.91
   43.18 5510.16   45.14 5510.17    47.1 5509.99   49.06 5509.89   51.03 5509.91
    52.7 5509.98   52.99 5509.99   54.96 5510.06   56.92  5510.1   58.89 5510.17
   60.86 5510.28   62.82 5510.38   64.79 5510.43   66.76 5510.59   68.72  5510.7
   70.69 5510.75   72.66 5510.74   74.62 5510.75   76.59 5510.81   78.56 5510.87
   80.52 5510.98   82.49  5510.9   84.45  5510.9   86.42 5511.08   88.39 5511.07
   90.35 5511.24   92.32 5511.34   94.29 5511.36   96.25 5511.38   98.22 5511.47
  100.19 5511.51  102.15 5511.59  104.12 5511.57  106.08 5511.73  108.05 5511.89

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   11.64    .015   32.11     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         35.33   68.72             64.65   57.98   70.27             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
   74.62   84.665520.919       F

CROSS SECTION


RIVER: TCC_S2
REACH: 1                  RS: 7708

INPUT
Description: 7708
Station Elevation Data    num=      50
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5509.01    1.97 5509.15    3.95 5509.27    5.92 5509.26    7.89 5509.24
    9.86 5509.22   11.84 5509.21   13.81 5509.18   15.01 5509.18   15.78 5509.19
   17.76 5509.19   19.73 5509.29    21.7 5509.44   23.67 5509.38   25.65  5509.3
   27.62  5509.2   29.59 5509.05   31.57 5508.81   33.54 5508.64   35.51 5508.46
   37.48  5508.3   39.46 5508.15   41.43  5508.1    43.4 5508.06   45.38  5508.1
   47.35 5508.16   49.32 5508.16   49.41 5508.16    51.3 5508.14   53.27 5508.15
   55.24 5508.17   57.21 5508.24   59.19 5508.33   59.92 5508.37   61.16 5508.42
   63.13 5508.48   65.11 5508.52   67.08 5508.58   69.05 5508.66   71.02 5508.71
      73 5508.73   74.97  5508.8   76.94 5508.78   78.92 5508.76   80.89 5508.75
   82.86 5508.73   84.83 5508.72   86.81  5508.7   88.78 5508.69   90.75 5508.69

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0    .015   15.01     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          21.7   74.97             93.08   82.57   78.2              .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
   75.22   90.755518.687

CROSS SECTION


RIVER: TCC_S2
REACH: 1                  RS: 7625

INPUT
Description: 7625
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Station Elevation Data    num=      95
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5506.83    1.99 5506.87    3.98 5506.84    5.97 5506.86    7.96 5506.85
    9.25 5506.81    9.95 5506.78   11.94 5506.74   13.92 5506.43   15.91 5505.46
    17.9 5505.17   19.89 5505.58   21.88 5505.77   23.87  5505.8   25.86 5505.81
   27.85 5505.82   29.84 5505.76   31.83  5505.7   33.82 5505.65   35.81 5505.62
    37.8 5505.64   39.78 5505.64   41.77  5505.6   43.76 5505.51   45.75  5505.5
   47.74 5505.45   49.73 5505.44   51.72 5505.47   53.71 5505.45    55.7 5505.65
   57.69 5505.57   59.68 5505.51   61.67 5505.49   63.66  5505.5   65.64 5505.55
   67.63 5505.53   69.62 5505.49   71.61 5505.47    73.6 5505.47   75.59 5505.48
   77.58 5505.49   79.57  5505.5   81.56 5505.51   83.55 5505.52   85.54 5505.53
   87.53 5505.54   89.51 5505.54    91.5 5505.52   93.49 5505.51   95.48 5505.49
   97.47 5505.47   99.46 5505.45  101.43 5505.43  103.39 5505.41  105.35 5505.39
  107.32 5505.35  109.28 5505.28  111.25 5505.21  113.21 5505.14  115.18 5505.06
  117.14 5504.97  117.91 5504.93  119.11 5504.87  121.07  5504.8  123.03 5504.68
     125 5504.94  126.96 5505.07  127.91 5505.19  128.93 5505.33  130.89 5505.43
  132.86 5505.51  134.82 5505.75  136.79 5505.87  138.75 5506.15  140.71 5506.48
  142.68 5506.62  144.64 5506.57  146.61 5506.65  148.57 5506.64  150.54 5506.62
   152.5 5506.62  154.47  5506.6  156.43 5506.59  158.39 5506.58  160.36 5506.57
  162.32 5506.57  164.29 5506.55  166.25 5506.57  168.22 5506.67  170.18 5506.73
  172.15 5506.74  174.11 5506.79  176.07 5506.82  178.04 5506.82     180 5506.86

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0    .015    9.25     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        105.35  140.71            132.03  114.69   45.15              .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
   38.84   75.535515.482       F
  118.11  118.835514.876       F
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
   75.53  118.11 5514.91  179.26     1805516.857

CROSS SECTION


RIVER: TCC_S2
REACH: 1                   RS: 7510

INPUT
Description: 7510
Station Elevation Data    num=     137
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5501.86    1.98 5501.88    3.97 5501.87    5.95 5501.89    7.94 5501.87
    9.68 5502.03    9.92 5502.06   11.91 5502.27   13.89 5502.31   15.88 5502.19
   17.86 5502.02   19.85 5501.92   21.83 5501.78   23.82 5501.71    25.8 5501.67
   27.79 5501.64   29.77 5501.58   31.76 5501.49   33.74 5501.37   35.73 5501.29
   37.71 5501.31    39.7 5501.33   41.68 5501.36   43.67 5501.39   45.65  5501.4
   47.64 5501.38   49.62 5501.33   51.61  5501.5   53.59 5501.66   55.58 5501.67
   57.56 5501.77   59.55 5501.89   61.53 5501.79   63.52 5501.76    65.5  5501.6
   67.49 5501.46   69.47 5501.38   71.46 5501.38   73.44 5501.38   75.43 5501.36
   77.41 5501.34    79.4 5501.33   81.38 5501.31   83.37  5501.3   85.35 5501.28
   87.34 5501.27   89.32 5501.25   91.31 5501.24   93.29  5501.2   95.28 5501.11
   97.26  5501.1   99.24 5501.11  101.23  5501.1  103.21 5501.09  105.19  5501.1
  107.18 5501.05  109.16 5500.97  111.14 5500.71  113.13 5500.66  115.11 5500.69
  117.09 5500.73  119.08 5500.77  121.06 5500.82  123.04 5500.85  125.02 5500.83
  127.01 5500.78  128.99 5500.69  130.97 5500.56  132.96 5500.41  134.94 5500.32
  136.92 5500.31  138.91 5500.72  140.89 5500.79  142.87  5500.6  144.85 5500.48
  146.84 5500.53  148.82 5500.53  148.86 5500.53   150.8 5500.54  152.79 5500.81
  154.77 5501.14  156.75 5501.44  158.74 5501.64  160.72 5501.82   162.7 5501.86
  164.69 5501.82  166.67 5501.83  167.35 5501.87  168.65 5501.95  170.63 5502.14
  172.62 5501.99   174.6  5501.7  176.58 5501.79  178.57 5502.14  180.55 5502.41
  182.53 5502.58  184.52 5502.51   186.5 5502.54  188.48 5502.32  190.46 5502.26
  192.45 5502.28  194.43 5502.33  196.41 5502.37   198.4  5502.4  200.38 5502.44
  202.36 5502.47  204.35  5502.5  206.33 5502.53  208.31 5502.58   210.3 5502.64
  212.28  5502.7  214.26 5502.77  216.24  5502.8  218.23 5502.85  220.21 5502.91
  222.19 5502.94  224.18 5502.98  226.16 5503.01  228.14 5503.03  230.13 5503.08
  232.11 5503.12  234.09 5503.18  236.07 5503.21  238.06 5503.29  240.04 5503.34
  242.02 5503.43  244.01 5503.48  245.99 5503.51  247.97 5503.52  249.96 5503.51
  251.94 5503.56  253.92 5503.59  255.91 5503.65  257.89 5503.75  259.87 5503.86
  261.85 5503.89  263.84 5503.83

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0    .015    9.68     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        121.06  160.72            145.41  139.52  167.68              .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0   69.925511.383       F
  130.81  143.285510.567       F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
   69.92  130.815510.568

CROSS SECTION


RIVER: TCC_S2
REACH: 1                   RS: 7371

INPUT
Description: 7371
Station Elevation Data    num=     195
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5497.54    1.98 5497.61    3.96 5497.55    5.95  5497.6    7.93  5497.6
    9.91 5497.66   11.89  5497.7   12.49 5497.64   13.88 5497.49   15.86 5497.15
   17.84 5497.32   19.82 5497.62    21.8 5497.73   23.79 5497.77   25.77 5497.67
   27.75  5497.5   29.73 5497.36   31.71 5497.27    33.7 5497.19   35.68 5497.16
   37.66  5497.2   39.64 5497.25   41.63 5497.28   43.61 5497.28   45.59 5497.29
   47.57 5497.27   49.55 5497.15   51.54 5497.07   53.52 5497.04    55.5 5496.94
   57.48    5497   59.46 5496.96   61.45 5497.09   63.43 5497.33   65.41 5497.65
   67.39 5497.64   69.38 5497.74   71.36 5497.67   73.34 5497.67   75.32 5497.72
    77.3 5497.89   79.29  5497.9   81.27 5497.95   83.25 5497.92   85.23 5497.67
   87.22 5497.66    89.2 5497.83   91.18 5497.85   93.16 5497.73   95.14 5497.59
   97.13 5497.53   99.11 5497.48  101.09 5497.43  103.07 5497.31  105.05 5497.22
  107.04 5497.15  109.02 5497.08     111 5497.11  112.98 5497.12  114.97 5497.09
  116.95 5497.04  118.93 5497.02  120.91 5496.99  122.89 5496.78  124.88 5496.56
  126.86 5496.43  128.84 5496.35  130.82 5496.28  132.81 5496.18  134.79 5496.21
  136.77 5496.26  138.75 5496.16  140.73 5496.01  142.72 5495.93   144.7 5495.79
  146.68  5495.6  148.67 5495.53  150.67 5495.42  152.66 5495.33  154.65 5495.38
  156.65 5495.42  158.64 5495.42  160.63 5495.37  162.63 5495.42  164.62 5495.46
  166.61 5495.35  168.61 5495.25   170.6 5495.08  172.59    5495  174.58 5494.97
  176.58 5494.94  178.57 5494.92  180.56 5494.93  182.56 5494.93  184.55 5494.85
  185.11 5494.87  186.54  5494.9  188.54 5494.95  190.53 5494.93  192.52 5494.89
  194.52 5494.84  196.36 5494.85  196.51 5494.86   198.5 5494.95   200.5 5494.99
  202.49 5495.05  204.48 5495.15  206.48 5495.14  208.47 5495.16  210.46 5495.12
  212.46 5495.19  214.45 5495.28  216.44 5495.18  218.43 5495.06  220.43    5495
  222.42 5495.04  224.41 5495.07  226.41 5495.22   228.4 5495.21  230.39 5495.25
  232.39 5495.31  234.38 5495.38  236.37  5495.5  238.37 5495.68  240.36 5495.68
  242.35 5495.66  244.35 5495.69  246.34 5495.74  248.33 5495.94  250.33 5496.07
  252.32 5496.31  254.31 5496.43  256.31 5496.51   258.3 5496.73  260.29 5497.04
  262.28 5497.02  264.28 5497.06  266.27 5497.11  268.26 5497.18  270.26 5497.24
  272.25  5497.3  274.24 5497.36  276.24 5497.44  278.23 5497.52  280.22 5497.59
  282.22 5497.67  284.21 5497.74   286.2 5497.81   288.2 5497.88  290.19 5497.96
  292.18 5498.03  294.18  5498.1  296.17 5498.17  298.16 5498.24  300.16 5498.31
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  302.15 5498.39  304.14 5498.46  306.13 5498.53  308.13 5498.62  310.12 5498.68
  312.11 5498.67  314.11 5498.66   316.1 5498.63  318.09 5498.63  320.09  5498.7
  322.08 5498.55  324.07 5498.33  326.07 5498.19  328.06 5498.09  330.05 5498.08
  332.05 5497.74  334.04 5497.38  336.03 5497.57  338.03  5497.9  340.02 5497.91
  342.01 5498.04  344.01 5498.16    346 5498.39  347.99 5498.65  349.98 5498.85
  351.98 5499.04  353.97 5499.24  355.96 5499.43  357.96 5499.59  359.95 5499.81
  361.94 5499.94  363.94 5499.99  365.93 5499.88  367.92 5499.76  369.92 5499.84
  371.91 5500.27   373.9 5500.59   375.9 5500.72  377.89 5500.78  379.88 5500.84

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0    .015   12.49     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        136.77  260.29            65.98   83.41  121.08             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
   41.47   89.425507.848       F
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
  264.01  314.745508.649  339.06  358.345509.625

CROSS SECTION


RIVER: TCC_S2
REACH: 1                  RS: 7287

INPUT
Description: 7287
Station Elevation Data    num=     245
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5493.14       2 5493.23    3.99 5493.29    5.99 5493.27    7.99 5493.29
    9.99 5493.31   11.98 5493.29   13.98 5493.16   15.98 5493.11   17.41 5493.06
   17.97 5493.04   19.97 5492.71   21.97  5492.1   23.97 5491.98   25.96 5492.59
   27.96 5492.71   29.96 5492.68   31.95 5492.59   33.95 5492.59   35.95 5492.62
   37.95 5492.68   39.94 5492.73   41.94 5492.78   43.94 5492.79   45.93 5492.73
   47.93 5492.72   49.93 5492.66   51.93 5492.65   53.92 5492.65   55.92 5492.66
   57.92 5492.69   59.92  5492.7   61.91 5492.74   63.91 5492.79   65.91 5492.75
    67.9 5492.73    69.9 5492.77    71.9 5492.75    73.9 5492.75   75.89 5492.84
   77.89  5492.9   79.89 5492.88   81.88 5492.92   83.88 5492.89   85.88 5492.84
   87.88 5492.84   89.87 5492.87   91.87 5492.87   93.87  5492.9   95.86 5492.88
   97.86 5492.88   99.86 5492.99  101.86 5492.97  103.85  5492.9  105.85 5492.88
  107.85 5492.92  109.84 5492.89  111.84 5492.81  113.84 5492.69  115.84 5492.62
  117.83 5492.58  119.83 5492.52  121.83 5492.52  123.82 5492.58  125.82 5492.53
  127.82 5492.48  129.82 5492.45  131.81 5492.41  133.81 5492.33  135.81 5492.22
   137.8 5492.28   139.8  5492.3   141.8 5492.47   143.8 5492.69  145.79 5492.83
  147.79 5492.97  149.79 5493.17  151.78 5493.28  153.78 5493.37  155.78 5493.43
  157.78 5493.48  159.77 5493.35  161.77 5493.31  163.77 5493.33  165.77 5493.28
  167.76 5493.11  169.76 5492.98  171.76 5493.02  173.75 5493.11  175.75 5493.19
  177.75 5493.24  179.75 5493.13  181.74 5493.15  183.74 5493.09  185.74 5493.03
  187.73 5493.04  189.73 5493.12  191.73 5493.11  193.73 5493.03  195.72 5493.02
  197.72 5492.85  199.72 5492.66  201.71 5492.48  203.71 5492.36  205.71 5492.33
  207.71 5492.26   209.7 5492.15   211.7    5492   213.7 5491.87  215.69 5491.81
  217.69 5491.73  219.69 5491.72  221.69 5491.73  223.68 5491.76  225.68 5491.81
  227.68 5491.87  229.01 5491.88  229.67 5491.88  231.67 5491.89  233.67 5491.83
  235.67 5491.74  237.66 5491.64  239.04 5491.61  239.66 5491.59  241.66 5491.59
  243.65 5491.57  245.65 5491.62  247.65 5491.55  249.65 5491.48  251.64 5491.47
  253.64 5491.48  255.64 5491.49  257.63  5491.5  259.63 5491.49  261.63 5491.45
  263.63 5491.44  265.62 5491.38  267.62 5491.45  269.62 5491.43  271.62 5491.46
  273.61 5491.51  275.61 5491.54  277.61 5491.58   279.6 5491.63   281.6 5491.67
   283.6  5491.8   285.6 5491.79  287.59 5491.88  289.59 5492.02  291.59 5492.22
  293.58 5492.34  295.58 5492.46  297.58 5492.57  299.58 5492.66  301.57 5492.86
  303.57    5493  305.57 5493.06  307.56 5492.84  309.56 5492.92  311.56 5493.34
  313.56 5494.01  315.55 5494.68  317.55 5495.27  319.55 5495.48  321.54 5495.32
  323.54  5495.1  325.53 5494.82  327.53 5494.26  329.52 5493.73  331.52 5493.16
  333.51 5492.95  335.51 5492.96   337.5 5492.95   339.5 5492.91  341.49  5492.9
  343.49 5492.93  345.48 5492.99  347.48 5493.06  349.47 5493.12  351.47 5493.08
  353.46 5493.07  355.46 5493.05  357.45 5493.08  359.45 5493.14  361.44 5493.19
  363.44 5493.31  365.43 5493.35  367.43  5493.4  369.42 5493.44  371.42 5493.58
  373.41 5493.58  375.41 5493.78   377.4 5493.84   379.4 5493.84  381.39 5493.87
  383.39 5493.95  385.38 5493.98  387.38 5494.05  389.37 5494.18  391.37 5494.22
  393.36 5494.23  395.36 5494.24  397.35 5494.26  399.35  5494.3  401.34 5494.33
  403.34 5494.38  405.33  5494.5  407.33 5494.68  409.32 5494.73  411.32 5494.79
  413.31 5494.87  415.31 5494.95   417.3 5495.01   419.3 5494.96  421.29 5495.07
  423.29 5495.16  425.28 5495.23  427.28 5495.35  429.27  5495.4  431.27 5495.37
  433.26 5495.45  435.26 5495.57  437.25 5495.66  439.25 5495.73  441.24  5495.8
  443.24 5495.94  445.23 5496.05  447.23 5496.11  449.22 5496.18  451.22 5496.29
  453.21 5496.42  455.21 5496.55   457.2 5496.79   459.2 5497.01  461.19 5497.06
  463.19 5497.08  465.18 5497.09  467.18 5497.09  469.17 5497.06  471.17 5497.07
  473.16 5497.24  475.16 5497.35  477.15 5497.33  479.15 5497.23  481.14 5497.07

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0    .015   17.41     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        193.73  305.57           148.52  164.21  150.17             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
  101.55   148.55503.039       F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
  165.92  203.935502.347

CROSS SECTION


RIVER: TCC_S2
REACH: 1                  RS: 7123

INPUT
Description: 7123
Station Elevation Data    num=     295
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5488.96       2    5489       4 5489.13    5.99  5489.2    7.99 5489.19
    9.99 5489.21   11.99 5489.22   13.98 5489.18   15.98 5489.06   17.98 5488.97
   18.63 5488.99   19.98 5489.02   21.98 5489.28   23.97 5489.64   25.97 5489.53
   27.97 5489.54   29.97 5489.44   31.97 5489.34   33.96 5489.34   35.96 5489.34
   37.96 5489.36   39.96 5489.36   41.96 5489.38   43.95 5489.39   45.95 5489.42
   47.95 5489.42   49.95 5489.28   51.94 5489.22   53.94 5489.31   55.94 5489.39
   57.94 5489.49   59.94 5489.59   61.93 5489.72   63.93 5489.83   65.93 5489.82
   67.93 5489.92   69.92 5489.99   71.92 5490.03   73.92 5489.91   75.92 5490.02
   77.92 5490.15   79.91 5490.09   81.91  5489.9   83.91    5490   85.91 5489.82
   87.91 5489.77    89.9 5489.75    91.9 5489.72    93.9 5489.66    95.9 5489.63
    97.9  5489.6   99.89 5489.65  101.89 5489.67  103.89 5489.71  105.89 5489.69
  107.88  5489.5  109.88 5489.09  111.88 5488.64  113.88 5488.48  115.88 5488.54
  117.87 5488.54  119.87  5488.5  121.87 5488.51  123.87  5488.5  125.86 5488.25
  127.86 5487.95  129.86 5487.69  131.86 5487.52  133.86 5487.42  135.85 5487.42
  137.85 5487.41  139.85 5487.45  141.85 5487.42  143.85 5487.63  145.84 5487.87
  147.84 5488.07  149.84 5488.26  151.84 5488.25  153.83 5488.22  155.83  5488.2
  157.83 5488.18  159.83 5488.15  161.83 5488.13  163.82 5488.11  165.82 5488.08
  167.82 5488.05  169.82 5488.04  171.82 5488.04  173.81 5488.04  175.81 5488.04
  177.81 5488.04  179.81 5488.01   181.8 5487.97   183.8 5487.93   185.8 5487.89
   187.8 5487.86   189.8 5487.87  191.79  5487.9  193.79 5487.94  195.79 5487.95
  197.79 5487.94  199.79 5487.96  201.78 5488.05  203.78    5488  205.78 5487.95
  207.78 5487.91  209.77 5487.86  211.77 5487.82  213.77 5487.77  215.77 5487.72
  217.77 5487.68  219.76 5487.63  221.76 5487.58  223.76 5487.54  225.76 5487.49
  227.76 5487.48  229.75 5487.47  231.75 5487.53  233.75 5487.67  235.75 5487.75
  237.74 5487.89  239.74 5487.97  241.74 5487.91  243.74 5487.85  245.74 5487.82
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  247.73 5487.84  249.73 5487.85  251.73 5487.83  253.73  5487.7  255.73 5487.62
  257.72 5487.66  259.72 5487.66  261.72 5487.64  263.72 5487.55  265.71 5487.44
  267.71 5487.42  269.71 5487.44  271.71 5487.46  273.71 5487.31   275.7 5487.15
   277.7 5486.98   279.7  5486.8   281.7 5486.63   283.7 5486.45  285.69 5486.28
  287.69  5486.1  289.69 5485.93  291.69 5485.75  293.68 5485.58  295.68 5485.43
  297.68  5485.3  299.68 5485.16  301.68 5485.03  303.67 5484.93  305.67 5484.84
  307.67 5484.75  309.67 5484.66  311.66 5484.63  313.66 5484.67  314.88 5484.62
  315.66 5484.59  317.66 5484.46  319.66 5484.44  321.65 5484.42  323.65 5484.36
  324.91 5484.36  325.65 5484.35  327.65 5484.44  329.65 5484.76  331.64 5485.13
  333.64 5485.38  335.64 5485.85  337.64 5486.23  339.64  5486.3  341.63 5486.02
  343.63 5485.25  345.63 5485.27  347.63    5486  349.62 5486.23  351.62  5486.2
  353.62 5486.22  355.62 5486.23  357.61 5486.29   359.6 5486.35  361.58  5486.4
  363.57 5486.42  365.56 5486.43  367.55 5486.43  369.54  5486.4  371.53 5486.44
  373.52 5486.46  375.51  5486.5   377.5 5486.54  379.48 5486.53  381.47 5486.52
  383.46 5486.56  385.45 5486.53  387.44 5486.48  389.43 5486.47  391.42 5486.47
  393.41 5486.48  395.39 5486.48  397.38 5486.52  399.37 5486.55  401.36 5486.61
  403.35 5486.66  405.34 5486.67  407.33 5486.68  409.32 5486.63  411.31 5486.69
  413.29 5486.76  415.28 5486.89  417.27 5486.81  419.26 5486.82  421.25 5486.96
  423.24 5487.04  425.23  5487.1  427.22 5487.13  429.21  5487.2  431.19 5487.18
  433.18 5487.25  435.17 5487.24  437.16 5487.27  439.15 5487.65  441.14 5487.93
  443.13 5488.15  445.12 5488.36  447.11 5488.65  449.09 5488.68  451.08 5488.59
  453.07 5488.56  455.06 5488.51  457.05 5488.39  459.04 5488.29  461.03 5488.38
  463.02 5488.55  465.01 5488.71  466.99 5488.95  468.98 5489.34  470.97 5489.69
  472.96 5490.25  474.95 5490.89  476.94 5490.98  478.93 5491.06  480.92 5491.03
   482.9    5491  484.89 5490.96  486.88 5490.88  488.87  5490.8  490.86 5490.74
  492.85 5490.68  494.84 5490.65  496.83 5490.65  498.82 5490.66   500.8 5490.66
  502.79 5490.66  504.78 5490.63  506.77 5490.57  508.76  5490.5  510.75 5490.43
  512.74 5490.36  514.73  5490.3  516.72 5490.28   518.7  5490.3  520.69 5490.32
  522.68 5490.32  524.67 5490.28  526.66 5490.31  528.65 5490.33  530.64 5490.36
  532.63 5490.39  534.62 5490.44   536.6 5490.51  538.59 5490.59  540.58 5490.68
  542.57 5490.77  544.56 5490.82  546.55 5490.84  548.54 5490.83  550.53  5490.8
  552.52 5490.84   554.5  5490.9  556.49 5491.04  558.48 5491.12  560.47 5491.12
  562.46 5491.11  564.45 5491.11  566.44 5491.11  568.43 5491.18  570.41 5491.19
   572.4 5491.18  574.39 5491.12  576.38 5491.04  578.37 5490.85  580.36 5490.75

Manning's n Values        num=        2
     Sta   n Val     Sta   n Val
       0    .015   18.63     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         273.71  339.64          166.93  181.73  189.26             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
   64.38   84.285499.968        F
  249.39  271.755497.459        F
Blocked Obstructions      num=        4
   Sta L    Sta R    Elev   Sta L   Sta R    Elev   Sta L   Sta R    Elev
  144.27  227.145497.474  242.06  249.395497.858  271.75   306.15494.822
  483.78  580.36 5500.75

CROSS SECTION


RIVER: TCC_S2
REACH: 1                   RS: 6941

INPUT
Description: 6941
Station Elevation Data    num=     274
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5485.82       2 5485.85       4 5485.79       6 5485.73    7.99 5485.68
    9.99 5485.65   11.99 5485.59   13.99 5485.63   14.43 5485.66   15.99 5485.76
   17.99  5485.9   19.98 5486.07   21.98 5486.31   23.98 5486.62   25.98  5486.8
   27.98 5487.02   29.98 5487.32   31.97 5487.57   33.97 5487.78   35.97 5488.01
   37.97 5488.21   39.97 5488.37   41.97 5488.53   43.96 5488.64   45.96 5488.69
   47.96 5488.63   49.96 5488.63   51.96 5488.59   53.96 5488.55   55.96  5488.5
   57.95 5488.42   59.95 5488.33   61.95 5488.23   63.95 5488.13   65.95 5488.02
   67.95 5487.82   69.94 5487.48   71.94 5487.27   73.94 5487.05   75.94 5486.75
   77.94 5486.55   79.94 5486.41   81.93 5486.26   83.93  5486.1   85.93 5485.94
   87.93 5485.79   89.93 5485.67   91.93 5485.56   93.92 5485.44   95.92 5485.36
   97.92 5485.31   99.92 5485.14  101.92 5484.96  103.92 5484.78  105.91 5484.61
  107.91 5484.43  109.91 5484.27  111.91 5484.23  113.91 5484.25  115.91  5484.2
  117.91 5484.14   119.9 5484.05   121.9    5484   123.9 5483.96   125.9 5483.98
   127.9 5483.97   129.9 5483.93  131.89 5483.81  133.89  5483.8  135.89 5483.77
  137.89 5483.74  139.89 5483.86  141.89 5483.85  143.88 5483.79  145.88 5483.75
  147.88 5483.73  149.88 5483.73  151.88 5483.76  153.88 5484.09  155.87 5484.54
  157.87 5484.75  159.87 5484.71  161.87 5484.81  163.87  5484.8  165.87 5484.82
  167.86 5484.83  169.86  5484.9  171.86 5484.93  173.86 5484.97  175.86 5485.05
  177.86  5485.1  179.86  5485.1  181.85 5485.09  183.85 5485.17  185.85 5485.17
  187.85 5485.15  189.85 5485.13  191.85 5485.12  193.84 5485.11  195.84 5485.06
  197.84 5485.02  199.84 5484.99  201.84 5484.96  203.84 5484.92  205.83 5484.88
  207.83 5484.84  209.83  5484.8  211.83 5484.76  213.83 5484.71  215.83 5484.67
  217.82 5484.63  219.82 5484.58  221.82 5484.51  223.82  5484.5  225.82 5484.46
  227.82 5484.53  229.82 5484.54  231.81 5484.39  233.81  5484.3  235.81 5484.23
  237.81 5484.16  239.81 5484.17  241.81 5484.11   243.8 5484.03   245.8 5483.93
   247.8 5483.73   249.8 5483.44   251.8 5482.71   253.8 5481.99  255.79 5481.37
  257.79  5480.9  259.79 5480.67  261.79 5480.51  263.79 5480.49  265.79 5480.35
  267.78 5480.25  269.78 5480.19  271.78 5480.09  273.78 5480.04  275.78 5480.04
  277.78 5480.01  279.78 5479.93  281.77 5479.94  283.77    5480  285.77 5479.93
  287.77 5479.78  289.77 5479.74  291.77 5479.73  293.76 5479.75  294.71 5479.71
  295.76 5479.68  297.76 5479.64  299.76 5479.61  301.75  5479.7  302.61 5479.77
  303.74 5479.87  305.73 5479.88  306.94 5479.79  307.72 5479.73  309.71 5479.65
   311.7 5479.65  313.69 5479.73  315.68 5479.77  317.67  5479.9  319.66 5480.04
  321.65 5480.11  323.64 5480.19  325.63  5480.3  327.62 5480.41  329.61  5480.5
   331.6 5480.55  333.59 5480.63  335.58 5480.77  337.58 5480.84  339.57 5481.01
  341.56 5481.13  343.55 5481.31  345.54  5481.5  347.53 5481.62  349.52 5481.75
  351.51 5481.88   353.5 5481.96  355.49 5482.02  357.48 5482.08  359.47 5482.15
  359.89 5482.17  361.46 5482.26  363.45 5482.41  365.44 5482.42  367.43 5482.34
  369.42 5482.28  371.41 5482.24   373.4 5482.27  375.39 5482.32  377.38 5482.33
  379.37 5482.42  381.36 5482.56  383.35 5482.55  385.34 5482.65  387.33 5482.76
  389.32 5482.77  391.31 5482.78   393.3 5482.83  395.29 5482.88  397.28 5482.92
  399.28 5482.97  401.27 5483.01  403.26 5483.07  405.25 5483.19  407.24 5483.32
  409.23 5483.43  411.22 5483.47  413.21  5483.5   415.2 5483.53  417.19 5483.56
  419.18 5483.59  421.17 5483.48  423.16 5483.38  425.15  5483.2  427.14 5482.93
  429.13 5482.91  431.12 5483.07  433.11 5483.08   435.1 5483.05  437.09 5482.96
  439.08  5482.9  441.07 5482.84  443.06 5482.78  445.05 5482.76  447.04 5482.76
  449.03 5482.72  451.02 5482.66  453.01 5482.62     455 5482.65  456.99 5482.58
  458.98  5482.5  460.98 5482.46  462.97 5482.48  464.96 5482.51  466.95 5482.93
  468.94 5483.07  470.93 5483.14  472.92 5483.24  474.91 5483.41   476.9 5483.42
  478.89 5483.41  480.88 5483.43  482.87 5483.45  484.86 5483.49  486.85 5483.45
  488.84 5483.45  490.83 5483.42  492.82  5483.4  494.81 5483.42   496.8 5483.38
  498.79 5483.34  500.78 5483.28  502.77  5483.3  504.76 5483.31  506.75 5483.34
  508.74 5483.36  510.73 5483.33  512.72 5483.35  514.71 5483.46   516.7  5483.4
  518.69 5483.35  520.69 5483.28  522.68 5483.26  524.67 5483.23  526.66 5483.23
  528.65 5483.27  530.64 5483.25  532.63  5483.3  534.62 5483.34

Manning's n Values        num=        4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0    .015   14.43     .13  302.61    .015  359.89     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         249.8  349.52          110.97  198.16  201.68             .1       .3
Blocked Obstructions      num=        3
   Sta L    Sta R    Elev   Sta L   Sta R    Elev   Sta L   Sta R    Elev
    46.5  115.345494.213  162.51  234.055494.292  388.42  427.965492.917

CROSS SECTION


RIVER: TCC_S2
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REACH: 1                    RS: 6743

INPUT
Description: 6743
Station Elevation Data    num=     252
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5480.67    1.99 5481.49    3.98 5481.88    5.98 5481.94    7.97 5481.99
    9.96 5482.01   11.95 5482.01   13.94 5482.03   15.93    5482   17.93 5482.03
   19.92 5482.01   21.91 5481.75    23.9 5481.59   25.89 5481.35   27.88 5481.04
   29.88  5480.7   31.87  5480.3   33.86 5480.12   35.85 5480.01   37.84 5479.99
   39.84 5479.92   41.83 5479.81   43.82 5479.74   45.81 5479.62    47.8 5479.38
   49.79 5479.28   51.79 5479.19   53.78  5479.2   55.77 5479.26   57.76  5479.7
   59.75  5479.9   61.74 5479.84   63.74 5479.83   65.73  5479.9   67.72 5479.99
   69.71 5480.04    71.7 5480.12    73.7  5480.2   75.69 5480.28   77.68 5480.35
   79.67 5480.42   81.66 5480.53   83.65 5480.66   85.65 5480.78   87.64 5480.85
   89.63 5480.95   91.62 5481.05   93.61 5481.09   95.61 5481.16    97.6 5481.23
   99.59 5481.26  101.58 5481.27  103.57  5481.3  105.56 5481.25  107.56  5481.2
  109.55 5481.18  111.54 5481.19  113.53 5481.23  115.52 5481.25  117.51 5481.26
  119.51 5481.28   121.5 5481.29  123.49 5481.31  125.48 5481.33  127.47 5481.34
  129.47 5481.36  131.46 5481.38  133.45 5481.39  135.44 5481.41  137.43 5481.33
  139.42 5481.25  141.42 5481.17  143.41 5481.12   145.4 5481.03  147.39 5480.84
  149.38 5480.64  151.38 5480.39  153.37 5480.19  155.36 5480.06  157.35 5479.88
  159.34 5479.56  161.33 5479.05  163.33 5478.49  165.32 5478.18  167.31 5478.11
   169.3 5478.07  171.29 5478.03  173.28 5477.97  175.28 5477.91  177.27 5477.82
  179.26 5477.74  181.25 5477.68  183.24 5477.61  185.24 5477.53  187.23 5477.45
  189.22 5477.39  191.21 5477.34   193.2 5477.37  195.19 5477.52  197.19 5477.47
  199.18 5477.29  201.17  5477.1  203.16 5477.01  205.15 5476.98  207.14 5476.87
  209.14 5476.81  211.13 5476.79  213.12 5476.78  215.11 5476.79   217.1 5476.72
   219.1 5476.65  221.09 5476.72  223.08 5476.64  225.07 5476.36  227.06 5476.15
  229.05 5475.99  231.05 5475.82  233.04 5475.78  235.03 5475.74  237.02  5475.7
  239.01 5475.68  241.01 5475.64     243 5475.64  244.99 5475.63  246.98 5475.55
  248.97 5475.45  250.96 5475.41  252.96 5475.37  254.95 5475.37  256.94 5475.41
  258.93 5475.52  260.92 5475.67  262.91 5475.85  264.91 5475.98   266.9 5476.04
  268.89 5476.06  270.88 5476.21  272.87 5476.38  274.87 5476.51  276.86 5476.62
  278.85 5476.72  280.84 5476.76  282.83 5476.74  284.82 5476.71  286.82 5476.64
  288.81 5476.56   290.8 5476.49  292.79 5476.42  294.78 5476.36  296.77 5476.29
  298.77 5476.22  300.76 5476.16  302.75 5476.18  304.74 5476.28  306.73 5476.37
  308.73 5476.47  310.72 5476.56  312.71 5476.66   314.7 5476.74  316.69 5476.78
  318.68 5476.71  320.68 5476.49  322.67 5476.38  324.66 5476.23  326.65 5475.98
  328.64 5475.76  330.64 5475.57  332.63 5475.39  334.62 5475.24  336.61 5475.09
   338.6 5474.84  340.59 5474.73  342.59 5474.53  344.58 5474.22  346.57 5473.95
  348.56 5473.71  350.55  5473.7  352.54  5473.8  354.54 5474.12  356.53 5473.96
  358.52 5473.81  360.51 5473.73  361.43 5473.72   362.5 5473.71   364.5 5473.66
  366.49  5473.6  368.48  5473.6  370.47 5473.63  371.47 5473.65  372.46 5473.66
  374.45 5473.81  376.45 5473.89  378.44  5473.8  380.43 5473.66  382.41 5473.72
   384.4 5473.84  386.38 5473.96  388.37 5474.09  390.35 5474.22  392.34 5474.35
  394.32 5474.46  396.31 5474.57  398.29 5474.65  400.27 5474.69  402.26 5474.56
  404.24 5474.56  406.23 5474.61  408.21 5474.65   410.2 5474.63  412.18 5474.55
  414.17 5474.51  416.15 5474.52  418.13  5474.5  420.12 5474.61   422.1 5474.71
  424.09  5474.8  426.07 5474.86  428.06  5474.9  430.04 5474.98  432.03 5475.01
  434.01 5475.08  435.99 5475.07  437.98 5475.04  439.96 5475.03  441.95 5475.09
  443.93  5475.2  445.92 5475.21   447.9 5475.18  449.89 5475.23  451.87 5475.29
  453.85 5475.35  455.84 5475.36  457.82 5475.49  459.81 5475.57  461.79 5475.63
  463.78 5475.64  465.76  5475.6  467.75 5475.69  469.73 5475.88  471.71 5476.08
   473.7 5476.32  475.68 5476.37  477.67 5476.51  479.65 5476.81  481.64 5476.97
  483.62 5477.02  485.61 5476.97  487.59 5476.99  489.57 5476.98  491.56 5476.99
  493.54 5477.05  495.53 5477.12

Manning's n Values        num=       1
     Sta   n Val
       0     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
     318.68  481.64                133.08   87.45   89.59              .1       .3
Blocked Obstructions      num=       5
   Sta L    Sta R    Elev   Sta L    Sta R    Elev   Sta L   Sta R    Elev
       0   4.345491.926  111.94  138.865491.252  271.99  315.025486.748
  377.64  399.465484.679  486.37  495.535487.121

CROSS SECTION


RIVER: TCC_S2
REACH: 1                    RS: 6656

INPUT
Description: 6656
Station Elevation Data    num=     251
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5472.53       2 5472.51       4 5472.55       6 5472.64       8 5472.87
    9.99 5472.73   11.99  5472.6   13.99 5472.56   15.99 5472.59   17.99 5472.62
   19.99 5472.82   21.99 5472.79   23.99 5472.54   25.99 5472.46   27.99 5472.33
   29.98 5472.34   31.98 5472.31   33.98 5472.28   35.98 5472.28   37.98 5472.29
   39.98 5472.24   41.98 5472.22   43.98 5472.18   45.98 5472.08   47.98  5472.1
   49.97 5472.12   51.97  5472.1   53.97 5472.01   55.97 5471.99   57.97 5471.99
   59.97 5472.03   61.97 5471.99   63.97 5471.85   65.97  5471.4   67.97 5471.55
   69.96 5472.05   71.96 5472.01   73.96 5471.82   75.96 5471.44   77.96 5471.03
   79.96 5471.18   81.96 5471.36   83.96 5471.41   85.96 5471.45   87.96 5471.46
   89.95 5471.46   91.95 5471.46   93.95 5471.52   95.95 5471.59   97.95 5471.68
   99.95 5471.79  101.95 5471.87  103.95 5471.88  105.95 5471.78  107.95 5471.67
  109.94 5471.61  111.94 5471.58  113.94 5471.55  115.94 5471.51  117.94 5471.44
  119.94 5471.46  121.94 5471.56  123.94 5471.75  125.94 5471.89  127.94 5472.01
  129.93 5472.02  131.93    5472  133.93 5471.97  135.93 5471.94  137.93  5471.9
  139.93 5471.87  141.93 5471.84  143.93  5471.8  145.93 5471.78  147.93 5471.77
  149.92 5471.76  151.92 5471.83  153.92 5471.88  155.92  5471.8  157.92 5471.75
  159.92 5471.74  161.92 5471.78  163.92 5471.88  165.92 5471.95  167.91 5471.93
  169.91 5471.76  171.91 5471.52  173.91 5471.38  175.91 5471.31  177.91  5471.4
  179.91  5471.4  181.91 5471.34  183.91 5471.37  185.91 5471.44   187.9 5471.46
   189.9 5471.41   191.9 5471.29   193.9 5471.18   195.9 5471.13   197.9 5471.08
   199.9 5471.07   201.9 5471.04   203.9 5471.08   205.9 5471.13  206.81 5471.12
  207.89 5471.12  209.89 5471.09  211.89 5471.13  213.89 5471.14  215.89 5471.13
  217.66 5471.12  217.89 5471.12  219.89 5471.09  221.89 5471.08  223.89 5471.06
  225.89 5471.13  227.88 5471.28  229.88 5471.12  231.88 5471.08  233.88 5471.08
  235.88 5471.13  237.88 5471.18  239.88 5471.21  241.88  5471.2  243.88 5471.16
  245.88 5471.15  247.87 5471.15  249.87 5471.19  251.87 5471.26  253.87 5471.24
  255.87 5471.51  257.87 5471.72  259.87 5471.85  261.87    5472  263.87 5472.15
  265.87 5472.17  267.86  5471.9  269.86 5471.53  271.86  5471.5  273.86 5471.46
  275.86 5471.48  277.86 5471.59  279.86  5471.7  281.86 5471.65  283.86  5471.6
  285.86 5471.56  287.85 5471.51  289.85 5471.46  291.85 5471.35  293.85 5471.24
  295.85 5471.21  297.85  5471.2  299.85 5471.23  301.85 5471.26  303.85 5471.33
  305.84 5471.43  307.84 5471.44  309.84 5471.39  311.83 5471.46  313.82 5471.56
  315.81 5471.67  317.81 5471.75   319.8 5471.74  321.79 5471.73  323.78  5471.9
  325.77  5471.7  327.76 5471.63  329.75  5471.6  331.74 5471.61  333.73 5471.69
  335.72 5471.68  337.71 5471.67   339.7 5471.77  341.69 5472.04  343.68 5472.18
  345.67 5472.13  347.67 5471.99  349.66 5471.94  351.65 5471.93  353.64 5471.92
  355.63  5471.9  357.62 5471.89  359.61  5471.9   361.6 5471.95  363.59 5472.01
  365.58 5472.06  367.57 5472.12  369.56 5472.17  371.55 5472.22  373.54 5472.28
  375.53 5472.33  377.53 5472.39  379.52 5472.44  381.51  5472.5   383.5 5472.54
  385.49 5472.56  387.48 5472.57  389.47 5472.58  391.46 5472.58  393.45 5472.59
  395.44 5472.58  397.43 5472.53  399.42 5472.45  401.41 5472.43   403.4 5472.44
  405.39  5472.3  407.38 5472.24  409.38 5472.17  411.37 5472.14  413.36 5472.13
  415.35 5472.07  417.34 5472.05  419.33 5472.06  421.32 5472.12  423.31 5472.16
   425.3 5472.18  427.29 5472.21  429.28 5472.24  431.27 5472.24  433.26 5472.26
  435.25 5472.28  437.24 5472.29  439.24 5472.23  441.23 5472.16  443.22 5472.23
  445.21 5472.34   447.2 5472.49  449.19 5472.72  451.18 5472.92  453.17 5473.02
  455.16 5472.95  457.15  5472.9  459.14 5472.89  461.13 5472.99  463.12 5473.05
  465.11 5473.12   467.1 5473.19   469.1 5473.37  471.09 5473.35  473.08 5473.44
  475.07 5473.49  477.06 5473.61  477.47 5473.64  479.05 5473.75  481.04 5473.83
  483.03 5473.89  485.02 5473.99  487.01 5474.08     489 5474.14  490.99 5474.18
  492.98 5474.29
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Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0     .13  477.47    .015

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        165.92  263.87            97.88  131.84  126.03             .1       .3
Ineffective Flow     num=        2
   Sta L    Sta R    Elev  Permanent
       0   18.025482.625        F
  107.33  131.875482.002        F
Blocked Obstructions     num=       4
   Sta L   Sta R    Elev   Sta L   Sta R    Elev   Sta L   Sta R    Elev
   82.92  107.335481.693  131.87  160.155481.743  276.17  318.795481.765
  343.69  397.045482.545

CROSS SECTION


RIVER: TCC_S2
REACH: 1                  RS: 6524

INPUT
Description: 6524
Station Elevation Data    num=     238
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  5469.2    1.99 5469.18    3.97  5469.3    5.96 5469.53    7.95 5469.71
    9.94 5469.67   11.92 5469.53   13.91 5469.44    15.9 5469.35   17.88  5469.3
   19.87 5469.35   21.86 5469.38   23.84 5469.35   25.83 5469.34   27.82 5469.31
   29.81 5469.26   31.79 5469.23   33.78 5469.19   35.77 5469.15   37.75 5469.14
   39.74 5469.12   41.73 5469.09   43.72 5469.04    45.7 5468.94   47.69 5468.88
   49.68 5468.81   51.66 5468.68   53.65 5468.57   55.64 5468.48   57.63 5468.41
   59.61 5468.42    61.6 5468.63   63.59 5468.73   65.57 5468.63   67.56 5468.55
   69.55 5468.55   71.53 5468.48   73.52 5468.21   75.51 5467.75    77.5 5467.75
   79.48 5467.99   81.47 5467.95   83.46 5467.79   85.44 5467.65   87.43 5467.64
   89.42 5467.67   91.41  5467.7   93.39 5467.73   95.38 5467.77   97.37 5467.83
   99.35 5467.93  101.34 5468.01  103.33 5468.03  105.31  5468.1   107.3 5468.16
  109.29 5468.22  111.28 5468.27  113.26 5468.33  115.25 5468.36  117.24 5468.34
  119.22 5468.31  121.21 5468.29   123.2 5468.28  125.19 5468.28  127.17 5468.27
  129.16 5468.27  131.15 5468.28  133.13 5468.27  135.12 5468.27  137.11 5468.26
   139.1 5468.26  141.08 5468.25  143.07 5468.25  145.06 5468.26  147.04 5468.27
  149.03 5468.28  151.02 5468.29    153  5468.3  154.99 5468.31  156.98 5468.32
  158.97 5468.33  160.95 5468.34  162.94 5468.35  164.93 5468.36  166.91 5468.37
   168.9 5468.38  170.89 5468.39  172.88 5468.36  174.86 5468.29  176.85 5468.21
  178.84 5468.14  180.82 5468.12  182.81 5468.04   184.8    5468  186.78 5467.93
  188.77 5467.82  190.76  5467.6  192.75 5467.24  194.73 5466.95  196.72 5466.71
  198.71  5466.5  200.69 5466.43  202.68 5466.53  204.67 5466.69  205.29 5466.73
  206.66 5466.81  208.64 5466.77  210.63  5466.6  212.62  5466.5   214.6 5466.47
  215.33 5466.46  216.59 5466.45  218.58 5466.38  220.57 5466.34  222.55  5466.3
  224.54  5466.3  226.53 5466.29  228.51 5466.22   230.5 5466.19  232.49 5466.12
  234.47 5466.07  236.46 5466.07  238.45 5466.04  240.44 5465.96  242.42 5465.87
  244.41 5465.85   246.4 5465.83  248.38 5465.78  250.37 5465.79  252.36 5465.77
  254.35 5465.73  256.33 5465.68  258.32 5465.63  260.31 5465.58  262.29 5465.48
  264.28  5465.4  266.27 5465.31  268.25 5465.19  270.24 5465.13  272.23  5465.1
  274.22 5465.21   276.2 5465.34  278.19 5465.39  280.18 5465.44  282.16 5465.48
  284.15 5465.51  286.13 5465.66  288.12 5465.81   290.1 5465.97  292.08 5466.11
  294.06 5466.28  296.05  5466.3  298.03 5466.26  300.01 5466.25  301.99 5466.38
  303.97 5466.36  305.96 5466.38  307.94  5466.4  309.92 5466.44   311.9 5466.49
  313.89 5466.55  315.87 5466.47  317.85 5466.45  319.83 5466.42  321.82 5466.51
   323.8 5466.63  325.78 5466.64  327.76 5466.72  329.74 5466.78  331.73 5466.88
  333.71 5466.84  335.69 5466.72  337.67 5466.67  339.66 5466.58  341.64 5466.54
  343.62 5466.55   345.6 5466.63  347.59 5466.69  349.57 5466.73  351.55  5466.7
  353.53 5466.73  355.52  5466.7   357.5 5466.65  359.48  5466.6  361.46 5466.63
  363.44 5466.76  365.43  5466.8  367.41  5466.9  369.39 5466.92  371.37 5467.03
  373.36 5467.16  375.34 5467.23  377.32 5467.24   379.3 5467.29  381.29 5467.34
  383.27  5467.4  385.25 5467.45  387.23 5467.44  389.21 5467.37   391.2 5467.33
  393.18  5467.4  395.16 5467.41  397.14 5467.25  399.13 5467.29  401.11 5467.27
  403.09 5467.22  405.07 5467.14  407.06 5467.14  409.04 5467.28  411.02  5467.4
     413 5467.52  414.98 5467.62  416.97 5467.62  418.95 5467.55  420.93 5467.65
  422.91 5467.83   424.9 5468.05  426.88    5468  428.86 5467.91  430.84 5467.84
  432.83 5467.87  434.81 5467.96  436.79    5468  438.77 5468.02  440.75 5468.07
  442.74 5468.19  444.72 5468.31  446.41 5468.37   446.7 5468.38  448.68 5468.46
  450.67 5468.54  452.65  5468.6  454.63  5468.7  456.61 5468.77   458.6 5468.85
  460.58  5468.9  462.56 5468.96  464.54 5468.97

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0     .13  446.41    .015

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        188.77  294.06           198.42  139.07   70.13             .1       .3
Ineffective Flow     num=        2
   Sta L    Sta R    Elev  Permanent
       0   50.625478.747        F
  295.24  326.435476.667        F
Blocked Obstructions     num=       3
   Sta L   Sta R    Elev   Sta L   Sta R    Elev   Sta L   Sta R    Elev
  104.31  185.045478.003  276.95  295.245476.341  326.43  333.375476.866

CROSS SECTION


RIVER: TCC_S2
REACH: 1                  RS: 6385

INPUT
Description: 6385
Station Elevation Data    num=     258
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5464.97    1.99 5464.99    3.98 5465.01    5.97 5465.04    7.96  5465.1
    9.95 5465.19   11.94  5465.2   13.92 5465.17   15.91 5465.17    17.9 5464.74
   19.89 5464.49   21.88 5464.46   23.87 5464.44   25.86 5464.29   27.85 5464.03
   29.84 5463.63   31.83 5462.92   33.82  5462.3   35.81 5462.07   37.79 5462.03
   39.78    5462   41.77 5461.96   43.76 5461.93   45.75 5461.92   47.74 5461.89
   49.73 5461.86   51.72  5461.8   53.71 5462.04    55.7 5462.45   57.69 5462.73
   59.67 5462.95   61.66 5463.13   63.65 5463.11   65.64 5462.84   67.63 5462.45
   69.62  5461.9   71.61 5461.28    73.6 5461.23   75.59 5461.55   77.58  5461.6
   79.57 5461.71   81.56 5461.81   83.54 5461.83   85.53 5461.84   87.52 5461.87
   89.51 5461.89    91.5 5461.91   93.49 5461.92   95.48 5461.92   97.47 5461.93
   99.46    5462  101.45 5462.08  103.44 5462.13  105.43 5462.14  107.41 5462.21
   109.4 5462.27  111.39 5462.26  113.38 5462.23  115.37 5462.31  117.36 5462.29
  119.35 5462.29  121.34 5462.27  123.33 5462.25  125.32 5462.23  127.31 5462.21
   129.3  5462.2  131.28 5462.19  133.27 5462.17  135.26 5462.16  137.25 5462.13
  139.24 5462.17  141.23 5462.21  143.22 5462.22  145.21 5462.21   147.2 5462.21
  149.19  5462.2  151.18 5462.19  153.17 5462.19  155.15 5462.18  157.14 5462.18
  159.13 5462.15  161.12 5462.16  163.11  5462.2   165.1  5462.2  167.09 5462.15
  169.08 5462.12  171.07 5462.18  173.07 5462.25  175.07  5462.3  177.06 5462.37
  179.06 5462.42  181.05 5462.46  183.05 5462.49  185.04 5462.54  187.04 5462.62
  189.03 5462.54  191.03 5462.34  193.03 5462.27  195.02  5462.2  197.02 5462.16
  199.01 5462.14  201.01  5462.1    203 5462.05    205 5461.98  206.99 5461.87
  208.99 5461.79  210.98 5461.75  212.98  5461.7  214.98 5461.75  216.97 5461.83
  218.97 5461.89  220.96 5461.98  222.96 5462.01  224.95 5461.93  226.95 5461.85
  228.94 5461.78  230.94 5461.74  232.94  5461.7  234.93 5461.76  236.93 5461.98
  238.92 5461.92  240.92 5461.77  242.91 5461.54  244.91 5461.41   246.9 5461.25
   248.9  5461.2   250.9 5461.17  252.89 5461.21  254.89 5461.29  256.88  5461.4
  258.57  5461.5  258.88 5461.52  260.87 5461.68  262.87 5461.92  264.86  5461.9
  266.86 5461.89  268.85 5461.93  270.85    5462   271.1    5462  272.85 5462.03
  274.84 5462.08  276.84 5462.14  278.83 5462.14  280.83 5462.17  282.82 5462.17
  284.82  5462.2  286.81 5462.19  288.81  5462.2  290.81 5462.23   292.8 5462.21
   294.8 5462.17  296.79 5462.21  298.79 5462.23  300.78 5462.24  302.78 5462.24
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  304.77 5462.28  306.77 5462.25  308.76 5462.27  310.76 5462.28  312.76  5462.3
  314.75 5462.35  316.75 5462.36  318.74 5462.41  320.74  5462.4  322.73 5462.41
  324.73 5462.43  326.72 5462.38  328.72 5462.36  330.72 5462.34  332.71 5462.35
  334.71 5462.33   336.7 5462.31   338.7  5462.3  340.69 5462.36  342.69 5462.35
  344.68 5462.33  346.68 5462.29  348.68  5462.2  350.67 5462.15  352.67 5461.99
  354.66  5461.9  356.66 5461.88  358.65  5461.9  360.65 5461.88  362.64 5461.98
  364.64 5462.21  366.63  5462.5  368.63 5462.57  370.63 5462.56  372.62 5462.53
  374.62 5462.54  376.61 5462.58  378.61 5462.61   380.6 5462.63   382.6 5462.59
  384.59 5462.58  386.59 5462.56  388.59 5462.57  390.58 5462.76  392.58    5463
  394.57 5463.09  396.57 5463.02  398.56 5462.96  400.56 5462.95  402.55 5462.93
  404.55 5462.87  406.54 5462.77  408.54 5462.51  410.54 5462.45  412.53 5462.46
  414.53 5462.57  416.52 5462.59  418.52 5462.61  420.51  5462.6  422.51 5462.66
   424.5 5462.84   426.5 5463.09   428.5 5463.42  430.49 5463.68  432.49 5463.93
  434.48 5464.17  436.48 5464.26  438.47 5464.39  440.47  5464.4  442.46 5464.47
  444.46 5464.47  446.46 5464.42  448.45 5464.47  450.45 5464.48  452.44 5464.44
  454.44  5464.4  456.43  5464.4  458.43 5464.38  460.42 5464.42  462.42 5464.48
  464.41 5464.53  466.41 5464.55  468.41 5464.58   470.4 5464.54   472.4 5464.55
  474.39  5464.5  476.39 5464.53  478.38 5464.58  480.38 5464.62  482.37 5464.66
  484.37  5464.7  485.68 5464.76  486.37 5464.79  488.36 5464.96  490.36  5465.1
  492.35 5465.21  494.35 5465.24  496.34 5465.29  498.34 5465.34  500.33 5465.39
  502.33 5465.49  504.32 5465.56  506.32 5465.56

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0     .13  485.68    .015

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        187.04  280.83             55.9   72.17  115.59              .1       .3
Blocked Obstructions      num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0   12.575475.185  111.52  180.945472.452

CROSS SECTION


RIVER: TCC_S2
REACH: 1                    RS: 6313

INPUT
Description: 6313
Station Elevation Data    num=     273
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5464.98    1.99    5465    3.98 5465.02    5.98 5465.04    7.97 5465.07
    9.96 5465.11   11.95 5465.16   13.95 5465.15   15.94 5465.11   17.93 5464.65
   19.92 5464.58   21.91 5464.43   23.91 5464.45    25.9 5464.41   27.89 5463.74
   29.88 5462.77   31.88 5462.07   33.87    5462   35.86 5462.04   37.85    5462
   39.84 5461.97   41.84 5461.92   43.83  5461.9   45.82 5461.86   47.81 5461.79
   49.81 5461.76    51.8  5461.7   53.79 5461.69   55.78 5461.75   57.77 5462.03
   59.77 5462.32   61.76 5462.54   63.75 5462.63   65.74 5462.46   67.74 5462.33
   69.73 5461.48   71.72  5460.8   73.71 5461.33    75.7 5461.52    77.7 5461.52
   79.69 5461.51   81.68  5461.5   83.67 5461.44   85.67 5461.41   87.66 5461.38
   89.65 5461.36   91.64 5461.41   93.63 5461.41   95.63 5461.46   97.62 5461.51
   99.61 5461.56   101.6 5461.66   103.6 5461.69  105.59  5461.7  107.58 5461.79
  109.57 5461.92  111.56 5461.91  113.56 5461.71  115.55  5461.7  117.54  5461.8
  119.53 5461.88  121.53 5461.87  123.52 5461.84  125.51 5461.83   127.5 5461.83
  129.49 5461.82  131.49 5461.82  133.48 5461.81  135.47  5461.8  137.46 5461.82
  139.46 5461.86  141.45  5461.9  143.44 5461.92  145.43 5461.92  147.42 5461.92
  149.42 5461.89  151.41 5461.85   153.4 5461.82  155.39  5461.9  157.39 5462.03
  159.38 5462.07  161.37 5462.03  163.36 5461.99  165.35 5461.94  167.35  5461.9
  169.34  5461.9  171.33 5462.01  173.32 5462.09  175.32  5462.1  177.31 5462.09
   179.3 5462.09  181.29 5462.12  183.28  5462.1  185.28 5462.02  187.27 5461.95
  189.26 5461.85  191.25 5461.76  193.25 5461.69  195.24 5461.57  197.23 5461.44
  199.22 5461.33  201.21 5461.21  203.21 5461.08   205.2 5460.99  207.19  5460.9
  209.18  5460.8  211.18 5460.71  213.17  5460.6  215.16 5460.47  217.15 5460.33
  219.14 5460.18  221.14 5460.05  223.13 5459.93  225.12 5459.84  227.11 5459.79
  229.11 5459.73   231.1 5459.67  233.09  5459.6  235.08 5459.56  237.07 5459.52
  239.07 5459.46  241.06 5459.41  243.05 5459.35  245.04 5459.32  247.03 5459.29
  249.01 5459.38  250.99 5459.42  252.98 5459.44  254.96 5459.51  256.95 5459.54
  258.93 5459.57  259.43 5459.59  260.91 5459.65   262.9 5459.88  264.88 5460.07
  266.87 5460.26  268.85 5460.44  269.65 5460.52  270.83 5460.65  272.82 5460.78
   274.8 5460.96  276.78 5461.23  278.77 5461.42  280.75 5461.53  282.74 5461.63
  284.72 5461.69   286.7 5461.74  288.69  5461.7  290.67 5461.71  292.66 5461.73
  294.64 5461.74  296.62 5461.75  298.61 5461.77  300.59 5461.79  302.57 5461.78
  304.56 5461.77  306.54 5461.76  308.53 5461.74  310.51 5461.74  312.49 5461.74
  314.48 5461.74  316.46 5461.67  318.45 5461.59  320.43 5461.53  322.41 5461.51
   324.4  5461.5  326.38 5461.52  328.36 5461.59  330.35 5461.63  332.33 5461.68
  334.32 5461.72   336.3 5461.75  338.28  5461.8  340.27 5461.81  342.25  5461.8
  344.24 5461.79  346.22 5461.79   348.2 5461.83  350.19  5461.9  352.17 5461.87
  354.16 5461.83  356.14 5461.75  358.12 5461.67  360.11 5461.65  362.09 5461.66
  364.07 5461.69  366.06 5461.67  368.04 5461.63  370.03 5461.59  372.01  5461.5
  373.99 5461.32  375.98 5461.18  377.96 5461.03  379.95 5460.88  381.93 5460.72
  383.91 5460.55   385.9 5460.38  387.88 5460.22  389.86 5460.09  391.85 5459.98
  393.83 5459.78  395.82 5459.55   397.8 5459.37  399.78 5459.33  401.77 5459.36
  403.75  5459.4  405.74 5459.43  407.72 5459.45   409.7 5459.48  411.69 5459.53
  413.67 5459.62  414.42 5459.68  415.65 5459.79  417.64 5459.92  419.62 5459.98
  421.61 5460.03  423.59 5460.08  425.57 5460.13  427.55 5460.19  429.53 5460.24
  431.51 5460.29  433.49 5460.35  435.47 5460.43  437.45 5460.48  439.43 5460.55
  441.41 5460.59  443.39 5460.64  445.37  5460.7  447.35 5460.77  449.33 5460.79
  451.31 5460.86  453.29 5460.96  455.27 5461.02  457.24 5461.07  459.22 5461.16
   461.2 5461.24  463.18 5461.31  465.16 5461.36  467.14 5461.44  469.12 5461.51
   471.1 5461.57  473.08 5461.63  475.06 5461.68  477.04 5461.78  479.02 5461.84
     481  5461.9  482.98 5461.98  484.96 5462.07  486.94 5462.12  488.92 5462.18
   490.9 5462.23  492.87 5462.31  494.85 5462.36  496.83 5462.44  498.81 5462.52
  500.79  5462.6  502.77 5462.67  504.75 5462.78  506.73 5462.88  508.71 5462.92
  510.69 5462.98  512.67 5463.07  514.65 5463.14  516.63 5463.21  518.61 5463.27
  520.59 5463.33  522.57 5463.45  524.55 5463.54  526.52 5463.59   528.5 5463.66
  530.48 5463.75  532.46 5463.82  534.44 5463.91

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0     .13  414.42    .015

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        187.27  284.72             84.61   147.8  96.23              .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
  316.93  323.655471.501        F
Blocked Obstructions      num=       5
   Sta L   Sta R    Elev   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0   12.045475.166  133.15  139.365471.858  148.74  184.335472.062
  286.68  316.935471.652  323.65  350.685471.885

CROSS SECTION


RIVER: TCC_S2
REACH: 1                    RS: 6165

INPUT
Description: 6165
Station Elevation Data    num=     159
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5456.32    1.99 5456.31    3.98  5456.3    5.98 5456.28    7.97 5456.27
    9.96 5456.26   11.95 5456.26   13.94 5456.29   15.93  5456.3   17.93  5456.3
   19.92  5456.3   21.91 5456.31    23.9 5456.31   25.89 5456.31   27.88 5456.28
   29.88 5456.28   31.87 5456.29   33.86 5456.25   35.85 5456.17   37.84  5456.1
   39.84 5456.07   41.83 5456.09   43.82 5456.12   45.81 5456.22    47.8 5456.35
   49.79  5456.3   51.79 5456.15   53.78 5456.01   55.77 5455.85   57.76 5455.82
   59.75 5455.76   61.74 5455.71   63.74 5455.65   65.73  5455.6   67.72 5455.55
   69.71 5455.55    71.7 5455.57    73.7 5455.51   75.69 5455.49   77.68 5455.56
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   79.67 5455.59   81.66 5455.57   83.65 5455.54   85.65 5455.54   87.64  5455.6
   89.63  5455.6   91.62 5455.56   93.61  5455.6    95.6 5455.61    97.6 5455.57
   99.59 5455.54  101.58 5455.56  103.57 5455.58  105.56 5455.59  107.56 5455.61
  109.55 5455.63  111.54 5455.65  113.53 5455.67  115.52 5455.68  117.51 5455.69
  119.51 5455.69   121.5 5455.68  123.49 5455.67  125.48 5455.57  127.47  5455.4
  129.46 5455.37  131.46 5455.37  133.45 5455.41  135.44 5455.37  137.43  5455.3
  139.42 5455.29  141.41 5455.27  143.41 5455.16   145.4  5455.1  147.39 5455.04
  149.38 5455.01  151.37 5454.94  153.37 5454.92  155.36 5454.83  157.35 5454.85
  159.34 5454.83  161.33 5454.79  161.58 5454.79  163.32 5454.83  165.32 5454.89
  167.31  5454.9   169.3  5454.9  171.29 5454.82  171.58 5454.84  173.08 5454.94
  173.28 5454.95  175.27 5455.03  177.27 5455.08  179.26 5455.12  181.25 5455.16
  183.24  5455.2  185.23 5455.22  187.23 5455.27  189.22 5455.29  191.22 5455.32
  193.22 5455.39  195.21 5455.47  197.21 5455.52   199.2 5455.58   201.2 5455.62
  203.19 5455.68  205.19 5455.77  207.18 5455.81  209.18 5455.88  211.17 5455.92
  213.17 5455.99  215.17 5456.06  217.16  5456.1  219.16 5456.14  221.15 5456.17
  223.15 5456.23  225.14 5456.33  227.14 5456.39  229.13 5456.44  231.13 5456.51
  233.12 5456.57  235.12  5456.6  237.12 5456.65  239.11  5456.7  241.11 5456.78
   243.1 5456.84   245.1  5456.9  247.09 5456.94  249.09 5456.99  251.08 5457.06
  253.08 5457.09  255.07 5457.12  257.07 5457.15  259.07 5457.19  261.06 5457.24
  263.06  5457.3  265.05  5457.4  267.05 5457.51  269.04  5457.6  271.04 5457.67
  273.03 5457.73  275.03 5457.77  277.02 5457.84  279.02 5457.92  281.02 5457.97
  283.01 5458.05  285.01 5458.11    287  5458.2    289 5458.27  290.99 5458.34
  292.99 5458.44  294.98 5458.51  296.98 5458.57  298.97 5458.67  300.97 5458.74
  302.97 5458.79  304.96 5458.84  306.96 5458.92  308.95 5458.95

Manning's n Values         num=        2
     Sta   n Val     Sta   n Val
       0     .13  173.08    .015

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        123.49  213.17              78.3   77.55   92.67             .1       .3
Ineffective Flow     num=        2
   Sta L   Sta R    Elev  Permanent
   62.89   84.665465.523       F
  108.35   122.65465.665       F
Blocked Obstructions     num=        2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0   35.325466.194   97.68  108.355465.621

CROSS SECTION


RIVER: TCC_S2
REACH: 1                  RS: 6087

INPUT
Description: 6087
Station Elevation Data    num=     179
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5454.75    1.99 5454.77    3.98 5454.78    5.97 5454.79    7.95 5454.77
    9.94 5454.69   11.93 5454.62   13.92 5454.54   15.91 5454.56    17.9 5454.55
   19.88 5454.54   21.87 5454.54   23.86 5454.53   25.85 5454.52   27.84 5454.53
   29.83 5454.54   31.82 5454.62    33.8 5454.64   35.79 5454.65   37.78 5454.58
   39.77 5454.59   41.76 5454.53   43.75 5454.45   45.73 5454.42   47.72 5454.42
   49.71  5454.4    51.7 5454.33   53.69 5454.26   55.68 5454.24   57.67  5454.2
   59.65 5454.19   61.64 5454.17   63.63 5454.12   65.62 5454.07   67.61    5454
    69.6 5454.04   71.59 5454.02   73.57 5454.01   75.56 5454.02   77.55 5453.92
   79.54 5453.89   81.53 5453.88   83.52 5453.88    85.5 5453.83   87.49 5453.71
   89.48 5453.66   91.47 5453.48   93.46  5453.4   95.45  5453.3   97.44 5453.21
   99.42 5453.19  101.41 5453.24   103.4 5453.25  105.39 5453.34  107.38 5453.39
  109.37 5453.44  111.35 5453.49  113.34 5453.54  115.33 5453.57  117.32 5453.55
  119.31 5453.57   121.3 5453.55  123.29 5453.52  125.27 5453.49  127.26 5453.46
  129.25 5453.43  131.24  5453.4  133.23 5453.37  135.22 5453.33   137.2 5453.29
  139.19 5453.24  141.18  5453.2  143.17 5453.17  145.16 5453.23  147.15    5453
  149.14 5452.98  151.12 5452.96  153.11 5452.89   155.1  5452.9  157.09 5452.79
  159.08 5452.68  161.07  5452.6  163.06 5452.52  165.04  5452.4  167.03 5452.46
  169.02  5452.4  171.01 5452.38    173 5452.41  174.99 5452.44  176.97 5452.48
  178.97 5452.52  180.97 5452.57  182.71 5452.63  182.97 5452.64  184.97 5452.68
  186.97 5452.77  188.97 5452.82  190.97 5452.88  192.97 5452.92  193.59 5452.98
  194.97 5453.11   196.9 5453.26  196.97 5453.26  198.97 5453.31  200.97 5453.42
  202.97 5453.47  204.97 5453.48  206.97 5453.56  208.97 5453.62  210.97 5453.68
  212.97 5453.66  214.97 5453.61  216.97 5453.63  218.97  5453.6  220.97 5453.56
  222.97 5453.51  224.97 5453.42  226.97 5453.34  228.63 5453.36  228.97 5453.36
  230.97 5453.34  232.96 5453.29  234.96 5453.27  236.96 5453.22  238.96 5453.17
  240.96 5453.17  242.96 5453.19  244.96 5453.25  246.96 5453.33  248.96  5453.4
  250.96 5453.48  252.96 5453.42  254.96 5453.38  256.96 5453.26  258.96 5453.18
  260.96 5453.18  262.96 5453.17  264.96 5453.15  266.96 5453.18  268.96 5453.27
  270.96 5453.37  272.96 5453.56  274.96 5453.73  276.96 5453.81  278.96 5453.93
  280.96 5454.02  282.96 5454.03  284.96    5454  286.96 5453.97  288.95 5453.93
  290.95    5454  292.95 5454.23  294.95 5454.36  296.95 5454.36  298.95 5454.48
  300.95 5454.55  302.95 5454.77  304.95  5454.9  306.95 5454.91  308.95 5454.88
  310.95 5454.76  312.95 5454.63  314.95 5454.67  316.95 5454.74  318.95 5454.79
  320.95 5454.84  322.95 5454.89  324.95 5454.94  326.95 5454.99  328.95 5455.04
  330.95 5455.13  332.95  5455.2  334.95 5455.22  336.95 5455.12  338.95 5455.07
  340.95 5455.02  342.95 5454.96  344.94 5454.86  346.94  5454.8

Manning's n Values         num=        3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13  193.59    .015  228.63     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        153.11   196.9              209.6  125.84    82.3             .1       .3
Ineffective Flow     num=        2
   Sta L   Sta R    Elev  Permanent
      64   88.085463.695       F
  148.12  151.125462.959       F
Blocked Obstructions     num=        3
   Sta L   Sta R    Elev   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0   11.385464.649  105.89  148.125462.958  305.71  346.945464.801

CROSS SECTION


RIVER: TCC_S2
REACH: 1                  RS: 5962

INPUT
Description: 5962
Station Elevation Data    num=     110
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5449.33    1.99 5449.28    3.97 5449.22    5.96 5449.16    7.94 5449.12
    9.93 5449.08   11.91 5449.01    13.9 5448.99   15.88 5448.99   17.87 5448.97
   19.85 5448.94   21.84 5448.93   23.82 5448.92   25.81 5448.89    27.8 5449.02
   29.78 5449.24   31.77 5449.27   33.75 5449.29   34.23 5449.28   35.74 5449.24
   37.72 5449.19   39.71 5449.21   41.69 5449.04   43.68  5448.6   45.66 5448.23
   47.65 5448.03   49.64  5447.9   51.62 5447.85   53.61  5447.9   55.59 5447.91
   57.58 5447.95   59.08 5447.96   59.56 5447.97   61.55 5448.02   63.53 5448.06
   65.52 5448.11    67.5 5448.18   69.22 5448.24   69.49 5448.25   71.47 5448.46
   73.46 5448.64   75.45 5448.83   77.43 5449.01   79.42 5449.13    81.4 5449.32
   83.39 5449.46   85.37 5449.56   87.36 5449.66   89.34 5449.82   91.33  5450.1
   93.31 5450.55    95.3 5451.08   97.29 5451.56   99.27 5451.89  101.26  5452.1
  103.24 5452.09  105.23 5452.03  107.21 5451.74   109.2 5451.39  111.18 5451.17
  113.17 5451.12  115.15 5451.17  117.14 5451.23  119.12 5451.31  121.11 5451.42
   123.1 5451.47  125.08 5451.48  127.07 5451.56  129.05 5451.59  131.04 5451.61
  133.02 5451.66  135.01 5451.69  136.99 5451.74  138.98 5451.72  140.96 5451.67
  142.95 5451.66  144.94 5451.64  146.92 5451.62  148.91 5451.62  150.89 5451.65
  152.88 5451.68  154.86 5451.63  156.85 5451.46  158.83 5451.55  160.82 5451.71
   162.8 5451.87  164.79  5451.8  166.77  5451.7  168.76 5451.68  170.75 5451.69
  172.73 5451.66  174.72 5451.64   176.7 5451.63  178.69 5451.63  180.67 5451.67
  182.66 5451.76  184.64 5451.82  186.63 5451.97  188.61 5452.14   190.6 5452.28
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  192.59 5452.37  194.57 5452.42  196.56 5452.44  198.54  5452.3  200.53 5452.21
  202.51 5452.24   204.5 5452.25  206.48 5452.28  208.47 5452.45  210.45  5452.7

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0    .015   34.23     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        39.71    81.4            218.91   237.1  301.89              .1       .3
Ineffective Flow      num=       2
   Sta L   Sta R    Elev  Permanent
  128.01  138.895461.721       F
  157.33  210.455462.699       F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
  138.89  157.335461.456

CROSS SECTION


RIVER: TCC_S2
REACH: 1                  RS: 5725

INPUT
Description: 5725
Station Elevation Data    num=     163
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5446.69    1.99 5446.67    3.99 5446.66    5.98 5446.65    7.98 5446.66
    9.97 5446.68   11.97 5446.67   13.96 5446.71   15.96 5446.91   17.95 5447.37
   19.95 5447.54   21.94  5447.5   23.94 5447.24   25.93 5446.72   27.93 5446.54
   29.92 5446.52   31.92 5446.52   33.91 5446.54   35.91 5446.47    37.9 5446.48
    39.9 5446.42   41.89  5446.4   43.89  5446.4   45.88 5446.38   47.88 5446.37
   49.87 5446.35   51.87 5446.34   53.86  5446.3   55.86 5446.28   57.85 5446.29
   59.85 5446.27   61.84 5446.25   63.84  5446.2   65.83 5446.18   67.83 5446.12
   69.82 5446.12   71.82  5446.1   73.81 5446.03   75.81    5446    77.8 5445.91
    79.8 5446.13   81.79 5446.37   83.79 5446.38   85.78 5446.27   87.78 5446.17
   89.77 5445.94   91.77 5445.83   93.76 5445.79   95.76 5445.78   97.75 5445.75
   99.75 5445.69  101.74 5445.65  103.74 5445.63  105.73 5445.63  107.73 5445.58
  109.72 5445.54  111.72 5445.52  113.71 5445.47  115.71 5445.41   117.7  5445.4
  119.69 5445.38  121.69 5445.33  123.68 5445.31  125.68 5445.26  127.67 5445.23
  129.67 5445.22  131.66 5445.18  133.66 5445.13  135.65 5445.11  137.65 5445.09
  139.64 5445.06  141.64 5445.03  143.63 5444.99  145.63 5444.96  147.62 5444.91
  149.62 5444.86  151.61 5444.82  153.61 5444.78   155.6 5444.72   157.6 5444.69
  159.59 5444.69  161.59 5444.65  163.58  5444.6  165.58 5444.56  167.57 5444.45
  169.57 5444.47  171.56 5444.64  173.56 5444.72  175.55  5444.5  177.55 5444.15
  179.54 5443.57  181.54 5443.11  183.53 5442.86  185.53 5442.66  187.52 5442.46
  189.52 5442.25  191.51 5442.04  193.51 5441.88   195.5 5441.77  197.48 5441.72
  199.47 5441.71  201.45 5441.72  203.43 5441.72  205.41 5441.82  207.39 5442.12
  209.37 5441.82  211.36 5441.26  213.34 5440.75  215.32 5440.44   217.3  5440.3
  219.28 5440.18  221.26 5440.15  223.25 5440.18  225.23 5440.17  227.21 5440.18
  229.19 5440.23  231.17 5440.23  233.16 5440.29  235.14 5440.33  237.12 5440.35
   239.1 5440.33  241.08 5440.36  242.53 5440.36  243.06 5440.36  245.05 5440.42
  247.03 5440.51  249.01 5440.64  250.99 5440.86  252.69 5441.21  252.97 5441.27
  254.96 5441.76  256.94 5442.28  258.92  5442.8   260.9 5443.25  262.88 5443.64
  264.86 5443.99  266.85 5444.34  268.83 5444.62  270.81 5444.71  272.79  5444.7
  274.77 5444.81  276.75 5444.96  278.74 5445.09  280.72 5445.24   282.7 5445.29
  284.68 5445.25  286.66 5445.15  288.65 5445.07  290.63 5444.99  292.61  5444.9
  294.06 5444.78  294.59 5444.73  296.57 5444.77  298.55 5444.82  300.54 5444.89
  302.52 5444.96   304.5 5445.03  306.48 5445.07  308.46 5445.14  310.45 5445.18
  312.43 5445.23  314.41 5445.29  316.39 5445.32

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0     .06  294.06    .015

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       207.39  256.94           153.79  153.62  156.33              .1       .3

CROSS SECTION


RIVER: TCC_S2
REACH: 1                  RS: 5571

INPUT
Description: 5571
Station Elevation Data    num=     100
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5438.45    1.97  5438.4    3.93 5438.34     5.9 5438.29    7.86 5438.25
    9.83 5438.21   11.79  5438.2   13.76  5438.2   15.72  5438.2   17.69 5438.16
   19.65 5438.26   21.62 5438.35   23.59 5438.42   25.55  5438.4   27.52 5438.34
   29.48 5438.27   31.45 5438.27   33.41 5438.24   35.38 5438.18   37.34  5438.1
   39.31 5438.04   41.27    5438   43.24 5437.91   45.21 5437.89   47.17 5437.89
   49.14 5437.95    51.1 5438.11   53.07 5438.21   55.03 5438.18      57 5438.11
   58.96 5438.09   60.93 5437.99   62.89 5437.74   64.86 5437.74   66.82 5437.86
   68.79 5437.94   70.76 5438.04   72.72 5438.11   74.69 5438.21   76.65 5438.26
   78.62 5438.34   80.58 5438.37   82.55 5438.45   84.51 5438.47   86.48 5438.46
   88.44  5438.5   90.41 5438.54   92.38 5438.55   94.34 5438.55   96.31 5438.56
   98.27 5438.56  100.25  5438.6  102.22 5438.62   104.2 5438.66  106.17 5438.67
  108.14 5438.68  110.12 5438.67  112.09 5438.65  114.07 5438.63  116.04  5438.6
  118.02 5438.61  119.99  5438.6  121.97 5438.57  123.94 5438.57  125.92 5438.49
  127.89 5438.54  129.87 5438.76  131.84 5438.95  133.81 5439.06  135.79 5439.03
  137.76 5439.02  139.74  5439.1  141.71 5439.02  143.69 5438.81  145.07 5438.67
  145.66 5438.61  147.64  5438.4  149.61 5438.32  151.59 5438.21  153.56  5438.1
  155.53 5438.04   155.6 5438.04  157.51 5437.96  159.48 5437.76  161.46 5437.53
  163.43 5437.69  165.41 5437.85  167.38    5438  169.36 5438.15  171.33 5438.27
  173.31 5438.39  175.28 5438.53  177.26 5438.63  179.23 5438.73   181.2 5438.78
  183.18 5438.88  185.15 5438.95  187.13    5439   189.1 5439.09  191.08 5439.11

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0     .06  161.46    .015

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       139.74   189.1            178.48  182.38  190.35              .1       .3
Ineffective Flow      num=       1
   Sta L   Sta R    Elev  Permanent
   17.14   25.23 5448.41       F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
       0   17.145448.145

CROSS SECTION


RIVER: TCC_S2
REACH: 1                  RS: 5389

INPUT
Description: 5389
Station Elevation Data    num=     108
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  5437.6       2  5437.6       4 5437.62    5.99 5437.63    7.99 5437.64
    9.99 5437.65   11.99 5437.66   13.99 5437.69   15.98 5437.71   17.98 5437.75
   19.98 5437.81   21.98 5437.86   23.97 5437.86   25.97 5437.83   27.97 5437.76
   29.97 5437.75   31.97 5437.71   33.96 5437.64   35.96 5437.42   37.96 5437.06
   39.96 5436.66   41.96 5436.56   43.95 5436.62   45.95 5436.53   47.95 5436.45
   49.95 5436.32   51.94 5436.38   53.94 5436.38   55.94 5436.38   57.94  5436.4
   59.94 5436.38   61.93 5436.37   63.93 5436.33   65.93 5436.29   67.93 5436.27
   69.93 5436.21   71.92 5436.15   73.92 5436.11   75.92 5436.08   77.92 5436.07
```

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   79.92 5436.01   81.91 5436.01   83.91 5435.95   85.91 5435.94   87.91 5435.94
    89.9  5435.9    91.9 5435.89    93.9  5435.9    95.9 5435.84    97.9 5435.83
   99.89 5435.72  101.89 5435.66  103.89 5435.61  105.89 5435.48  107.89 5435.39
  109.88 5435.24  111.88 5435.39  113.88 5435.27  115.88  5435.2  117.88 5435.17
  119.87 5435.14  121.87 5435.02  123.87 5434.79  125.87 5434.47  127.86 5434.14
  129.86 5433.74  131.86 5433.31  133.86 5432.84  134.48 5432.71  135.86 5432.42
  137.85 5431.67  138.55 5431.69  139.85 5431.72  141.85 5431.85  143.85 5431.97
  144.49    5432  145.85 5432.06  147.84 5432.11  149.84 5432.19  151.84 5432.34
  153.84 5432.36  155.83 5432.37  157.83 5432.39  159.83 5432.34  161.83 5432.38
  163.83 5432.43  165.82 5432.41  167.82 5432.42  169.82  5432.4  171.82 5432.36
  173.82 5432.38  175.81  5432.3  177.81 5432.25  179.81 5432.12  181.81 5432.03
  183.81 5431.97   185.8 5431.81   187.8  5431.8  188.71  5432.1   189.8 5432.47
   191.8 5432.62  193.79 5432.74  195.79 5432.68  197.79 5432.76  199.79 5432.97
  201.79 5433.12  203.78  5433.1  205.78 5433.14

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .06  138.55    .015  188.71     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        134.48  205.78            218.31  218.73  219.16             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
       0   19.555447.795

CROSS SECTION


RIVER: TCC_S2
REACH: 1                  RS: 5170

INPUT
Description: 5170
Station Elevation Data    num=     110
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5433.51    1.98 5433.46    3.96 5433.41    5.94 5433.33    7.92 5433.21
    9.91 5433.05   11.89    5433   13.87 5433.32   15.85  5433.2   17.83 5433.18
   19.81 5433.18   21.79 5433.14   23.77 5433.07   25.75 5432.99   27.73 5432.85
   29.72 5432.71    31.7 5432.49   33.68 5431.68   35.66  5431.5   37.64 5431.48
   39.62 5431.43    41.6 5431.43   43.58 5431.56   45.56 5431.57   47.54 5431.59
   49.53 5431.52   51.51 5431.48   53.49 5431.22   55.47 5431.25   57.45  5431.2
   59.43 5430.71   61.41 5430.65   63.39  5430.6   65.37 5430.53   67.35 5430.43
   69.34 5430.39   71.32 5430.25    73.3 5430.15   75.28 5430.06   77.26 5429.95
   79.24 5429.81   81.22 5429.71    83.2 5429.65   85.18 5429.88   87.17 5429.88
   89.15 5429.78   91.13 5429.55   93.11 5429.46   95.09 5429.34   97.07 5429.21
   99.05 5429.04  101.03 5428.84  103.01 5428.28  104.99 5428.33  106.98  5428.5
  108.96 5428.41  110.94 5428.19  112.92 5427.89   114.9 5427.61  116.88 5427.39
  118.86 5427.22  120.84 5427.32  122.82 5427.31   124.8 5427.12  125.89 5427.01
  126.79 5426.93  128.77 5426.44  130.75 5425.99  130.94 5425.99  132.73 5425.98
  134.71 5426.09  135.89 5426.16  136.69  5426.2  138.67 5426.31  140.65 5426.42
  142.63 5426.51  144.61 5426.58   146.6 5426.58  148.58 5426.58  150.56 5426.63
  152.54 5426.63  154.52 5426.64   156.5 5426.65  158.48 5426.61  160.46 5426.57
  162.44 5426.52  164.42 5426.49  166.41 5426.45  168.39 5426.37  170.37  5426.3
  172.35 5426.22  174.33 5426.14  176.31 5426.04  178.29 5425.99   179.6  5425.9
  180.27 5425.86  182.25 5425.85  184.23 5425.89  186.22 5426.19   188.2 5426.51
  190.18 5426.55  192.16  5426.7  194.14 5426.94  196.12 5427.24   198.1 5427.44
  200.08 5427.59  202.06 5427.83  204.05 5428.06  206.03 5428.07  208.01 5428.15

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .06  130.94    .015   179.6     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        125.89  206.03            243.15  243.06  242.88             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
       0   13.76 5443.33

CROSS SECTION


RIVER: TCC_S2
REACH: 1                  RS: 4927

INPUT
Description: 4927
Station Elevation Data    num=     112
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5420.46    1.98 5420.45    3.97 5420.43    5.95 5420.41    7.94 5420.44
    9.92 5420.44   11.91 5420.42   13.89 5420.37   15.88 5420.34   17.86 5420.37
   19.85 5420.33   21.83 5420.31   23.82 5420.33    25.8 5420.37   27.79 5420.38
   29.77 5420.39   31.76 5420.42   33.74 5420.44   35.72 5420.46   37.71 5420.47
   39.69 5420.48   41.68 5420.46   43.66 5420.42   45.65 5420.44   47.63 5420.45
   49.62 5420.46    51.6 5420.46   53.59 5420.44   55.57 5420.46   57.56 5420.51
   59.54  5420.5   61.53 5420.43   63.51  5420.4    65.5 5420.39   67.48 5420.44
   69.47  5420.5   71.45 5420.51   73.43 5420.52   75.42 5420.51    77.4 5420.51
   79.39  5420.5   81.37 5420.51   83.36 5420.54   85.34 5420.58   87.33 5420.65
   89.31 5420.67    91.3 5420.71   93.28 5420.75   95.27 5420.76   97.25 5420.76
   99.24 5420.76  101.22 5420.81  103.21 5420.92  105.19 5420.79  107.17 5420.18
  109.16 5419.36  111.14 5418.41  112.29 5418.14  113.13 5417.94  115.11 5417.68
   117.1  5417.5  119.08  5417.7  121.07 5418.17  122.29 5418.59  123.05 5418.85
  125.04 5419.75  127.02 5420.26  129.01 5420.27  130.99 5420.26  132.98 5420.29
  133.55 5420.24  134.96  5420.1  136.95 5419.57  138.93 5419.66  140.92 5419.78
   142.9 5419.87  144.88 5419.96  146.87 5420.04  148.85 5420.12  150.84 5420.21
  152.82 5420.24  154.81 5420.22  156.79 5420.26  158.78 5420.28  160.76 5420.29
  162.75 5420.31  164.73 5420.28  166.72 5420.27   168.7 5420.22  170.69 5420.17
  172.67 5420.15  174.66 5420.05  176.64 5419.98  178.62 5419.91  180.61 5419.82
  182.59 5419.69  184.58 5419.57  186.56  5419.5  188.55 5420.16  190.53 5420.29
  192.52 5420.52   194.5 5420.72  196.49 5420.75  198.47 5420.73  200.46 5420.82
  202.44 5420.95  203.33 5421.23  204.43 5421.57  206.41 5422.22   208.4 5422.92
  210.38 5423.62  212.37 5423.96

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05  133.55    .015  203.33     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        103.21   194.5            336.23  335.86  335.49             .1       .3

CROSS SECTION


RIVER: TCC_S2
REACH: 1                  RS: 4591

INPUT
Description: 4591
Station Elevation Data    num=     136
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5413.21    1.99 5413.08    3.98 5413.02    5.96 5413.07    7.95 5413.06
    9.94 5412.99   11.93 5412.83   13.91 5412.86    15.9 5412.79   17.89 5412.62
   19.88 5412.64   21.87 5412.79   23.85 5412.87   25.84 5412.92   27.83 5412.95
   29.82 5412.89   31.81 5412.84   33.79 5412.78   35.78 5412.71   37.77 5412.61
   39.76 5412.51   41.74 5412.43   43.73 5412.37   45.72 5412.34   47.71 5412.34
    49.7 5412.32   51.68 5412.23   53.67 5412.17   55.66 5412.15   57.65 5412.18
   59.63 5412.16   61.62 5412.14   63.61 5412.15    65.6 5412.14   67.59 5412.14
   69.57 5412.13   71.56 5412.13   73.55 5412.16   75.54 5412.11   77.52 5412.06
   79.51 5412.07    81.5 5412.08   83.49  5412.1   85.48  5412.1   87.46 5412.07
   89.45 5412.07   91.44 5412.04   93.43 5412.04   95.42 5412.03    97.4 5412.03
   99.39 5412.05  101.38 5412.03  103.37 5411.99  105.35 5411.93  107.34 5411.85
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  109.33 5411.83  111.32 5411.83  113.31 5411.84  115.29 5411.82  117.28  5411.8
  119.27 5411.75  121.26 5411.68  123.24 5411.67  125.23 5411.69  127.22 5411.72
  129.21 5411.72   131.2 5411.72  133.18 5411.74  135.17 5411.77  137.16 5411.75
  139.15 5411.72  141.13 5411.75  143.12 5411.76  145.11 5411.76   147.1 5411.82
  149.09  5411.9  151.07 5412.01  153.06 5412.14  155.05 5412.22  157.04 5412.29
  159.02 5412.35  161.01 5412.35     163  5412.1  164.99 5411.46  166.98  5410.5
  168.47    5410  168.96 5409.84  170.95 5409.91  172.94 5410.11  174.93 5410.02
  176.92 5410.27  178.48 5411.04   178.9 5411.25  180.89 5411.71  182.88 5411.68
  184.87 5411.59  186.85  5411.5  186.96 5411.49  188.84 5411.39  190.83 5411.36
  192.82 5411.36  194.81 5410.99  196.79 5410.78  198.78  5410.9  200.77 5411.05
  202.76 5411.19  204.74  5411.3  206.73 5411.36  208.72 5411.47  210.71 5411.54
   212.7 5411.59  214.68 5411.61  216.67 5411.62  218.66 5411.67  220.65 5411.72
  222.64 5411.66  224.62 5411.63  226.61 5411.52   228.6 5411.52  230.59 5411.48
  232.57 5411.42  234.56 5411.37  236.55 5411.32  238.54 5411.22  240.53 5411.15
  242.51 5411.02   244.5 5410.91  246.49 5411.24  248.48 5411.41  250.46 5411.57
  251.33 5411.76  252.45    5412  254.44 5412.05  256.43 5412.13  258.42 5412.03
   260.4 5412.03

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05  186.96    .015  251.33     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        161.01  256.43             47.9    48.3   48.68             .1       .3

CROSS SECTION


RIVER: TCC_S2
REACH: 1                  RS: 4543

INPUT
Description: 4543
Station Elevation Data    num=     141
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5412.26    1.99 5412.25    3.99 5412.18    5.98 5412.17    7.98 5412.19
    9.97 5412.15   11.97 5412.12   13.96 5412.06   15.96 5412.06   17.95 5412.04
   19.95 5411.98   21.94 5411.94   23.94 5411.92   25.93 5411.88   27.93 5411.86
   29.92 5411.85   31.92 5411.82   33.91  5411.8   35.91 5411.77    37.9 5411.76
    39.9 5411.72   41.89 5411.73   43.89 5411.68   45.88 5411.67   47.88 5411.67
   49.87 5411.63   51.87 5411.61   53.86 5411.62   55.86 5411.57   57.85 5411.55
   59.85 5411.55   61.84 5411.51   63.84 5411.45   65.83 5411.43   67.83 5411.44
   69.82  5411.4   71.82 5411.39   73.81 5411.42   75.81 5411.33    77.8 5411.34
    79.8 5411.26   81.79 5411.26   83.79 5411.25   85.78 5411.25   87.78 5411.22
   89.77 5411.19   91.77 5411.17   93.76 5411.14   95.76 5411.13   97.75 5411.09
   99.75 5411.08  101.74 5411.04  103.74 5411.02  105.73 5411.01  107.73    5411
  109.72 5410.95  111.72 5410.91  113.71 5410.92  115.71 5410.89   117.7 5410.85
   119.7 5410.86  121.69  5410.8  123.69 5410.79  125.68  5410.8  127.68 5410.75
  129.67 5410.71  131.67 5410.68  133.66 5410.69  135.66 5410.61  137.65 5410.64
  139.65 5410.59  141.64 5410.56  143.64 5410.55  145.63 5410.52  147.63  5410.5
  149.62 5410.49  151.62 5410.46  153.61 5410.44  155.61 5410.42   157.6 5410.39
   159.6 5410.33  161.59 5410.25  163.59 5410.24  165.58 5410.23  167.58 5410.17
  169.57 5410.17  171.57 5410.13  173.56  5410.1  175.56 5410.04  177.55 5409.98
  179.55 5409.98  181.54 5409.96  183.54 5409.89  185.53 5409.85  187.53 5409.82
  189.52  5409.8  191.52 5409.77  193.51 5409.76  195.07 5409.74  195.51 5409.74
   197.5 5409.71   199.5 5409.67  201.49  5409.7  203.49 5409.65  205.35  5409.7
  205.48  5409.7  207.48 5409.67  209.47  5409.6  211.47 5409.55  213.46  5409.6
  215.46 5409.71  217.45 5409.78  219.44 5409.91  221.44 5410.02  223.43 5410.04
  225.43 5410.15  227.42 5410.24  229.42 5410.23  231.41 5410.32  233.41 5410.35
   235.4 5410.39   237.4 5410.41  239.39  5410.4  241.39 5410.38  243.38 5410.35
  245.38 5410.31  247.37 5410.29  249.37 5410.25  251.36  5410.2  253.36 5410.15
  255.35 5410.06  257.35 5409.98  259.34 5409.85  261.34 5409.72  263.33 5409.75
  265.33 5409.95  267.32 5410.08  269.32 5410.38  271.31 5410.59  273.31  5410.7
   275.3 5410.69

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0    .015  269.32     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        137.65  273.31             88.65   88.02    87.4             .1       .3

CROSS SECTION


RIVER: TCC_S2
REACH: 1                  RS: 4455

INPUT
Description: 4455
Station Elevation Data    num=      95
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5409.88    1.98 5409.87    3.96 5409.85    5.94 5409.83    7.92 5409.81
     9.9  5409.8   11.88 5409.78   13.86 5409.76   15.84 5409.74   17.82  5409.7
    19.8 5409.67   21.78 5409.73   23.76 5409.86   25.74 5409.73   27.72  5409.5
    29.7 5409.36   31.68 5409.22   33.66 5409.06   35.64 5408.89   37.63 5408.78
   39.61 5408.64   41.59 5408.55   43.57 5408.48   45.55 5408.42   47.53 5408.34
   49.51  5408.4   51.49 5408.39   53.47 5408.46   55.45 5408.55   57.43 5408.59
   59.41 5408.58   61.39 5408.64   63.37 5408.41   65.35  5408.2   67.33 5408.07
   67.36 5408.07   69.31    5408   71.29 5408.06   71.59 5408.07   73.27 5408.12
   75.25 5407.85   77.23 5407.45   79.21 5407.58   81.19 5407.69   81.62 5407.72
   83.17 5407.84   85.15 5407.92   87.13 5407.98   89.11 5408.05   91.09 5408.16
   93.07 5408.13   95.05  5408.2   97.03 5408.22   99.01 5408.21  100.99 5408.26
  102.97 5408.25  104.95 5408.22  106.93 5408.19  108.92 5408.15   110.9 5408.14
  112.88 5408.08  114.86 5408.06  116.84 5407.99  118.82 5407.95   120.8 5407.85
  122.78 5407.74  124.76 5407.63  126.74 5407.96  128.72 5408.26   130.7  5408.4
  132.68 5408.55  133.63 5408.64  134.66 5408.73  136.64 5408.79  138.62 5408.74
   140.6 5408.62  142.58 5408.52  144.56 5408.43  146.54 5408.37  148.52 5408.36
   150.5 5408.35  152.48 5408.28  154.46  5408.2  156.44  5408.2  158.42 5408.23
   160.4 5408.27  162.38  5408.3  164.36 5408.32  166.34 5408.44  168.32 5408.44
   170.3 5408.39  172.28 5408.34  174.26 5408.29  176.24 5408.24  178.22  5408.2

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   67.36    .015  133.63     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         61.39  136.64            147.91  147.74  147.58             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0   26.275419.652  166.45  178.225418.196

CROSS SECTION


RIVER: TCC_S2
REACH: 1                  RS: 4307

INPUT
Description: 4307
Station Elevation Data    num=      87
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  5405.9    1.98  5405.9    3.97 5405.89    5.95 5405.88    7.93 5405.88
    9.92 5405.87    11.9 5405.87   13.88 5405.86   15.86 5405.85   17.85 5405.82
   19.83 5405.77   21.81 5405.64    23.8 5405.44   25.78 5405.39   27.76 5405.38
   29.74 5405.32   31.73 5405.13   33.71 5404.89   35.69 5404.72   37.68  5404.6
   39.66 5404.64   41.64 5404.82   43.63 5405.03   45.61 5405.08   47.59 5405.16
   49.57 5405.17   51.56 5405.15    53.1 5405.07   53.54 5405.04   55.52 5404.96
   57.51 5404.97   57.63 5404.97   59.49 5404.89   61.47  5404.5   63.46 5404.66
   65.44 5404.79   67.42 5404.87   67.69 5404.89    69.4    5405   71.39 5405.05
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   73.37 5405.11   75.35 5405.21   77.34 5405.22   79.32 5405.26    81.3  5405.3
   83.29  5405.3   85.27 5405.31   87.25 5405.32   89.23  5405.3   91.22 5405.24
    93.2 5405.25   95.18 5405.21   97.17 5405.14   99.15 5405.07  101.13 5405.01
  103.11 5404.94   105.1 5404.86  107.08 5404.73  109.06 5404.58  111.05  5404.5
  113.03 5404.94  115.01 5405.16     117 5405.05  117.78 5405.03  118.98 5405.01
  120.96 5405.05  122.94 5405.25  124.93 5405.45  126.91 5405.63  128.89 5405.67
  130.88 5405.64  132.86 5405.67  134.84 5405.65  136.83 5405.61  138.81 5405.55
  140.79 5405.44  142.77 5405.36  144.76 5405.42  146.74 5405.53  148.72 5405.55
  150.71 5405.59  152.69 5405.65  154.67 5405.66  156.65 5405.67  158.64 5405.68
  160.62 5405.68   162.6 5405.69

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13    53.1    .015  117.78     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         57.63  126.91             90.83    91.2   91.57             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0   23.065415.476  158.93   162.65415.687

CROSS SECTION


RIVER: TCC_S2
REACH: 1                  RS: 4216

INPUT
Description: 4216
Station Elevation Data    num=     139
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5406.82    1.99 5406.79    3.98 5406.79    5.97 5406.75    7.96 5406.67
    9.95 5406.58   11.94 5406.49   13.93 5406.41   15.92  5406.2   17.91 5406.07
    19.9 5405.93   21.89 5405.75   23.88 5405.63   25.87 5405.51   27.86 5405.41
   29.85 5405.18   31.84 5404.78   33.83 5404.49   35.82 5404.25   37.81 5403.98
    39.8 5403.85   41.79 5403.83   43.78 5403.79   45.77 5403.82   47.76 5403.89
   49.75 5403.89   51.74 5403.85   53.73 5403.79   55.72 5403.71   57.71 5403.64
    59.7 5403.62    61.7  5403.6   63.69 5403.56   65.68 5403.52   67.67  5403.4
   69.66 5403.33   71.65 5403.32   73.64 5403.32   75.63  5403.3   77.62 5403.31
   79.61 5403.31    81.6 5403.34   83.59 5403.37   85.58 5403.36   87.57 5403.39
   89.56 5403.42   91.55 5403.42   93.54 5403.44   95.53 5403.51   97.52 5403.58
   99.51 5403.66   101.5 5403.69  103.49 5403.75  105.48 5403.75  107.47 5403.74
  109.46  5403.7  111.45 5403.74  113.44 5403.79  115.43 5403.84  117.42  5403.9
  119.41  5403.9   121.4 5403.87  123.39 5403.96  125.38 5404.03  127.37 5404.11
  129.36 5404.28  131.35 5404.36  133.34 5404.39  135.33  5404.4  137.32 5404.42
  139.31  5404.5   141.3 5404.54  143.29 5404.51  145.28 5404.47  147.27 5404.48
  148.39 5404.46  149.26 5404.45  151.25 5404.43  152.18 5404.37  153.24 5404.31
  155.23  5404.1  157.22 5403.81  159.21 5403.96   161.2 5404.08   162.2 5404.13
  163.19 5404.18  165.18 5404.24  167.17 5404.31  169.16 5404.36  171.15 5404.39
  173.14 5404.42  175.13 5404.42  177.12 5404.41  179.11 5404.46   181.1 5404.45
  183.09 5404.46  185.08 5404.46  187.08 5404.39  189.07 5404.35  191.06 5404.33
  193.05 5404.24  195.04 5404.15  197.03 5404.08  199.02 5403.93  201.01 5403.82
     203 5403.69  204.99 5403.52  206.98 5403.91  208.97 5404.31  210.96 5404.28
  212.89 5404.06  212.95 5404.05  214.94 5404.05  216.93  5404.2  218.92 5404.35
  220.91 5404.45   222.9 5404.53  224.89 5404.68  226.88 5404.79  228.87 5404.91
  230.86 5405.14  232.85 5405.48  234.84  5405.8  236.83  5406.1  238.82 5406.45
  240.81 5406.84   242.8 5407.15  244.79 5407.58  246.78 5408.01  248.77 5408.59
  250.76 5408.94  252.75 5409.24  254.74 5409.36  256.73 5409.15  258.72 5408.32
  260.71 5407.41   262.7 5406.54  264.69 5405.72  266.68 5404.95

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13  148.39    .015  212.89     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        152.18   222.9            177.42  174.64   171.9             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
       0      99    5415       T
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0    17.45416.082  258.66  266.68 5414.95

CROSS SECTION


RIVER: TCC_S2
REACH: 1                  RS: 4041

INPUT
Description: 4041
Station Elevation Data    num=     150
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5401.52    1.99 5401.54    3.99 5401.56    5.98  5401.6    7.98  5401.6
    9.97 5401.33   11.97  5401.2   13.96 5401.16   15.96 5401.19   17.95 5401.15
   19.95 5401.08   21.94 5401.09   23.94 5401.11   25.93 5401.15   27.93 5401.27
   29.92 5401.33   31.92 5401.29   33.91 5401.26   35.91 5401.21    37.9 5401.17
    39.9 5401.14   41.89 5401.11   43.89 5401.07   45.88 5400.94   47.88 5400.74
   49.87 5400.49   51.87 5400.11   53.86 5399.72   55.86 5399.33   57.85 5398.94
   59.85 5398.55   61.84 5398.21   63.84 5398.14   65.83 5398.13   67.83 5398.12
   69.82  5398.1   71.82 5398.03   73.81    5398   75.81 5398.06    77.8 5398.16
    79.8 5398.32   81.79 5398.57   83.79 5398.87   85.78 5399.16   87.78 5399.45
   89.77 5399.57   91.77 5399.62   93.76 5399.52   95.76 5399.44   97.75 5399.46
   99.75 5399.51  101.74 5399.48  103.74 5399.41  105.73 5399.38  107.73 5399.32
  109.72 5399.29  111.72 5399.24  113.71 5399.29  115.71 5399.33   117.7 5399.62
   119.7 5399.88  121.69    5400  123.69 5400.06  125.68 5400.06  127.68 5400.02
  129.67 5400.02  131.67 5400.01  132.44 5400.06  133.66 5400.15  135.66 5400.11
  137.65 5400.15  138.34 5399.98  139.65 5399.65  141.64 5399.71  143.64 5399.85
  145.63 5399.97  147.63 5400.09  148.87 5400.14  149.62 5400.17  151.62 5400.28
  153.61 5400.37  155.61 5400.39   157.6 5400.44   159.6 5400.49  161.59 5400.48
  163.59 5400.58  165.58 5400.63  167.57 5400.71  169.57 5400.68  171.56 5400.64
  173.56 5400.62  175.55 5400.62  177.55 5400.61  179.54 5400.57  181.54 5400.54
  183.53 5400.54  185.53 5400.46  187.52 5400.42  189.52 5400.31  191.51 5400.23
  193.51 5400.13   195.5 5400.25   197.5 5400.39  199.49 5400.42  201.49 5400.36
  202.38 5400.35  203.48 5400.33  205.48 5400.62  207.47 5401.51  209.47 5402.18
  211.46 5402.63  213.42 5402.94  215.38 5402.98  217.35 5403.14  219.31 5403.32
  221.27 5403.32  223.23 5403.27  225.19 5403.16  227.15 5403.16  229.11    5403
  231.07 5403.02  233.03 5403.14  234.99 5403.24  236.95 5403.33  238.91 5403.29
  240.87 5403.21  242.83  5403.2  244.79 5403.23  246.75 5403.35  248.71 5403.53
  250.67  5403.7  252.63 5403.86  254.59 5404.03  256.55 5404.13  258.51 5404.09
  260.47    5404  262.44 5403.98   264.4 5403.97  266.36 5404.01  268.32 5404.22
  270.28 5404.51  272.24  5404.5   274.2 5404.25  276.16 5404.06  278.12 5403.96
  280.08 5404.01  282.04 5404.05     284 5404.12  285.96 5404.16  287.92  5404.2

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13  132.44    .015  202.38     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        137.65  207.47            197.95   199.9  201.78             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
   45.74   92.415409.625

CROSS SECTION


RIVER: TCC_S2
REACH: 1                  RS: 3841
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INPUT
Description: 3841
Station Elevation Data    num=     181
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5394.32    1.99  5394.3    3.98 5394.27    5.96 5394.22    7.95 5394.14
    9.94 5394.11   11.93  5394.1   13.92 5394.09   15.91 5393.93   17.89  5393.9
   19.88 5393.85   21.87 5393.79   23.86 5393.74   25.85 5393.66   27.84 5393.55
   29.82 5393.41   31.81 5393.22    33.8 5393.07   35.79 5392.87   37.78 5392.63
   39.77  5392.4   41.75 5392.15   43.74 5391.96   45.44 5391.73   45.73 5391.69
   47.72 5391.46   49.71 5391.32    51.7 5391.15   53.68 5391.19   55.67 5391.33
   57.66 5391.46   59.65 5391.53   61.64 5391.65   63.62 5391.72   65.61 5391.79
    67.6 5391.84   69.59 5391.88   71.58 5391.92   73.57 5391.94   75.55 5391.98
   77.54 5391.99   79.53 5391.98   81.52 5391.98   83.51 5391.97    85.5 5391.92
   87.48 5391.88   89.47 5391.87   91.46 5391.84   93.45 5391.78   95.44 5391.72
   97.43 5391.63   97.71 5391.62   99.41 5391.55   101.4 5391.44  103.39 5391.55
  105.38  5391.8  107.37 5391.98  107.85 5392.08  109.36 5392.39  111.34  5392.8
  111.72 5392.83  113.33 5392.95  115.32 5392.95  117.31 5392.89   119.3 5392.86
  121.28 5392.88  123.27 5392.85  125.26 5392.85  127.25 5392.87  129.24 5392.75
  131.23 5392.46  133.21 5392.15   135.2 5392.01  137.19 5391.97  139.18    5392
  141.17 5391.95  143.16 5391.92  145.14 5392.01  147.13 5392.08  149.12  5392.1
  151.11 5392.15   153.1  5392.3  155.09 5392.38  157.07 5392.43  159.06 5392.45
  161.05  5392.5  163.04 5392.54  165.03 5392.59  167.02 5392.64     169 5392.69
  170.99 5392.81  172.98 5392.79  174.97 5392.66  176.96 5392.61  178.94 5392.59
  180.93 5392.57  182.92 5392.56  184.91 5392.54   186.9 5392.56  188.89 5392.61
  190.87 5392.63  192.86 5392.63  194.85 5392.62  196.84 5392.61  198.83 5392.61
  200.82  5392.6   202.8 5392.59  204.79 5392.59  206.78 5392.58  208.77 5392.56
  210.76 5392.56  212.75 5392.59  214.73 5392.57  216.72 5392.52  218.71 5392.59
   220.7 5392.63  222.69 5392.56  224.68 5392.58  226.66 5392.54  228.65 5392.48
  230.64 5392.48  232.63 5392.43  234.62 5392.42  236.61 5392.41  238.59 5392.36
  240.58 5392.29  242.57 5392.28  244.56  5392.3  246.55 5392.35  248.53 5392.36
  250.52 5392.36  252.51 5392.38   254.5 5392.25  256.49 5392.42  258.48 5392.67
  260.46 5392.84  262.45 5392.87  264.44 5392.85  266.43 5392.87  268.42 5392.79
  270.41 5392.74  272.39 5392.93  274.38 5392.96  276.37 5393.06  278.36 5393.01
  280.35 5392.88  282.34  5392.9  284.32 5392.96  286.31 5393.08  288.26 5393.23
   290.2 5393.39  292.15 5393.53   294.1 5393.68  296.04 5393.79  297.99 5393.91
  299.94 5394.06  301.88 5394.39  303.83 5394.61  305.78 5394.73  307.72 5394.93
  309.67 5395.12  311.62 5394.96  313.56 5394.93  315.51 5394.95  317.45 5394.98
   319.4 5394.94  321.35 5394.93  323.29 5394.92  325.24 5394.91  327.19  5394.9
  329.13 5394.89  331.08 5394.88  333.03 5394.87  334.97 5394.86  336.92 5394.84
  338.87 5394.83  340.81  5394.8  342.76 5394.81  344.71 5394.83  346.65 5394.84
   348.6 5394.84

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   45.44    .015  111.72     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          29.82  111.72             161.3   162.1  162.88             .1       .3
Blocked Obstructions      num=       3
   Sta L   Sta R    Elev   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0    15.75403.936  154.32  213.555402.607  310.55   348.65404.844

CROSS SECTION


RIVER: TCC_S2
REACH: 1                  RS: 3679

INPUT
Description: 3679
Station Elevation Data    num=     158
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5391.11    1.99 5391.05    3.97 5390.94    5.96 5390.87    7.94 5390.91
    9.93 5390.93   11.91 5390.92   13.9 5390.94   15.88  5390.9   17.87 5390.85
   19.86 5390.86   21.84 5390.89   23.83 5390.91   25.81 5390.93    27.8 5390.88
   29.78 5390.68   31.77 5390.46   33.75 5390.28   35.74 5390.15    36.1 5390.13
   37.73 5390.01   39.71 5389.95    41.7 5389.73   43.68 5388.96   45.67 5388.24
   47.65 5387.86   49.64 5387.87   51.62 5387.98   53.61 5388.12    55.6 5388.23
   57.58 5388.31   59.57 5388.38   61.55 5388.44   63.54 5388.48   65.52 5388.48
   67.51 5388.51   69.49 5388.52   71.48 5388.58   73.46  5388.6   75.45 5388.55
   77.44 5388.52   79.42 5388.48   81.41 5388.43   83.39 5388.39   85.38 5388.34
   87.36 5388.29   89.35 5388.23   91.33 5388.14   93.02 5388.06   93.32 5388.04
   95.31 5387.93   97.29  5387.9   99.28 5388.08  101.26 5388.23  103.05 5388.22
  103.25 5388.21  105.23 5388.25  107.16 5388.36  107.22 5388.36   109.2 5388.39
  111.19 5388.42  113.18 5388.56  115.16 5388.65  117.15 5388.73  119.13 5388.83
  121.12 5389.03   123.1  5389.1  125.09 5389.11  127.07 5389.17  129.06 5389.26
  131.05 5389.31  133.03 5389.35  135.02 5389.41     137 5389.46  138.99 5389.46
  140.97 5389.45  142.96 5389.49  144.94 5389.63  146.93 5389.69  148.92 5389.74
   150.9 5389.93  152.89 5390.02  154.87 5390.01  156.86 5389.93  158.84 5389.55
  160.83 5389.55  162.81 5389.77   164.8 5389.85  166.79 5389.89  168.77  5389.8
  170.76  5389.8  172.74 5389.82  174.73 5389.87  176.71 5389.87   178.7  5389.8
  180.68 5389.73  182.67 5389.69  184.65 5389.65  186.64 5389.61  188.63  5389.6
  190.61 5389.64   192.6 5389.69  194.58 5389.74  196.57 5389.74  198.55 5389.72
  200.54 5389.69  202.52 5389.65  204.51 5389.56   206.5 5389.51  208.48 5389.54
  210.47 5389.57  212.45 5389.59  214.44  5389.6  216.42 5389.56  218.41 5389.51
  220.39 5389.47  222.38 5389.53  224.37 5389.44  226.35 5389.35  228.34 5389.25
  230.32 5389.11  232.31 5389.08  234.29 5389.11  236.28 5389.08  238.26 5389.12
  240.25 5389.12  242.24 5389.13  244.22 5389.13  246.21 5389.21  248.19 5389.24
  250.18 5389.26  252.16 5389.43  254.15 5389.64  256.13  5389.8  258.12 5390.16
  260.08 5390.54  262.04 5390.83     264 5391.11  265.97 5391.35  267.93 5391.61
  269.89 5391.73  271.85 5391.86  273.81 5391.86  275.77 5391.83  277.73 5391.81
   279.7 5391.78  281.66 5391.76  283.62 5391.74  285.58 5391.72  287.54 5391.75
   289.5 5391.77  291.46  5391.8  293.43 5391.83  295.39 5391.85  297.35 5391.88
  299.31  5391.9  301.27 5391.93  303.23 5391.97

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13    36.1    .015  107.16     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          41.7  125.09            110.76  111.05  111.32             .1       .3
Blocked Obstructions      num=       3
   Sta L   Sta R    Elev   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0     9.555400.926  161.33  217.025399.544  270.68  303.235401.972

CROSS SECTION


RIVER: TCC_S2
REACH: 1                  RS: 3568

INPUT
Description: 3568
Station Elevation Data    num=     190
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5388.74    1.99 5388.67    3.98  5388.6    5.97 5388.46    7.95 5388.31
    9.94 5388.28   11.93 5388.21   13.92 5388.31   15.91 5388.33    17.9 5388.27
   19.88 5388.26   21.87 5388.21   23.86 5388.25   25.85 5388.26   27.84 5388.19
   29.83  5388.2   31.81 5388.15    33.8 5388.11   35.79 5388.06   37.78 5387.99
   39.77 5387.94   41.76  5387.9   43.75 5387.85   45.73  5387.8   47.72 5387.72
   49.71 5387.67    51.7 5387.56   53.69 5387.59    54.8 5387.58   55.68 5387.57
   57.66 5387.36   59.65 5386.72   61.64  5386.2  63.63 5386.01   65.62 5385.66
   67.61 5385.58   69.59 5385.63   71.58 5385.72   73.57  5385.8   75.56 5385.85
   77.55 5385.91   79.54 5385.97   81.53 5386.04   83.51 5386.03    85.5 5386.08
   87.49 5386.12   89.48 5386.17   91.47 5386.23   93.46 5386.25   95.44 5386.24
   97.43 5386.23   99.42  5386.2  101.41 5386.17   103.4 5386.15  105.39 5386.13
  107.37 5386.07  109.36 5386.01  111.35 5385.92  111.58 5385.91  113.34 5385.81
  115.33  5385.7  117.32 5385.56  119.31 5385.58  121.29  5385.8  121.59 5385.83
  123.28    5386  125.27 5386.83   126.6 5387.16  127.26 5387.33  129.25 5387.28
  131.24  5387.3  133.22 5387.28  135.21 5387.07   137.2 5386.88  139.19 5386.89
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  141.18 5386.97  143.17 5386.96  145.16 5386.94  147.14 5386.88  149.13 5386.79
  151.12 5386.77  153.11  5386.8   155.1 5386.84  157.09 5386.84  159.07 5386.95
  161.06 5387.13  163.05 5387.23  165.04 5387.19  167.03 5387.08  169.02 5386.98
     171 5386.89  172.99 5386.87  174.98 5387.05  176.97 5387.32  178.96 5387.28
  180.95 5387.14  182.93 5387.09  184.92 5387.05  186.91 5387.13   188.9 5387.27
  190.89 5387.32  192.88 5387.22  194.87 5387.18  196.85  5387.2  198.84 5387.19
  200.83 5387.15  202.82 5387.13  204.81 5387.13   206.8  5387.1  208.78 5387.09
  210.77 5387.13  212.76 5387.17  214.75  5387.2  216.74 5387.25  218.73 5387.27
  220.71 5387.29   222.7 5387.29  224.69 5387.28  226.68 5387.18  228.67 5387.02
  230.66  5386.8  232.65 5386.76  234.63 5386.78  236.62 5386.86  238.61 5386.93
   240.6 5386.96  242.59 5386.98  244.58 5386.97  246.56 5386.97  248.55 5386.99
  250.54 5386.99  252.53 5386.97  254.52 5387.03  256.51 5387.03  258.49 5386.98
  260.48 5386.99  262.47 5387.01  264.46 5387.01  266.45 5387.05  268.44 5387.04
  270.43 5387.03  272.41 5387.09   274.4 5387.12  276.39 5387.05  278.38 5387.13
  280.37  5387.1  282.36 5387.07  284.34 5387.06  286.33 5387.06  288.32 5387.05
  290.31 5387.12   292.3  5387.1  294.29 5387.12  296.28 5387.09  298.26 5387.13
  300.25 5387.12  302.24 5387.11  304.23  5387.1  306.22 5387.15  308.21 5387.18
  310.19 5387.21  312.18 5387.25  314.17 5387.26  316.13 5387.29  318.09 5387.29
  320.05 5387.31  322.01 5387.32  323.97 5387.31  325.92 5387.36  327.88 5387.25
  329.84 5387.28   331.8 5387.33  333.76 5387.41  335.72  5387.5  337.68 5387.57
  339.64 5387.63  341.59 5387.71  343.55 5387.75  345.51  5387.8  347.47 5387.83
  349.43 5387.86  351.39 5387.87  353.35 5387.91  355.31 5388.02  357.26 5388.11
  359.22 5388.15  361.18 5388.13  363.14 5388.13   365.1 5388.12  367.06 5388.13

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13    54.8    .015   126.6     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         55.68  127.26             85.67   83.86   82.08              .1       .3
Ineffective Flow     num=       3
   Sta L   Sta R    Elev  Permanent
  168.12  219.025397.277       F
  230.22  258.525396.985       F
  298.36  340.085397.653       F
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0    8.775398.296  349.65  367.065398.128

CROSS SECTION


RIVER: TCC_S2
REACH: 1                  RS: 3484

INPUT
Description: 3484
Station Elevation Data    num=     151
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5386.12    1.97 5386.05    3.94 5385.97    5.91 5385.89    7.88 5385.78
    9.86 5385.66   11.83 5385.55    13.8 5385.59   15.77 5385.65    16.6 5385.53
   17.74 5385.36   19.71 5384.78   21.68  5384.2   23.65 5383.87   25.62 5383.68
   27.59 5383.52   29.57 5383.67   31.54 5383.83   33.51 5383.93   35.48 5384.04
   37.45 5384.08   39.42 5384.12   41.39 5384.24   43.36 5384.29   45.33  5384.3
   47.31 5384.34   49.28 5384.39   51.25 5384.46   53.22 5384.51   55.19 5384.55
   57.16 5384.57   59.13 5384.59    61.1 5384.57   63.07 5384.56   65.05 5384.55
   67.02 5384.55   68.99 5384.51   70.96 5384.48   72.93 5384.44    74.9 5384.41
   75.09  5384.4   76.87 5384.37   78.84 5384.28   80.81 5384.21   82.78 5384.12
   84.76    5384   85.45 5384.01   86.73 5384.01    88.7 5384.33   90.67 5384.43
   91.52 5384.59   92.64  5384.8   94.61 5385.13   96.58 5385.19   98.55 5385.13
  100.52 5385.06   102.5 5384.99  104.47 5384.83  106.44 5384.66  108.41 5384.65
  110.38 5384.71  112.35 5384.73  114.32  5384.7  116.29 5384.72  118.26 5384.76
  120.23 5384.85  122.21 5385.09  124.18  5385.1  126.15 5385.11  128.12 5385.06
  130.09 5385.04  132.06 5385.03  134.03 5384.98  136.02 5384.95     138 5384.92
  139.98  5384.9  141.96 5384.88  143.95 5384.85  145.93 5384.83  147.91 5384.81
  149.89 5384.77  151.88 5384.75  153.86 5384.75  155.84 5384.76  157.82 5384.73
  159.81 5384.75  161.79 5384.81  163.77 5384.84  165.75 5384.83  167.74 5384.84
  169.72 5384.83   171.7 5384.83  173.68 5384.84  175.67 5384.84  177.65 5384.84
  179.63 5384.84  181.61 5384.83   183.6 5384.84  185.58 5384.83  187.56 5384.79
  189.54 5384.74  191.53 5384.68  193.51 5384.57  195.49 5384.43  197.48 5384.34
  199.46 5384.28  201.44 5384.29  203.42 5384.34  205.41 5384.33  207.39 5384.31
  209.37 5384.25  211.35 5384.24  213.34 5384.26  215.32 5384.24   217.3 5384.23
  219.28 5384.23  221.27 5384.24  223.25 5384.29  225.23 5384.29  227.21 5384.31
   229.2 5384.33  231.18 5384.38  233.16 5384.36  235.14 5384.36  237.13 5384.34
  239.11 5384.33  241.09 5384.38  243.07 5384.46  245.06 5384.39  247.04 5384.44
  249.02 5384.48  251.01 5384.45  252.99 5384.43  254.97  5384.4  256.95 5384.44
  258.94 5384.71  260.92 5385.01   262.9 5385.11  264.88 5385.17  266.87 5385.11
  268.85 5385.15  270.83 5385.27  272.81 5385.02   274.8 5384.34  276.78 5383.69
  278.76 5383.83  280.74 5384.28  282.73 5384.73  284.71 5385.17  286.69 5385.62
  288.67 5386.07

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13    16.6    .015   91.52     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         17.74   94.61             80.76   82.13   83.48              .1       .3
Blocked Obstructions     num=       3
   Sta L   Sta R    Elev   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0   11.585395.563  127.62  154.795394.758  276.89  288.675396.069

CROSS SECTION


RIVER: TCC_S2
REACH: 1                  RS: 3402

INPUT
Description: 3402
Station Elevation Data    num=     172
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  5388.2      2 5388.28      4 5388.41    5.99 5388.52    7.99 5388.57
    9.99 5388.53   11.99 5388.49   13.99 5388.45   15.98 5388.51   17.98 5388.36
   19.98 5388.07   21.98 5387.46   23.98 5386.93   25.97 5386.27   27.97 5385.95
   29.97 5385.66   31.97 5385.49   33.97 5385.37   35.96 5385.27   37.96 5385.18
   39.96 5385.13   41.96  5385.1   43.96 5384.72   45.95  5383.9   47.28 5383.37
   47.95  5383.1   49.95 5382.92   51.95 5382.82   53.95 5382.45   55.95 5382.48
   57.94  5382.6   59.94 5382.71   61.94 5382.79   63.94 5382.86   65.94 5382.91
   67.93 5382.99   69.93 5383.03   71.93 5383.05   73.93 5383.12   75.93  5383.2
   77.92 5383.25   79.92  5383.3   81.92 5383.34   83.92 5383.34   85.92 5383.34
   87.91 5383.34   89.91 5383.31   91.91 5383.33   93.91 5383.29   95.91 5383.29
    97.9 5383.27    99.9 5383.25   101.9 5383.21  103.86 5383.17   103.9 5383.17
   105.9 5383.15  107.89 5383.11  109.89 5383.03  111.89 5382.94  113.89 5382.79
  113.91 5382.79  115.89 5382.68  117.88 5382.64  119.88 5382.96  120.68 5383.01
  121.88 5383.09  123.88 5383.07  125.88 5383.09  127.87 5383.16  129.87 5383.29
  131.87 5383.38  133.87 5383.38  135.87 5383.31  137.86 5383.38  139.86 5383.62
  141.86  5383.7  143.86 5383.81  145.86 5383.83  147.85 5383.73  149.85 5383.61
  151.85 5383.47  153.85 5383.38  155.85 5383.39  157.84 5383.48  159.84 5383.58
  161.84 5383.64  163.84 5383.55  165.84 5383.25  167.84 5382.81  169.83 5382.39
  171.83 5382.17  173.83 5382.09  175.83 5382.02  177.83 5382.05  179.82 5382.16
  181.82 5382.25  183.82 5382.34  185.82 5382.37  187.82 5382.39  189.81  5382.4
  191.81 5382.54  193.81  5382.7  195.81 5382.77  197.81 5382.81   199.8 5382.86
   201.8 5382.91   203.8 5382.95   205.8 5382.99   207.8 5383.03  209.79 5383.07
  211.79 5383.11  213.79 5383.19  215.79 5383.29  217.79 5383.39  219.78 5383.48
  221.78 5383.55  223.78 5383.61  225.78 5383.67  227.78 5383.72  229.77 5383.73
  231.77 5383.73  233.77 5383.74  235.77 5383.73  237.77 5383.73  239.76 5383.75
  241.76 5383.69  243.76 5383.67  245.76 5383.74  247.76 5383.76  249.75 5383.75
  251.75 5383.74  253.75 5383.76  255.75 5383.77  257.75  5383.8  259.75 5383.81
  261.74 5383.84  263.74 5383.84  265.74 5383.82  267.74 5383.84  269.74 5383.84
  271.73 5383.82  273.73 5383.82  275.73 5383.83  277.73 5383.83  279.73  5383.8
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  281.72 5383.79  283.72 5383.82  285.72 5383.82  287.72 5383.81  289.72 5383.81
  291.71 5383.83  293.71 5383.86  295.71 5383.84  297.71  5383.9  299.71 5384.12
   301.7 5384.28   303.7 5384.31   305.7 5384.43   307.7 5384.65   309.7 5384.92
  311.69 5385.05  313.69 5385.03  315.69 5385.07  317.69 5385.14  319.69 5385.29
  321.68 5385.21  323.68 5385.12  325.68 5385.09  327.68 5385.05  329.68 5385.01
  331.67 5384.97  333.67 5384.91

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   47.28    .015  120.68     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         41.96  145.86           131.15  131.64  132.12             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
     150  333.67    5390       T
Blocked Obstructions     num=       3
   Sta L   Sta R    Elev   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0    5.875398.517  196.54  226.245393.686  319.02  333.675394.914

CROSS SECTION


RIVER: TCC_S2
REACH: 1                  RS: 3270

INPUT
Description: 3270
Station Elevation Data    num=      71
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5384.46    1.97 5384.48    3.95 5384.52    5.92 5384.51     7.9 5384.41
    9.87 5384.24   11.84 5384.16   13.82 5384.22   15.79 5384.15   17.76 5384.02
   19.74 5383.91   21.71 5383.76   23.69 5383.66   25.66 5383.62   27.63 5384.17
   29.61 5384.87   31.58 5385.54   33.56 5386.17   35.53 5386.72    37.5 5385.52
   39.48 5383.83   41.45  5382.7   43.43 5381.88    45.4 5381.63   45.83 5381.62
   47.37 5381.61   49.35 5381.32   51.32 5381.19   53.29 5381.25   55.27 5381.32
   57.24 5381.34   59.22 5381.41   61.19 5381.49   63.16 5381.55   65.14 5381.59
   67.11 5381.61   69.09 5381.63   71.06  5381.7   73.03 5381.74   75.01 5381.74
   76.98 5381.78   78.95 5381.81   80.93 5381.81    82.9 5381.81   84.88  5381.8
   86.85 5381.79   88.82 5381.76    90.8 5381.74   92.77 5381.73   94.75  5381.7
   96.72 5381.64   98.69 5381.63  100.67  5381.6  101.87 5381.56  102.64 5381.54
  104.61 5381.54  106.59 5381.48  108.56  5381.4  110.54 5381.35  111.88 5381.29
  112.51 5381.26  114.48 5381.16  116.46 5381.14  118.43 5381.39  120.01 5381.59
  120.41 5381.64  122.38  5381.7  124.35 5381.96  126.33 5382.06   128.3 5381.86
  130.27 5381.72

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   45.83    .015  120.01     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         35.53  126.33           153.19  153.08  152.98             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
       0   10.115394.221

CROSS SECTION


RIVER: TCC_S2
REACH: 1                  RS: 3117

INPUT
Description: 3117
Station Elevation Data    num=      65
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5380.17    1.99 5380.23    3.97 5380.26    5.96 5380.26    7.94 5380.33
    9.93 5380.44   11.91 5380.49    13.9 5380.51   15.88 5380.47   17.87 5380.52
   19.85 5380.57   21.84 5380.56   23.82 5380.48   25.81  5380.4   27.79 5380.31
   29.78 5380.27   31.76 5380.07   33.75 5379.89   35.28 5379.68   35.73 5379.62
   37.72 5379.14    39.7 5378.79   41.69 5378.82   43.67 5378.92   45.66    5379
   47.64 5379.07   49.63 5379.12   51.61 5379.17    53.6 5379.23   55.58 5379.25
   57.57 5379.31   59.55 5379.34   61.54 5379.35   63.53 5379.35   65.51  5379.4
    67.5 5379.46   69.48 5379.48   71.47 5379.52   73.45 5379.52   75.44 5379.51
   77.42 5379.52   79.41 5379.51   81.39 5379.46   83.38 5379.43   85.36 5379.37
   87.35 5379.35   89.33 5379.33   91.32 5379.29    93.3 5379.27   95.29 5379.19
   97.27 5379.14   99.26 5379.09  101.16 5379.04  101.24 5379.04  103.23 5378.97
  105.21 5378.87  106.57  5379.1   107.2  5379.2  109.18 5379.58  111.17 5379.74
  113.15 5379.74  115.14 5379.69  117.12 5379.73  119.11  5379.8  121.09 5379.89

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   35.28    .015  106.57     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         29.78  121.09            46.03   46.09   46.15             .1       .3

CROSS SECTION


RIVER: TCC_S2
REACH: 1                  RS: 3071

INPUT
Description: 3017
Station Elevation Data    num=      65
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5379.85    1.99 5379.87    3.99 5379.89    5.98 5379.91    7.97 5379.93
    9.96 5379.99   11.96 5380.05   13.95  5379.5   15.94 5379.67   17.93 5379.68
   19.93 5379.67   21.92 5379.62   23.91 5379.49    25.9 5379.52    27.9 5379.46
   29.89  5379.4   31.88 5379.18   33.87    5379   35.87 5378.83   37.63 5378.65
   37.86 5378.62   39.85 5377.88   41.84 5377.68   43.84 5377.74   45.83 5377.85
   47.82 5377.92   49.81 5378.04   51.81 5378.11    53.8 5378.16   55.79 5378.19
   57.78 5378.23   59.78 5378.25   61.77 5378.29   63.76 5378.32   65.76 5378.36
   67.75 5378.38   69.74 5378.42   71.73 5378.48   73.73 5378.48   75.72 5378.54
   77.71  5378.6    79.7 5378.59    81.7 5378.54   83.69 5378.54   85.68 5378.49
   87.67 5378.44   89.67 5378.42   91.66 5378.39   93.65 5378.31   95.64 5378.25
   97.64 5378.12   99.63 5378.04  101.62 5377.97  103.42 5377.85  103.61 5377.84
  105.61 5377.72   107.6 5377.76  109.59 5378.31  111.58 5378.58  112.12 5378.55
  113.44 5378.49  113.58 5378.49  115.57 5378.44  117.56 5378.43  119.55 5378.37

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   37.63    .015  112.12    .015

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         29.89  119.55           156.33  156.13  155.94             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
       0   10.195389.994

CROSS SECTION


RIVER: TCC_S2
REACH: 1                  RS: 2915

INPUT
Description: 2915
Station Elevation Data    num=      59
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     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5378.56    1.98 5378.37    3.96 5378.01    5.94 5377.48    7.92 5376.86
    9.9 5376.35   11.88 5376.02   13.86 5375.83   15.84 5375.65   17.83 5375.62
   19.81 5375.56   21.79 5375.41   23.77 5375.13   25.75 5374.81   27.21 5374.48
   27.73 5374.37   29.71 5373.72   31.69 5373.74   33.67 5373.87   35.65 5373.95
   37.63    5374   39.61 5374.12   41.59 5374.21   43.57 5374.25   45.55 5374.28
   47.53 5374.33   49.51 5374.36    51.5 5374.36   53.48  5374.4   55.46 5374.42
   57.44 5374.48   59.42 5374.48    61.4  5374.5   63.38 5374.49   65.36 5374.53
   67.34 5374.44   69.32 5374.46    71.3 5374.46   73.28 5374.38   75.26 5374.35
   77.24 5374.31   79.22 5374.26    81.2 5374.19   83.18 5374.12   85.17 5374.03
   86.67 5373.93   87.15 5373.89   89.13 5373.78   91.11 5373.63   93.09 5374.67
   95.07 5375.17   96.71 5375.36   96.84 5375.37   97.05  5375.4   99.03 5375.34
  101.01 5375.11  102.99 5374.91  104.97 5374.94  106.95 5375.17

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   27.21    .015   96.84     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         19.81   96.71           188.14  188.18  188.22             .1       .3

CROSS SECTION


RIVER: TCC_S2
REACH: 1                  RS: 2727

INPUT
Description: 2727
Station Elevation Data    num=     147
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5372.24    1.99 5372.24    3.97 5372.23    5.96 5372.21    7.95 5372.17
    9.93 5372.13   11.92 5372.12   13.91 5372.18   15.89 5372.32   17.88 5372.38
   19.87 5372.33   21.85 5372.26   23.84 5372.18   25.83 5372.09   27.81 5371.95
    29.8 5371.81   31.79 5371.66   33.78 5371.45   35.76 5371.21   37.75 5371.01
   39.74 5370.79   41.72 5370.63   43.71 5370.59    45.7 5370.63   47.68 5370.77
   49.67 5371.04   51.66 5371.39   53.64 5371.49   55.63 5371.32   57.62 5371.13
    59.6 5371.04   61.59 5371.06   63.58 5371.12   65.56 5371.21   67.55 5371.22
   69.54 5371.22   71.52 5371.26   73.51 5371.31    75.5 5371.43   77.48 5371.54
   79.47 5371.63   81.46 5371.61   83.44 5371.49   85.43 5371.26   87.42 5370.93
    89.4 5370.53   91.39 5370.15   93.33 5370.15   93.38 5370.15   95.36 5370.25
   97.35 5370.19   99.34 5369.72  101.32  5369.4  103.31 5369.53   105.3 5369.64
  107.29 5369.75  109.27 5369.85  111.26 5369.91  113.25 5369.98  115.23 5370.02
  117.22 5370.06  119.21 5370.07  121.19 5370.11  123.18 5370.15  125.17 5370.16
  127.15 5370.14  129.14 5370.12  131.13 5370.13  133.11 5370.12   135.1 5370.11
  137.09 5370.09  139.07 5370.01  141.06 5369.96  143.05  5369.9  145.03 5369.79
  145.88 5369.73  147.02 5369.64  149.01 5369.54  150.99 5369.46  152.98 5370.21
  154.97 5370.68   155.9 5370.74  156.95 5370.82  158.94 5371.08  160.75  5370.9
  160.93 5370.88  162.91 5370.47   164.9  5370.3  166.89 5370.36  168.87 5370.81
  170.86 5371.03  172.85 5370.84  174.84 5370.83  176.82 5370.92  178.81  5370.9
   180.8 5370.86  182.78 5370.81  184.77 5370.77  186.76 5370.78  188.74 5370.79
  190.73 5370.73  192.72 5370.72   194.7 5370.72  196.69  5370.6  198.68 5370.55
  200.66 5370.54  202.65 5370.51  204.64 5370.47  206.63 5370.43  208.62 5370.41
  210.61 5370.44   212.6 5370.46  214.59 5370.54  216.58 5370.58  218.57 5370.59
  220.56 5370.64  222.55 5370.73  224.54 5370.77  226.53 5370.79  228.52  5370.8
   230.5 5370.79  232.49 5370.82  234.48 5370.82  236.47 5370.97  238.46 5371.04
  240.45 5371.22  242.44  5371.5  244.43 5371.83  246.42 5372.04  248.41 5372.13
   250.4 5371.99  252.39 5371.87  254.38 5371.73  256.37 5371.76  258.36 5371.81
  260.35 5371.87  262.34 5372.04  264.33 5372.21  266.32  5372.3  268.31 5372.35
   270.3 5372.36  272.29 5372.37  274.28 5372.42  276.27 5372.48  278.26 5372.53
  280.25 5372.56  282.24  5372.6

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   93.33    .015  160.75     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         83.44  158.94           165.41  165.81  166.19             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0   13.125382.144  270.63  282.245382.597

CROSS SECTION


RIVER: TCC_S2
REACH: 1                  RS: 2561

INPUT
Description: 2561
Station Elevation Data    num=      76
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5370.26    1.99 5370.27    3.97 5370.23    5.96 5370.03    7.94 5369.57
    9.93 5369.11   11.49 5368.45   11.91 5368.28    13.9 5367.39   15.88 5366.84
   17.87 5366.38   19.86 5366.36   21.84 5366.52   23.83 5366.66   25.81 5366.81
    27.8 5366.93   29.78 5367.05   31.77 5367.17   33.75 5367.24   35.74 5367.31
   37.73 5367.36   39.71 5367.41    41.7 5367.48   43.68 5367.48   45.67 5367.44
   47.65 5367.45   49.64 5367.43   51.63 5367.42   53.61 5367.41    55.6 5367.37
   57.58 5367.31   59.57 5367.24   61.55 5367.15   62.18 5367.13   63.54 5367.07
   65.52 5366.97   67.51    5367    69.5 5367.18   71.48 5367.32   72.18 5367.33
   73.47 5367.35   75.45 5367.77   76.92 5368.14   77.44 5368.27   79.42 5368.36
   81.41 5368.14   83.39 5367.93   85.38    5368   87.37 5368.07   89.35 5368.12
   91.34 5368.17   93.32 5368.22   95.31 5368.29   97.29 5368.33   99.28 5368.39
  101.26 5368.43  103.25 5368.47  105.24 5368.55  107.22 5368.56  109.21 5368.56
  111.19 5368.57  113.18 5368.59  115.16 5368.64  117.15 5368.67  119.14 5368.69
  121.12 5368.71  123.11 5368.71  125.09 5368.71  127.08  5368.7  129.06  5368.7
  131.05  5368.7  133.03  5368.7  135.02  5368.7  137.01  5368.7  138.99  5368.7
  140.98  5368.7

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   11.49    .015   76.92     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          9.93   77.44           155.29  155.13  154.97             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
  123.73  140.985378.702

CROSS SECTION


RIVER: TCC_S2
REACH: 1                  RS: 2406

INPUT
Description: 2406
Station Elevation Data    num=      91
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5367.34    1.97 5367.39    3.95 5367.39    5.92 5367.54    7.89 5367.77
    9.86 5367.69   11.84 5367.34   13.81 5366.77   15.78 5366.14   17.75 5365.63
   19.73 5365.17   21.7 5364.76   23.67 5364.47   25.64 5364.34   27.62 5364.31
   29.59 5364.27   30.24 5364.25   31.56  5364.2   33.53 5363.92   35.51 5363.55
   37.48 5363.67   39.45 5363.82   41.42 5363.99    43.4 5364.13   45.37 5364.23
   47.34 5364.31   49.31 5364.42   51.29 5364.47   53.26 5364.54   55.23  5364.6
    57.2 5364.63   59.18 5364.68   61.15 5364.75   63.12 5364.71   65.09 5364.72
   67.07 5364.69   69.04  5364.7   71.01 5364.65   72.98 5364.63   74.96 5364.58
   76.93  5364.5    78.9 5364.43   79.46 5364.38   80.87 5364.25   82.85 5364.14
   84.82 5364.06   86.79 5364.32   88.76 5364.58   89.46 5364.65   90.74 5364.76
   92.71 5364.91   94.17 5364.94   94.69 5364.95   96.67 5365.05   98.66 5365.27
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  100.64 5365.39  102.62 5365.46   104.6 5365.47  106.59 5365.54  108.57 5365.64
  110.55 5365.77  112.53 5365.87  114.52    5366   116.5 5366.17  118.48 5366.37
  120.46 5366.41  122.45 5366.14  124.43 5366.11  126.41 5366.19  128.39 5366.26
  130.38 5366.29  132.36 5366.26  134.34 5366.26  136.32 5366.35  138.31 5366.39
  140.29  5366.4  142.27 5366.55  144.25 5366.44  146.24 5366.46  148.22 5366.59
   150.2 5366.75  152.18 5366.68  154.17 5366.78  156.15 5366.74  158.13 5366.72
  160.11 5366.64   162.1 5366.65  164.08 5366.68  166.06 5366.65  168.04 5366.67
  170.02 5366.78

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   30.24    .015   94.17     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          19.73   92.71            197.93  198.18  198.43             .1       .3

CROSS SECTION


RIVER: TCC_S2
REACH: 1                  RS: 2208

INPUT
Description: 2208
Station Elevation Data    num=      80
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5362.29    1.99 5362.24    3.97 5362.15    5.96 5361.93    7.95 5361.86
    9.93 5361.96   11.92 5361.99   13.91  5361.8   15.89 5361.65   17.88 5361.61
   19.87 5361.57   21.86 5361.41   23.84 5361.13    25.6 5360.67   25.83 5360.61
   27.82 5359.93    29.8 5359.91   31.79 5360.07   33.78 5360.18   35.76 5360.32
   37.75 5360.47   39.74  5360.6   41.72 5360.72   43.71 5360.77    45.7 5360.84
   47.68 5360.85   49.67 5360.92   51.66 5360.97   53.64 5361.01   55.63 5361.03
   57.62 5360.99    59.6 5361.01   61.59 5360.93   63.58 5360.91   65.57 5360.85
   67.55 5360.83   69.54 5360.79   71.53 5360.73   73.43 5360.62   73.51 5360.61
    75.5 5360.53   77.49 5360.37   79.47 5360.35   81.46  5360.6   83.43 5360.83
   83.45 5360.83   85.43 5361.68   86.93 5361.89   87.42 5361.95   89.41 5361.97
   91.39 5361.83   93.37 5361.71   95.36 5361.63   97.34 5361.59   99.32 5361.57
   101.3 5361.65  103.29 5361.68  105.27  5361.7  107.25 5361.79  109.23 5361.92
  111.22 5362.04   113.2 5362.12  115.18 5362.21  117.17 5362.31  119.15 5362.46
  121.13 5362.65  123.11 5362.85   125.1 5363.26  127.08 5363.62  129.06  5363.9
  131.04 5363.87  133.03 5363.64  135.01 5363.41  136.99 5363.22  138.98 5363.08
  140.96 5362.99  142.94 5362.92  144.92 5362.85  146.91 5362.78  148.89 5362.71

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13    25.6    .015   86.93     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          19.87   87.42            272.65  272.77  272.88             .1       .3
Blocked Obstructions      num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0    5.595371.949  143.57  148.895372.712

CROSS SECTION


RIVER: TCC_S2
REACH: 1                  RS: 1935

INPUT
Description: 1935
Station Elevation Data    num=      48
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5355.28    1.97 5355.14    3.94 5355.02     5.9 5355.07    7.87 5355.19
    9.67 5355.32    9.84 5355.33   11.81 5355.23   13.78 5354.89   15.74 5354.57
   17.71 5354.49   19.68 5354.65   21.65 5354.75   23.62 5354.86   25.58 5355.02
   27.55 5355.12   29.52 5355.25   31.49 5355.35   33.46 5355.39   35.42 5355.47
   37.39 5355.53   39.36 5355.61   41.33 5355.68    43.3 5355.66   45.27 5355.68
   47.23 5355.65    49.2 5355.62   51.17 5355.61   53.14  5355.5   55.11 5355.55
   57.07 5355.47   59.04 5355.34   60.99 5355.24   61.01 5355.23   62.98 5355.15
   64.95 5355.01   66.91 5354.96   68.88 5354.94   70.85 5354.94   70.99 5354.95
   72.82    5355   74.14    5355   74.79    5355   76.75 5355.05   78.44 5355.14
   78.72 5355.15   80.69 5355.41   82.66 5355.58

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13    9.67    .015   74.14     .13   78.44    .015

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           9.84   82.66            307.4  307.13  306.85             .1       .3

CROSS SECTION


RIVER: TCC_S2
REACH: 1                  RS: 1628

INPUT
Description: 1628
Station Elevation Data    num=      61
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5352.77        2 5352.67        4 5352.59        6 5352.53    7.99 5352.27
    9.99 5351.69   11.99 5350.76   13.99 5349.81   15.99  5349.5   17.99  5349.5
   19.99 5349.48   21.99 5349.43   23.98 5349.33   25.98 5349.29   27.98 5349.25
   29.98 5349.31   31.98 5349.45   33.98 5349.39   34.91 5349.23   35.98 5349.05
   37.97 5348.78   39.97 5348.82   41.97 5348.94   43.97 5349.04   45.97 5349.14
   47.97  5349.2   49.97 5349.27   51.96 5349.35   53.96 5349.39   55.96 5349.42
   57.96 5349.47   59.96 5349.53   61.96 5349.57   63.96 5349.56   65.96  5349.5
   67.95 5349.48   69.95 5349.48   71.95 5349.45   73.95 5349.42   75.95 5349.37
   77.95 5349.28   79.95 5349.21   81.94 5349.12   82.82 5349.06   83.94 5348.97
   85.94 5348.83   87.94 5348.88   89.94  5349.1   91.94 5349.19   92.83 5349.37
   93.94  5349.6   95.93 5350.39   97.59 5350.72   97.93 5350.79   99.93 5350.81
  101.93 5350.66  103.93 5350.37  105.93 5350.29  107.93 5350.33  109.93 5350.36
  111.92 5350.26

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   34.91    .015   97.59     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          11.99   97.93            327.73  327.41   327.1             .1       .3

CROSS SECTION


RIVER: TCC_S2
REACH: 1                  RS: 1300

INPUT
Description: 1300
Station Elevation Data    num=      59
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5346.52    1.98 5346.46    3.96 5346.38    5.93 5346.23    7.91 5346.03
    9.89 5345.77   11.87 5345.57   13.85 5345.38   15.82 5345.28    17.8 5345.15
   19.78 5344.34   21.76 5344.09   23.74 5344.09   25.72 5344.02   27.69  5344.2
    27.8 5344.17   29.67 5343.51   31.65 5343.41   33.63  5343.5   35.61 5343.62
   37.58 5343.75   39.56 5343.83   41.54 5343.87   43.52 5343.98    45.5 5344.04
   47.47 5344.02   49.45  5344.1   51.43 5344.12   53.41 5344.18   55.39 5344.25
   57.36 5344.25   59.34 5344.19   61.32 5344.17    63.3 5344.15   65.28 5344.12
   67.26 5344.02   69.23 5343.94   71.21 5343.92   73.19 5343.81   75.17 5343.69
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   75.53 5343.66   77.15 5343.55   79.12 5343.41    81.1 5343.58   83.08 5343.77
   85.06 5343.84   85.54 5343.87   87.04 5343.97   89.01 5344.12   90.99  5344.3
   91.62 5344.34   92.97 5344.41   94.95 5344.48   96.93 5344.54    98.9 5344.51
  100.88 5344.54  102.86 5344.76  104.84 5345.15  106.82 5345.36

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13    27.8    .015   91.62     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          17.8  106.82            325.08  324.87  324.66             .1       .3

CROSS SECTION


RIVER: TCC_S2
REACH: 1                   RS: 975

INPUT
Description: 975
Station Elevation Data    num=     103
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5340.36    1.98 5340.39    3.96 5340.38    5.94 5340.32    7.92 5340.27
     9.9 5340.18   11.88 5340.09   13.86  5339.9   15.84 5339.75   17.82 5339.69
    19.8 5339.63   21.78 5339.58   23.76 5339.52   25.74 5339.46   27.72 5339.36
    29.7 5339.31   31.68 5339.26   33.66 5339.19   35.64 5339.13   37.62 5339.12
    39.6 5339.12   41.58 5339.06   43.56 5338.97   45.54 5338.93   47.52 5338.92
    49.5 5338.87   51.48 5338.88   53.47 5338.87   55.45 5338.83   57.43 5338.81
   59.41 5338.76   61.39 5338.73   63.37 5338.75   65.35 5338.74   67.33 5338.69
   69.31 5338.64   71.29 5338.58   73.27 5338.49   75.25 5338.41   77.23  5338.4
   79.21 5338.31   81.19  5338.2   83.17 5338.22   85.15 5338.27   87.13 5338.31
   89.11 5338.46   91.09 5338.76   93.07 5338.84   95.05 5338.78   97.03 5338.76
   99.01 5338.78  100.42 5338.73  100.99 5338.71  102.97 5338.31  104.95  5338.5
  106.93  5338.6  108.91  5338.7  110.89 5338.84  112.87 5338.88  114.85 5338.98
  116.83 5339.06  118.81 5339.11  120.79 5339.15  122.77  5339.2  124.75 5339.23
  126.73  5339.3  128.71 5339.34  130.69 5339.31  132.67 5339.29  134.65 5339.27
  136.63 5339.24  138.61 5339.19  140.59 5339.19  142.57 5339.09  144.55 5339.03
  146.53 5338.87  148.51 5338.76  149.99 5338.68  150.49 5338.66  152.47 5338.43
  154.45 5338.34  156.43 5338.67  158.41 5339.12  160.02 5339.18   160.4  5339.2
  162.38  5339.1  164.36 5339.17  165.41  5339.2  166.34 5339.23  168.32 5339.28
   170.3 5339.36  172.28 5339.71  174.26 5340.04  176.24 5340.02  178.22 5339.96
   180.2 5339.86  182.18 5339.91  184.16 5339.88  186.14 5339.71  188.12 5339.69
   190.1 5339.83  192.08 5340.02  194.06 5340.22

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13  100.42    .015  165.41     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         23.76  174.26            173.24  173.44  173.65             .1       .3

CROSS SECTION


RIVER: TCC_S2
REACH: 1                   RS: 802

INPUT
Description: 802
Station Elevation Data    num=      79
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5336.69    1.98 5336.65    3.96 5336.66    5.94  5336.7    7.93 5336.99
    9.91 5337.41   11.89 5337.68   13.87 5338.04   15.85 5338.46   17.83 5338.88
   19.81 5339.22   21.79 5339.39   23.78 5339.43   25.76 5339.27   27.74 5339.08
   29.72 5338.93    31.7 5338.64   33.68 5338.18   35.66 5337.71   37.65 5337.21
   39.63 5336.86   41.61  5336.6   43.59 5336.54   45.57 5336.52   47.55 5336.61
   49.53  5336.5   51.51 5336.44   52.95 5336.31    53.5 5336.26   55.48 5335.85
   57.46 5336.02   59.44  5336.1   61.42 5336.23    63.4 5336.38   65.38 5336.46
   67.37 5336.48   69.35  5336.6   71.33 5336.65   73.31 5336.66   75.29 5336.71
   77.27 5336.74   79.25 5336.79   81.23 5336.85   83.22 5336.87    85.2 5336.84
   87.18 5336.84   89.16 5336.82   91.14 5336.81   93.12 5336.75    95.1 5336.75
   97.09 5336.72   99.07 5336.69  101.05 5336.62  103.03 5336.53  105.01 5336.49
  106.99 5336.39  107.31 5336.38  108.97 5336.32  110.95 5336.17  112.94 5336.07
  114.92 5335.92   116.9 5336.19  117.32 5336.23  117.35 5336.23  118.88 5336.36
  120.86 5336.43  122.84 5336.75  124.82 5337.24  126.81 5337.35  128.79 5337.49
  130.77 5337.86  132.75 5338.09  134.73 5337.68  136.71 5337.09  138.69 5336.91
  140.67 5336.87  142.66 5336.93  144.64 5337.02  146.62 5337.05

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   52.95    .015  117.35     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         37.65  124.82            239.27   239.5  239.73             .1       .3

CROSS SECTION


RIVER: TCC_S2
REACH: 1                   RS: 563

INPUT
Description: 563
Station Elevation Data    num=     143
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5334.16        2 5334.17    3.99 5334.16    5.99 5334.14    7.99 5334.13
    9.99 5334.13   11.98 5334.12   13.98 5334.13   15.98 5334.13   17.98 5334.13
   19.97 5334.13   21.97  5334.1   23.97 5334.17   25.97 5334.18   27.96  5334.2
   29.96 5334.18   31.96 5334.19   33.95  5334.2   35.95 5334.22   37.95 5334.22
   39.95 5334.21   41.94 5334.18   43.94 5334.19   45.94 5334.15   47.94 5334.16
   49.93 5334.16   51.93 5334.17   53.93 5334.18   55.92 5334.21   57.92 5334.22
   59.92 5334.21   61.92 5334.19   63.91 5334.18   65.91 5334.12   67.91 5334.09
   69.91 5334.07    71.9 5334.07    73.9 5334.02    75.9 5334.02   77.89    5334
   79.89 5333.98   81.89 5333.99   83.89 5333.95   85.88 5333.96   87.88  5333.9
   89.88 5333.87   91.88 5333.82    93.8 5333.76   93.87 5333.76   95.87 5333.76
   97.87 5333.63   99.87 5333.49  101.86 5333.48  103.86 5333.62  105.86 5333.66
  107.85 5333.73  109.85  5333.8  111.85 5333.79  113.85 5333.87  115.84 5333.83
  117.84  5333.9  119.84 5333.92  121.84 5333.92  123.83    5334  125.83 5333.98
  127.83 5334.03  129.82 5334.07  131.82 5334.05  133.82 5334.11  135.82 5334.14
  137.81 5334.11  139.81 5334.11  141.81 5334.11  143.81 5334.07   145.8 5334.04
   147.8  5334.1   149.8 5334.06   151.8 5334.03  153.79 5334.02  155.79 5333.99
  157.79 5333.97  159.78 5333.98  161.78 5333.94  162.41 5333.92  163.78 5333.88
  165.78  5333.8  167.77  5333.7  169.77 5333.66  171.77 5333.59  172.42 5333.57
  173.77 5333.52  175.76 5333.41  177.76 5333.42   179.6 5333.51  179.76 5333.52
  181.75 5333.64  183.75 5333.69  185.75 5333.77  187.75 5333.73  189.74 5333.72
  191.74 5333.71  193.74 5333.72  195.74 5333.82  197.73 5333.82  199.69 5333.98
  201.65 5334.04  203.62 5334.01  205.58 5333.97  207.54 5333.95   209.5 5333.96
  211.46 5333.94  213.42 5333.85  215.38 5333.79  217.34  5333.7   219.3 5333.65
  221.26 5333.61  223.22 5333.54  225.18 5333.48  227.15 5333.44  229.11 5333.33
  231.07  5333.3  233.03 5333.38  234.99 5333.27  236.95 5333.27  238.91 5333.25
  240.87 5333.25  242.83 5333.29  244.79 5333.34  246.75 5333.38  248.71 5333.42
  250.67  5333.5  252.64 5333.53   254.6  5333.6  256.56 5333.63  258.52 5333.74
  260.48 5333.82  262.44 5333.89   264.4 5333.98  266.36 5334.11  268.32 5334.16
  270.28 5334.23  272.24 5334.28   274.2 5334.29

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13    93.8    .015   179.6     .13

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

```
         61.92  272.24           196.11  196.06  196.02             .1       .3

CROSS SECTION


RIVER: TCC_S2
REACH: 1                   RS: 366

INPUT
Description: 366
Station Elevation Data    num=     103
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5334.38       2 5334.42    3.99 5334.46    5.99  5334.4    7.99 5334.33
    9.98 5334.29   11.98 5334.25   13.98 5334.21   15.97  5334.2   17.97 5334.18
   19.97 5334.09   21.96 5333.95   23.96 5333.75   25.96 5333.41   27.95 5332.81
   29.95 5332.13   31.95 5331.63   33.94  5331.3   35.94 5331.16   37.94 5331.15
   39.93 5331.16   41.93 5331.21   43.93 5331.26   45.92 5331.16   47.92 5330.91
   49.92 5330.79   51.91 5330.88   53.91 5331.09    55.9 5331.44    57.9 5331.91
    59.9 5332.52   61.89 5332.92   63.89 5332.94   65.89 5332.51   67.88 5331.97
   69.88 5331.52   71.88 5331.21   73.87 5331.07   75.87 5330.99   77.87 5330.98
   79.86 5331.04   81.86 5331.11   83.86 5331.12   85.24 5331.05   85.85 5331.02
   87.85 5330.57   89.85 5330.18   91.84 5330.26   93.84  5330.3   95.84 5330.37
   97.83 5330.43   99.83 5330.49  101.83 5330.57  103.82 5330.63  105.82 5330.69
  107.82 5330.72  109.81 5330.78  111.81 5330.81  113.81 5330.86   115.8  5330.9
   117.8 5330.93   119.8 5330.98  121.79 5331.05  123.79 5331.11  125.79 5331.13
  127.78  5331.1  129.78 5331.03  131.78 5330.94  133.77 5330.84  135.77 5330.81
  137.77 5330.73  139.76 5330.66  141.76 5330.62  143.76 5330.54  145.75 5330.47
  147.75 5330.46   149.5 5330.42  149.75 5330.41  151.74 5330.37  153.74 5330.35
  155.73 5330.33  157.68 5330.28  157.73 5330.28  159.51 5330.42  159.73 5330.44
  161.72    5331  163.72 5331.02  165.72 5330.94  167.71 5331.02  169.71 5331.07
  171.71 5331.15   173.7 5331.25   175.7 5331.38   177.7 5331.47  179.69 5331.59
  181.69 5331.76  183.69 5332.08  185.68 5332.35  187.68 5332.98  189.68 5333.37
  191.67 5333.37  193.67  5333.4  195.67 5333.47

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   85.24    .015  157.68     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          83.86  161.72           290.94  288.95  286.99             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
    33.2   34.265341.263  187.96  195.675343.475

CROSS SECTION


RIVER: TCC_S2
REACH: 1                   RS: 78

INPUT
Description: 78
Station Elevation Data    num=      77
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5332.82    1.99  5332.6    3.98 5332.23    5.97 5331.84    7.97 5331.44
    9.96 5331.09   11.95 5330.72   13.94 5330.36   15.93 5330.03   17.92  5329.8
   19.92 5329.55   21.91  5329.4    23.9 5329.21   25.89 5329.18   27.88 5329.21
   29.87 5329.18   31.86 5329.16   33.86 5329.15   35.85 5329.01   37.84 5328.89
   39.83 5328.85   41.82 5328.84   43.81 5328.84   45.81 5328.87    47.8 5328.87
   49.79 5328.79   51.78 5328.52   51.91  5328.5   53.77 5328.14   55.76 5328.23
   57.75  5328.3   59.75 5328.42   61.74 5328.42   63.73 5328.56   65.72 5328.68
   67.71 5328.75    69.7 5328.83   71.69 5328.83   73.69 5328.86   75.68 5328.91
   77.67 5328.94   79.66 5328.97   81.65 5328.97   83.64 5328.96   85.64 5328.88
   87.63 5328.81   89.62  5328.8   91.61 5328.76    93.6  5328.7   95.59 5328.62
   97.58 5328.54   99.58 5328.48  101.57 5328.41  103.56 5328.35  105.55 5328.26
  106.44 5328.24  107.54 5328.22  109.53  5328.2  111.53 5328.08  113.52 5328.18
  115.51 5328.56  116.64 5328.59   117.5 5328.62  117.54 5328.62  119.49 5328.62
  121.48 5328.65  123.47 5328.69  125.47 5328.71  127.46 5328.85  129.45 5329.01
  131.44 5329.12  133.43 5329.22  135.42 5329.28  137.42 5329.38  139.41 5329.47
   141.4  5329.5  143.39 5329.52

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13   51.91    .015  117.54     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          47.8  116.64            83.2   77.54    71.7             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
  140.87  143.395339.522

CROSS SECTION


RIVER: TCC_S_4TH
REACH: 1                   RS: 645

INPUT
Description: 645
Station Elevation Data    num=      41
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5575.71     .07  5575.7    1.98 5575.47    3.95 5575.14    5.93 5574.68
     7.9 5574.35    9.88 5574.23   11.85 5574.07   13.83 5573.89    15.8  5573.8
   16.64 5573.82   17.78 5573.84   19.75 5573.88   21.73 5573.62    23.7 5573.11
   25.68 5572.58   27.65 5572.71   27.88 5572.74   29.63 5572.97   31.61 5573.32
   33.58 5573.36   35.56 5573.26   37.53 5573.19   39.51 5573.08   41.48 5572.87
   43.46 5572.83   45.43 5572.94   47.41 5572.96   49.38 5572.88   51.24 5572.93
    53.1 5572.85   54.95  5572.9   56.81 5572.88   58.67 5572.94   60.52 5572.98
   62.38 5572.89   64.24 5572.97    66.1 5573.04   67.95 5572.96   69.81 5572.96
   71.67 5573.02

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0     .05     .07     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          19.75   33.58           139.39  135.78  132.16             .1       .3

CROSS SECTION


RIVER: TCC_S_4TH
REACH: 1                   RS: 510

INPUT
Description: 510
Station Elevation Data    num=      57
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5567.99    1.87 5567.96    3.73 5567.95     5.6 5567.86    7.47  5567.7
    9.34 5567.47   11.21  5567.4   13.07 5567.23   14.94 5567.11   16.81 5566.96
   18.79  5566.9   20.77 5566.93   22.75 5566.94   24.73  5566.9   26.71 5566.87
   27.79 5566.83   28.69 5566.79   30.67 5566.71   32.65  5566.7   34.63 5566.64
   36.61 5566.59   37.89 5566.57   38.59 5566.57   40.57 5566.59   42.55 5566.64
   44.53 5566.74   46.51 5566.84   48.49  5566.8   50.47 5566.98   52.45 5566.69
   54.42 5566.76    56.4  5566.8   58.38 5566.75   60.36 5566.73   62.34 5566.69
   64.32 5566.65    66.3 5566.61   68.28  5566.5   70.26 5566.39   72.24 5566.38
   74.23 5566.47   76.21 5566.57   78.19  5566.6   80.17  5566.7   82.15 5566.77
   84.13 5566.85   86.11 5566.94   88.09 5567.04   90.07 5567.14   92.06 5567.25
   94.04 5567.39   96.02 5567.57      98 5567.48   99.98 5567.41  101.96 5567.63
  103.94 5567.75  105.92 5567.84
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```
Manning's n Values        num=       1
     Sta   n Val
       0     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         11.21   96.02           103.39  102.74  102.09             .1       .3

CROSS SECTION


RIVER: TCC_S_4TH
REACH: 1                  RS: 407

INPUT
Description: 407
Station Elevation Data    num=      64
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5561.33       2 5561.44    3.99 5561.55    5.99 5561.46    7.98 5561.35
    9.98 5561.23   11.97 5561.13   13.97    5561   15.97 5561.06   17.96 5560.99
   19.96 5560.99   21.95 5560.89   23.95  5560.7   25.94 5560.61   27.94 5560.53
   29.94 5560.47   31.93 5560.48   32.28 5560.47   33.93 5560.47   35.92 5560.44
   37.92 5560.46   39.91 5560.55   41.91 5560.58   42.28  5560.6   43.91 5560.65
    45.9 5560.63    47.9 5560.61   49.89 5560.61   51.89 5560.65   53.88 5560.68
   55.88 5560.71   57.88 5560.79   59.87 5560.85   61.87 5560.87   63.86 5560.89
   65.86 5560.93   67.85    5561   69.85 5561.09   71.85    5561   73.84 5560.97
   75.84 5561.11   77.83    5561   79.74 5561.04   81.65 5561.07   83.56 5561.05
   85.48 5561.11   87.39 5561.17    89.3 5561.25   91.21 5561.32   93.12 5561.41
   95.03 5561.51   96.94 5561.65   98.85 5561.75  100.76 5561.79  102.67 5561.83
  104.58 5561.83  106.49 5561.87   108.4 5561.96  110.31 5562.02  112.22 5562.12
  114.13 5562.24  116.04 5562.35  117.95 5562.46  119.87 5562.49

Manning's n Values        num=       1
     Sta   n Val
       0     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         19.96   69.85           143.44  143.18  142.93             .1       .3

CROSS SECTION


RIVER: TCC_S_4TH
REACH: 1                  RS: 264

INPUT
Description: 264
Station Elevation Data    num=      68
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5554.73    1.95 5554.71     3.9 5554.68    5.84 5554.66    7.79 5554.63
    9.74  5554.6   11.69 5554.55   13.64 5554.51   15.58 5554.41   17.53 5554.38
   19.48 5554.25   21.43 5554.03   23.37 5553.74   25.32 5553.47   27.27 5553.22
   29.22 5553.02   31.17 5552.91   33.11 5552.83   35.06 5552.68   37.01 5552.41
   38.96 5552.33   40.91 5552.29   40.99 5552.29   42.85 5552.32    44.8 5552.26
   46.75 5552.17    48.7 5552.05   50.64 5551.97   51.15 5551.97   52.59 5551.99
   54.54 5552.09   56.49 5552.49   58.44  5552.6   60.38 5552.53   62.33  5552.3
   64.28 5552.02   66.23 5551.97   68.18 5551.87   70.14 5552.05    72.1 5552.11
   74.06 5552.23   76.02 5552.38   77.98 5552.46   79.94 5552.57    81.9 5552.62
   83.86 5552.91   85.83 5553.25   87.79 5553.87   89.75 5554.08   91.71 5554.23
   93.67 5554.37   95.63 5554.51   97.59 5554.66   99.55  5554.8  101.51 5554.95
  103.48 5555.09  105.44 5555.13   107.4  5554.9  109.36 5554.96  111.32 5555.09
  113.28 5555.17  115.24 5555.23   117.2 5555.31  119.17 5555.38  121.13 5555.46
  123.09 5555.55  125.05 5555.64  127.01 5555.71

Manning's n Values        num=       1
     Sta   n Val
       0     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         25.32   87.79           160.39  161.77  163.12             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev

       0   17.255564.388  111.76  127.015565.708

CROSS SECTION


RIVER: TCC_S_4TH
REACH: 1                  RS: 102

INPUT
Description: 102
Station Elevation Data    num=      98
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5544.64    1.98 5544.79    3.97 5544.84    5.95 5544.82    7.94 5544.85
    9.92 5544.82    11.9 5544.75   13.89 5544.67   15.87 5544.52   17.85  5544.4
   19.84  5544.3   21.82 5544.15   23.81 5543.99   25.79 5543.88   27.77 5543.77
   29.76 5543.63   31.74 5543.53   33.73 5543.41   35.71 5543.34   37.69 5543.29
   39.68 5543.01   41.66 5543.16   43.64 5543.05   45.63    5543   47.61 5543.01
    49.6 5542.99   50.16 5542.97   51.58 5542.94   53.56 5542.89   55.55 5542.87
   57.53 5542.87   59.52 5542.84   60.22 5542.81    61.5 5542.77   63.48  5542.8
   65.47 5542.81   67.45 5542.78   69.43 5542.74   71.42  5542.7    73.4 5542.72
   75.39 5542.78   77.37 5542.89   79.35 5543.05   81.34 5543.11   83.32 5543.18
   85.31 5543.28   87.29 5543.33   89.27 5543.44   91.26 5543.55   93.24 5543.61
   95.22 5543.62   97.21 5543.65   99.19 5543.65  101.18 5543.74  103.16 5543.84
  105.14 5543.79  107.13 5544.08  109.11 5544.17  111.08 5544.19  113.05 5544.23
  115.02 5544.41  116.99 5544.39  118.96 5544.46  120.93  5544.6   122.9 5544.66
  124.87 5544.73  126.84 5544.81  128.81 5544.98  130.78 5544.96  132.75 5544.96
  134.72 5545.07  136.69 5545.16  138.66 5545.14  140.63 5545.14   142.6 5545.25
  144.57  5545.3  146.54 5545.41  148.51 5545.48  150.48  5545.6  152.45 5545.68
  154.42 5545.75  156.39 5545.73  158.36 5545.79  160.33    5546   162.3 5546.03
  164.27 5546.05  166.24 5546.22  168.21 5546.34  170.18 5546.42  172.15 5546.52
  174.11 5546.59  176.08 5546.63  178.05 5546.69  180.02 5546.79  181.99 5546.88
  183.96 5546.93  185.93 5547.02   187.9 5547.13

Manning's n Values        num=       1
     Sta   n Val
       0     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         29.76   91.26             50.5  101.99    67.4             .1       .3

CROSS SECTION


RIVER: TCC_S_LINDEN
REACH: 1                  RS: 228

INPUT
Description: 228
Station Elevation Data    num=      24
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5574.06    1.94     5574    3.88 5573.97    5.82 5573.92    7.76 5573.88
     9.7 5573.86   11.64 5573.93   13.58 5573.91   15.51 5573.48   16.18 5573.23
   17.45 5572.74   19.39 5571.95   21.33 5571.11   23.27 5570.48   25.21 5570.31
   27.15 5570.56   28.51 5570.94   29.09  5571.1   31.03 5571.56   31.96 5571.83
   32.97 5572.11   34.91 5572.73   36.85 5573.01   38.79  5572.8

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
```

```
       0    .015   16.18     .05   31.96     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         13.58   36.85             58.73   58.63   58.54             .1       .3

CROSS SECTION


RIVER: TCC_S_LINDEN
REACH: 1                   RS: 169

INPUT
Description: 169
Station Elevation Data    num=      20
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5571.13    1.94  5571.1    3.88 5571.06    5.81 5571.04    7.75 5570.99
    9.69 5570.99   11.63 5571.02   13.57 5570.69   13.82  5570.6    15.5 5569.97
   16.52  5569.6   17.44 5569.27   19.38 5568.67   21.32 5568.14   23.26 5568.08
    25.2 5568.53   27.13  5568.9   27.74 5568.92   29.07 5568.98   31.01    5569

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0    .015   16.52     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         13.82   27.74             56.11   56.06   56.01             .1       .3

CROSS SECTION


RIVER: TCC_S_LINDEN
REACH: 1                   RS: 113

INPUT
Description: 113
Station Elevation Data    num=      22
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5568.37    1.96 5568.35    3.91  5568.3    5.87 5568.27    7.82  5568.2
    9.78 5568.18   11.74 5568.14   13.69  5568.2   15.61 5568.25   15.65 5568.25
    17.6 5567.61   18.42 5567.27   19.56 5566.79   21.52 5566.09   23.47 5565.73
   25.43  5565.9   27.38 5566.42   28.55 5566.71   29.34  5566.9    31.3  5567.2
   33.25 5567.23   35.21 5566.92

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0    .015   18.42     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         15.61    31.3             34.59   34.73   34.75             .1       .3

CROSS SECTION


RIVER: TCC_S_LINDEN
REACH: 1                   RS: 79

INPUT
Description: 79
Station Elevation Data    num=      20
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5566.79    1.96 5566.75    3.92 5566.69    5.87 5566.63    7.83  5566.6
    9.79 5566.58   11.75  5566.6    13.7  5566.7   14.78 5566.38   15.66 5566.11
   17.62 5565.02   17.65    5565   19.58 5564.31   21.53 5563.89   23.49 5564.07
   25.45  5564.6   27.12 5565.02   27.41 5565.09   29.36 5565.06   31.32 5564.89

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0    .015   17.65     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         14.78   27.41             25.93   25.89   25.84             .1       .3

CROSS SECTION


RIVER: TCC_S_LINDEN
REACH: 1                   RS: 53

INPUT
Description: 53
Station Elevation Data    num=      19
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5565.55    1.97 5565.47    3.94 5565.42     5.9 5565.37    7.87 5565.33
    9.84 5565.31   11.81 5565.34   13.76 5565.05   13.77 5565.05   15.74 5564.26
   16.67 5563.85   17.71 5563.39   19.68 5562.68   21.65 5562.09   23.61 5562.02
   25.58 5562.45   25.65 5562.47   27.55 5562.95   29.52 5563.42

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0    .015   16.67     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         13.76   29.52              4.47   52.64     6.3             .1       .3

CROSS SECTION


RIVER: TCC_S_SVALLEY
REACH: 1                   RS: 536

INPUT
Description: 536
Station Elevation Data    num=      68
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5606.07    1.98 5605.99    3.96 5605.89    5.95 5605.83    7.93 5605.71
    9.91 5605.64   11.89 5605.57   13.87 5605.38   15.86 5605.27   17.84 5605.21
   19.82 5605.13    21.8 5605.06   23.78 5605.02   25.77 5604.96   27.75 5604.83
   29.73 5604.73   31.71 5604.68   33.69 5604.63   35.68 5604.61   35.84 5604.61
   37.66 5604.58   39.64 5604.64   41.62 5604.55    43.6 5604.54   45.59 5604.42
   47.57 5604.27   49.55 5604.22   51.53 5604.09   53.51 5603.93    55.5 5603.82
   57.48 5603.67   59.46 5603.56   61.44 5603.48   63.42 5603.31   65.41 5603.18
   67.38 5603.21   69.36 5603.26   71.34 5603.32   73.32 5603.33   75.29 5603.43
   77.27 5603.53   79.25 5603.59   81.22 5603.73    83.2 5603.84   85.18 5603.95
   87.16 5604.14   89.13  5604.4   91.11 5604.53   93.09 5604.86   94.94    5605
   95.06 5605.01   97.04 5605.09   99.02  5605.1     101 5605.26  102.97 5605.18
  104.95 5605.08  106.93 5605.08  108.91  5605.1  110.88 5605.19  112.86 5605.25
  114.84 5605.37  116.81 5605.49  118.79 5605.36  120.77 5605.44  122.75  5605.6
  124.72 5605.84   126.7 5605.95  128.68 5606.08

Manning's n Values        num=       1
     Sta   n Val
       0     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         15.86   94.94              52.5    41.8   49.77             .1       .3

CROSS SECTION


RIVER: TCC_S_SVALLEY
```

```
REACH: 1                  RS: 495

INPUT
Description: 495
Station Elevation Data    num=      90
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5602.87       2 5602.86       4 5602.87       6 5602.93       8 5603.08
      10 5603.11      12 5602.97      14 5602.74      16 5602.66   16.44 5602.65
      18 5602.61      20 5602.72   21.99 5602.68   23.99 5602.66   25.99 5602.67
   27.99 5602.68   29.99 5602.69   31.99 5602.65   33.99 5602.61   35.99 5602.58
   37.99 5602.54   39.99 5602.52   41.99 5602.42   43.99 5602.33   45.99 5602.26
   47.99 5602.25   49.99 5602.15   51.99 5602.08   53.99 5602.02   55.99 5602.02
   57.99 5602.03   58.07 5602.04   59.98 5602.05   61.98 5601.96   63.98 5601.88
   65.98 5601.77   67.98 5601.72   69.98 5601.66   71.51 5601.58   71.98 5601.56
   73.98 5601.44   75.98 5601.35   77.98 5601.29   79.98 5601.14   81.98 5601.01
   83.98 5600.97   85.98 5600.93   87.98 5600.94   89.98 5600.94   91.98 5600.93
   93.98 5600.98   95.98 5600.98   97.98 5600.96   99.97 5600.95  101.97 5600.91
  103.97  5600.9  105.97 5600.96  107.97 5601.01  109.97 5601.08  111.97 5601.13
  113.97 5601.24  115.97 5601.24  117.97 5601.26  119.96 5601.38  121.95  5601.6
  123.94 5601.71  125.93 5601.74  127.92 5601.85  129.41 5601.97  129.91 5602.01
   131.9 5602.07  133.89 5602.15  135.88 5602.27  137.87 5602.39  139.87 5602.49
  141.86 5602.67  143.85 5602.78  145.84 5602.89  147.83 5602.97  149.82  5603.1
  151.81 5603.14   153.8  5603.2  155.79 5603.25  157.78 5603.28  159.77 5603.41
  161.76 5603.54  163.75 5603.62  165.74 5603.82  167.73 5603.93  169.72 5603.91

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .06   16.44    .015   58.07     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         59.98  137.87             34.91   47.13   53.98              .1       .3

CROSS SECTION


RIVER: TCC_S_SVALLEY
REACH: 1                  RS: 447

INPUT
Description: 447
Station Elevation Data    num=     113
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5600.75    1.98 5600.64    3.97 5600.59    5.95 5600.59    7.93 5600.68
    9.91 5600.71    11.9  5600.8   13.88 5600.83   15.86 5600.88   17.85 5600.85
   19.83 5600.86   21.81 5600.87    23.8 5600.92   25.78 5600.99   27.76 5601.07
   29.74 5601.11   31.73 5601.06   33.71 5600.91   35.69 5600.67   37.68 5600.84
   39.66 5600.95   41.64 5600.67   42.22 5600.64   43.62 5600.55   45.61 5600.51
   47.59 5600.55   49.57 5600.57   51.56 5600.56   53.54 5600.58   55.52 5600.55
   57.51 5600.57   59.49 5600.58   61.47 5600.52   63.45 5600.47   65.44 5600.44
   66.57  5600.4   67.42 5600.38    69.4 5600.34   71.39 5600.32   73.37 5600.29
   75.35 5600.25   77.33 5600.18   79.32 5600.15    81.3 5600.13   83.28 5600.06
   85.27 5600.02   87.25 5599.98   88.23 5599.97   89.23 5599.96   91.22 5599.87
    93.2 5599.75   95.18 5599.71   97.16 5599.69   99.15 5599.63  101.13 5599.57
  103.11 5599.63   105.1 5599.46  107.08 5599.35  109.06 5599.34  111.04 5599.36
  113.03 5599.36  115.01 5599.37  116.99 5599.38  118.98 5599.28  120.96 5599.27
  122.94 5599.25  124.93 5599.15  126.91 5599.16  128.89 5599.15  130.87 5599.33
  132.86 5599.37  134.84 5599.32  136.82 5599.18  138.81 5599.05  140.79 5599.08
  142.77 5599.17  144.75 5599.15  146.74 5599.07  148.72 5599.05   150.7 5599.04
  152.69 5599.03  154.67 5599.07  156.65 5599.13  158.64 5599.17  160.62 5599.18
   162.6 5599.19  164.58 5599.25  166.57 5599.33  168.55 5599.27  170.53 5599.31
  172.52 5599.36   174.5 5599.38  176.48  5599.4  178.47 5599.63  180.45  5599.7
  182.43 5599.77  184.41 5599.88   186.4 5599.95  188.38 5600.14  190.36 5600.55
  192.35 5601.17  194.33 5601.84  196.31 5602.31  198.29 5602.62  198.95 5602.67
  200.28 5602.77  202.26 5602.89  204.24 5602.92  206.23 5603.01  208.21 5603.13
  210.19 5603.24  212.18 5603.33  214.16 5603.39

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .06   42.22    .015   88.23     .05  198.95    .015

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         66.57   186.4            115.22  149.57  146.75              .1       .3

CROSS SECTION


RIVER: TCC_S_SVALLEY
REACH: 1                  RS: 298

INPUT
Description: 298
Station Elevation Data    num=      75
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5595.44    1.99 5595.43    3.98 5595.49    5.97 5595.58    7.96 5595.67
    9.95 5595.67   11.94 5595.63   13.93 5595.62   15.91  5595.5    17.9 5595.41
   19.89 5595.39   21.88 5595.45   23.87 5595.38   25.86 5595.35   27.85 5595.28
   29.84 5595.25   31.83  5595.2   33.82 5595.09   35.81 5594.98    37.8 5594.91
   39.79 5594.67   41.78 5594.42   43.76 5594.21   45.75 5594.26   47.74 5594.26
   49.73 5594.17   51.72 5593.97   53.71 5593.77    55.7  5593.6   57.69 5593.53
   59.68 5593.54   61.67 5593.55   63.66 5593.56   65.65 5593.55   67.64 5593.66
   69.63 5593.73   71.62 5593.83    73.6 5593.97   75.59 5594.09   77.58 5594.45
   79.57 5594.98   80.48 5594.88   81.56 5594.77   83.55 5594.35   85.54 5594.06
   87.53 5593.96   89.52  5593.8   91.51 5593.58    93.5 5593.46   95.49 5593.34
   97.48 5593.23   99.47 5593.17  101.45 5593.05  103.44 5592.91  105.43 5592.76
  107.42 5592.73  109.41 5592.73   111.4 5592.67  113.39 5592.64  115.38 5592.35
  117.37 5592.23  119.36  5592.1  121.35 5591.94  123.34  5591.9  125.33 5592.14
  125.96 5592.19  127.32  5592.3  129.31 5592.47  131.29 5592.57  133.28 5592.58
  134.86 5592.59  135.27 5592.59  137.26  5592.6  139.25 5592.67  141.24 5592.71

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
       0     .06  125.96    .015

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         80.48  141.24            106.96  112.14  113.26              .1       .3

CROSS SECTION


RIVER: TCC_S_SVALLEY
REACH: 1                  RS: 186

INPUT
Description: 186
Station Elevation Data    num=      57
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 5588.85    1.98 5588.74    3.96 5588.63    5.95 5588.53    7.93 5588.41
    9.91 5588.28   11.89 5588.19   13.87 5588.11   15.85 5588.06   17.84 5587.98
   19.82 5587.93    21.8 5587.88   23.78 5587.73   25.76 5587.69   27.74 5587.67
   29.73 5587.65   31.71 5587.64   33.69 5587.63   35.67 5587.66   37.65 5587.66
   39.64 5587.69   41.62 5587.77    43.6 5587.79   45.58 5587.83   47.56 5587.92
   49.54 5587.98   51.53 5587.97   53.51 5587.96   55.49 5587.89   57.47 5587.79
   59.45 5587.75   61.43 5587.66   63.42 5587.59    65.4 5587.61   67.38  5587.6
   68.49  5587.6   69.36  5587.6   71.34  5587.5   73.33 5587.37   75.31 5587.41
   77.29 5587.29   79.27  5587.1   81.25 5586.79   83.23 5586.67   85.22 5586.68
    87.2  5587.1   89.18 5587.23   90.64 5587.35   91.16 5587.39   93.14 5587.44
   95.12  5587.5   97.11 5587.48   98.27 5587.48   99.09 5587.48  101.07 5587.51
  103.05 5587.55  105.03 5587.56

Manning's n Values        num=       2
```

Sta	n Val	Sta	n Val
0	.06	90.64	.015

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
69.36	95.12	106.05	185.76	135.27	.1	.3

SUMMARY OF MANNING'S N VALUES

River:TCC

Reach	River Sta.	n1	n2	n3	n4	n5
5	11886	.1	.06	.1		
5	11801	.1	.06	.1		
5	11665	.1	.06	.1		
5	11524	.1	.06	.1		
5	11364	.1	.06	.1		
5	11247	.1	.06	.1		
5	11120	.1	.06	.1		
5	11017	.1	.06	.1		
5	10968	.1	.06			
5	10881	.1	.06			
5	10814	.1	.06			
5	10710	.1	.06	.1		
5	10638	.1	.06	.1		
5	10520	.1	.06	.1		
5	10449	.1	.06	.1		
5	10342	.1	.06	.1		
5	10226	.1	.06	.1		
5	10102	.1	.06	.05		
5	10013	.1	.06			
5	9960	.015	.1	.06		
5	9942	.015	.06			
5	9937	Culvert				
5	9888	.08	.06	.06		
5	9844	.08	.06	.06		
5	9755	.08	.06	.06		
5	9664	.08	.06	.06		
4	9501	.08	.06	.06	.015	
4	9475	.08	.06	.06	.015	
4	9467	Bridge				
4	9452	.08	.06	.06	.015	
4	9423	.08	.06	.06	.015	
4	9374	.08	.06	.015		
4	9368	Culvert				
4	9260	.13	.015			
4	9226	.13	.015			
4	9176	.13	.015			
4	9168	Culvert				
4	9123	.015	.05	.015		
3	9110	.015	.05	.13		
3	9005	.015	.13	.05	.13	
3	8912	.13	.05	.13		
3	8792	.13	.05	.13		
2	8675	.13	.05	.13		
2	8573	.13	.05	.13		
2	8525	.13	.05	.13		
2	8474	.13	.05	.13		
2	8461	Bridge				
2	8448	.13	.05	.13		
2	8437	.13	.05	.13		
2	8427	Bridge				
2	8413	.13	.05	.13		
2	8395	.13	.05	.13		
2	8367	.13	.05	.13		
2	8276	.13	.05	.13		
2	8215	.13	.05	.13	.015	
2	8201	Culvert				
2	8137	.13	.05	.13		
2	8109	.13	.05	.13		
2	8004	.13	.05	.13		
2	7898	.13	.05	.13		
2	7857	.13	.05	.13		
2	7850	Bridge				
2	7844	.13	.05	.13		
2	7822	.13	.05	.13		
2	7767	.13	.05	.13		
2	7750	.13	.05	.13		
2	7749	Bridge				
2	7743	.13	.05	.13		
2	7726	.13	.05	.13		
2	7719	Bridge				
2	7713	.13	.05	.13		
2	7681	.13	.05	.13		
2	7608	.13	.05	.13		
2	7504	.13	.05	.13		
2	7430	.13	.05	.13	.015	
2	7426	Culvert				
2	7371	.015	.13	.04	.13	.015
2	7359	.015	.13	.04	.13	
2	7298	.13	.04	.13		
2	7226	.13	.04	.13		
2	7203	.13	.04	.13		
2	7173	.13	.04	.13		
2	7158	.13	.04	.13		
2	7138	.13	.04	.13		
2	7004	.13	.08	.04	.13	
2	6880	.13	.08	.13		
2	6777	.13	.08	.13	.015	.13
2	6760	.13	.08	.06	.015	.13
2	6731	.13	.05	.08	.06	.015
2	6637	.13	.05	.06		
2	6629	.13	.05	.06		
2	6595	.13	.05	.06		
2	6524	.13	.05	.06		
2	6515	.13	.05	.06		
2	6466	.13	.05	.06		
2	6454	.13	.05	.06		
2	6423	.13	.05	.06		
2	6372	.13	.05	.06		
2	6361	.13	.05	.06		
2	6303	.13	.05	.06		
2	6278	.13	.05	.06		
2	6265	.13	.05	.06		
2	6228	.13	.05	.06		
2	6209	Bridge				
2	6175	.13	.05	.06		
2	6082	.13	.05	.06		
2	5996	.13	.05	.06		
2	5959	.13	.05	.06		
2	5900	.015	.06			
2	5861	.015	.06			
2	5763	.015	.13			
2	5624	.015	.13			
2	5439	.015	.13			
2	5363	.13	.015	.13		
2	5288	.13				
2	5167	.13				

2	4996	.015				
2	4922	.13	.015	.13	.05	
2	4840	.13	.015	.13	.015	.13
2	4700	.13	.015	.13		
2	4630	.015				
2	4561	.13	.015	.13		
2	4486	.13	.015	.13		
2	4375	.13	.015	.13		
2	4209	.13	.015	.13		
2	4137	.13	.015	.05		
2	3976	.13	.015	.05		
2	3862	.13	.015	.05		
2	3677	.13	.015	.05		
2	3536	.13	.015	.13		
2	3458	.13	.015	.13		
2	3399	.13	.015	.13		
2	3310	.13	.015	.13		
2	3186	.13	.015	.13		
2	3018	.13	.015	.13		
2	2915	.13	.015	.13		
2	2862	.015	.13			
2	2799	.015	.13			
2	2689	.015	.13			
2	2563	.015	.13			
2	2490	.015	.13			
2	2434	.015	.13			
2	2294	.13	.015	.13		
2	2183	.13	.015	.13		
2	2084	.13	.015	.13		
2	1955	.13	.015	.13		
2	1763	.13	.015	.13		
2	1611	.13	.015	.13		
2	1466	.13	.015	.13		
2	1303	.13	.015	.13		
2	1161	.13	.015	.13		
2	1017	.13	.015	.13		
2	861	.13	.015	.13		
2	735	.13	.015	.13		
1	610	.13	.015	.13		
1	499	.13	.015	.13		
1	429	.13	.015	.13		
1	331	.13	.015	.13		
1	216	.13	.015			
1	39	.13	.015	.015	.13	.015

River:TCC_S1

Reach	River Sta.	n1	n2	n3	n4	n5
7	9130	.015	.09			
7	9043	.09				
7	8909	.09	.015			
7	8826	.09	.015	.09		
6	8699	.13	.015	.09		
6	8612	.13	.015	.09		
6	8447	.13	.015	.09		
6	8352	.13	.015	.015	.13	
6	8109	.13	.015			
6	7933	.13				
6	7712	.13	.015			
6	7550	.015	.13	.015		
6	7408	.13	.015	.13		
6	7247	.13	.015	.13		
6	7148	.015	.13			
6	6977	.13				
6	6770	.13				
6	6680	.13				
6	6559	.13				
6	6468	.13				
6	6392	.13				
6	6244	.13				
6	6177	.13	.015			
6	6082	.13	.015	.13		
6	5944	.13	.015			
6	5821	.13	.015			
6	5697	.015				
6	5576	.06	.015	.13		
5	5433	.13				
5	5288	.13				
5	5122	.13	.015			
4	4977	.13	.015	.13		
4	4935	.13	.015	.13		
4	4876	.13	.015	.13		
4	4785	.13	.015	.13		
4	4612	.13	.015	.13		
4	4529	.13	.015	.13		
4	4429	.13	.015	.13		
4	4324	.13	.015	.13		
4	4305	.13	.015	.13		
3	4186	.06	.015	.13		
3	4070	.06	.015	.13		
3	3915	.06	.015	.13		
3	3739	.06	.015	.13		
3	3537	.13	.015	.13		
3	3334	.13	.015	.13		
3	3157	.13	.015	.13		
3	2964	.13	.015	.13		
3	2722	.13	.015	.13		
3	2553	.13	.015	.13		
3	2421	.13	.015	.13		
3	2327	.13	.015	.13		
3	2243	.13	.015	.13		
2	2173	.13	.015	.13		
2	2143	.13	.015	.13		
2	2059	.13	.015	.13		
2	1983	.13	.015	.13		
2	1904	.13	.015	.13		
2	1837	.13	.015	.13		
2	1762	.13	.015	.13		
2	1682	.13				
2	1585	.13	.015	.13		
2	1462	.13	.015	.13		
2	1336	.13	.015	.13		
2	1215	.13	.015	.13		
2	1114	.13	.015	.015	.13	
2	1053	.13	.015	.13		
2	934	.13	.015	.13		
2	802	.13	.015	.13		
2	703	.13	.015	.13		
1	603	.13	.015	.13		
1	541	.13	.015	.13	.015	.13
1	459	.13	.015	.13		
1	379	.13	.015	.13		
1	252	.13	.015	.13		
1	175	.13	.015	.13		
1	105	.13	.015	.13		

River:TCC_S1_4TH

Reach	River Sta.	n1	n2	n3
1	415	.015	.09	
1	334	.015	.09	
1	260	.13	.015	.09
1	190	.13	.015	.09
1	79	.015	.09	

River:TCC_S1_ELDER

Reach	River Sta.	n1	n2	n3
1	1548	.13	.015	.13
1	1436	.13	.015	.13
1	1296	.13	.015	.13
1	1168	.13	.015	.13
1	1028	.13	.015	.13
1	880	.13	.015	.13
1	772	.13	.015	.13
1	670	.13	.015	.13
1	536	.13	.015	.13
1	459	.13	.015	.13
1	320	.13	.015	.13
1	234	.13	.015	.13
1	162	.13	.015	.13
1	91	.13	.015	.13

River:TCC_S1_GRAPE

Reach	River Sta.	n1	n2	n3
2	766	.13	.015	.13
2	751	.13	.015	.13
2	665	.13	.015	.13
2	623	.13	.015	.13
2	533	.13	.015	.13
1	441	.06	.015	.13
1	345	.05	.015	.13
1	226	.05	.015	.13
1	127	.06	.015	.13
1	75	.06	.015	.13

River:TCC_S1_HAWTHORN

Reach	River Sta.	n1	n2	n3	n4
1	984	.06	.015	.13	
1	763	.06	.015	.13	
1	539	.06	.015	.13	
1	366	.06	.015	.13	
1	257	.05	.015	.13	
1	157	.05	.015	.13	
1	46	.06	.015	.015	.13

River:TCC_S2

Reach	River Sta.	n1	n2	n3	n4
1	7815	.13	.015	.13	
1	7766	.13	.015	.13	
1	7708	.015	.13		
1	7625	.015	.13		
1	7510	.015	.13		
1	7371	.015	.13		
1	7287	.015	.13		
1	7123	.015	.13		
1	6941	.015	.13	.015	.13
1	6743	.13			
1	6656	.13	.015		
1	6524	.13	.015		
1	6385	.13	.015		
1	6313	.13	.015		
1	6165	.13	.015		
1	6087	.13	.015	.13	
1	5962	.015	.13		
1	5725	.06	.015		
1	5571	.06	.015		
1	5389	.06	.015	.13	
1	5170	.06	.015	.13	
1	4927	.05	.015	.13	
1	4591	.05	.015	.13	
1	4543	.015	.13		
1	4455	.13	.015	.13	
1	4307	.13	.015	.13	
1	4216	.13	.015	.13	
1	4041	.13	.015	.13	
1	3841	.13	.015	.13	
1	3679	.13	.015	.13	
1	3568	.13	.015	.13	
1	3484	.13	.015	.13	
1	3402	.13	.015	.13	
1	3270	.13	.015	.13	
1	3117	.13	.015	.13	
1	3071	.13	.015	.015	
1	2915	.13	.015	.13	
1	2727	.13	.015	.13	
1	2561	.13	.015	.13	
1	2406	.13	.015	.13	
1	2208	.13	.015	.13	
1	1935	.13	.015	.13	.015
1	1628	.13	.015	.13	
1	1300	.13	.015	.13	
1	975	.13	.015	.13	
1	802	.13	.015	.13	
1	563	.13	.015	.13	
1	366	.13	.015	.06	
1	78	.13	.015	.06	

River:TCC_S_4TH

Reach	River Sta.	n1	n2
1	645	.05	.13
1	510	.13	
1	407	.13	
1	264	.13	
1	102	.13	

River:TCC_S_LINDEN

Reach	River Sta.	n1	n2	n3
1	228	.015	.05	.13

1	169	.015	.05		
1	113	.015	.05		
1	79	.015	.05		
1	53	.015	.05		

River:TCC_S_SVALLEY

Reach	River Sta.	n1	n2	n3	n4
1	536	.05			
1	495	.06	.015	.05	
1	447	.06	.015	.05	.015
1	298	.06	.015		
1	186	.06	.015		

SUMMARY OF REACH LENGTHS

River: TCC

Reach	River Sta.	Left	Channel	Right
5	11886	83.82	85.4	78.21
5	11801	130.64	136.25	134.09
5	11665	117.95	140.45	148.65
5	11524	160.94	160.53	150.93
5	11364	116.74	116.28	110.1
5	11247	121.65	127.59	127.5
5	11120	110.3	102.66	80.46
5	11017	53.5	49.36	41.04
5	10968	94.18	86.68	66.51
5	10881	67.05	66.72	65.89
5	10814	91.73	104.43	119.18
5	10710	67.97	71.97	77.66
5	10638	118.03	117.56	116.38
5	10520	73.97	71.86	66.07
5	10449	109.98	106.84	105.03
5	10342	112.53	115.47	117.53
5	10226	116.14	123.8	128.2
5	10102	93.98	89.5	88.79
5	10013	51.5	52.96	54.03
5	9960	17.84	18.04	18.11
5	9942	48.06	53.44	60.76
5	9937	Culvert		
5	9888	47.82	44.41	41.49
5	9844	89.84	88.6	86.77
5	9755	89.87	91.06	92.97
5	9664	177.06	163.41	139.47
4	9501	33.85	26.46	18.44
4	9475	24.19	23.02	27.51
4	9467	Bridge		
4	9452	5.66	28.72	52.26
4	9423	47.4	49.29	50.82
4	9374	112.3	113.36	114.76
4	9368	Culvert		
4	9260	33.85	33.88	34.35
4	9226	55.1	49.88	27.84
4	9176	56.08	53.11	27.66
4	9168	Culvert		
4	9123	9.02	13.22	38.6
3	9110	107.36	105.02	106
3	9005	94.83	92.83	90.18
3	8912	127.67	120.13	109.5
3	8792	114.95	117.12	118.74
2	8675	97.15	101.94	112.14
2	8573	47.03	48.13	50.74
2	8525	51.13	50.59	49.03
2	8474	26.05	26.56	27.34
2	8461	Bridge		
2	8448	11.47	11.18	10.53
2	8437	23.15	23.09	23.07
2	8427	Bridge		
2	8413	19.78	18.3	15.58
2	8395	30.53	28.58	25.65
2	8367	100.5	90.58	74.36
2	8276	66.71	61.11	52.72
2	8215	72.69	78.26	85.02
2	8201	Culvert		
2	8137	30.36	27.26	24.13
2	8109	99.23	104.92	112.21
2	8004	110.51	106.42	98.25
2	7898	35.01	40.6	51.06
2	7857	12.62	13.86	15.31
2	7850	Bridge		
2	7844	17.79	21.4	25.75
2	7822	56	55.12	32.47
2	7767	13.22	17.09	30.73
2	7750	11.13	6.92	15.34
2	7749	Bridge		
2	7743	16.82	17.31	18.55
2	7726	15.06	12.59	11.37
2	7719	Bridge		
2	7713	38.08	32.31	20.42
2	7681	75.92	72.66	60.74
2	7608	101.48	104.1	113.77
2	7504	73.01	73.92	74.54
2	7430	53.78	59.12	56.16
2	7426	Culvert		
2	7371	13.49	11.56	19.3
2	7359	64.46	61.45	57.1
2	7298	69.88	71.95	76.49
2	7226	22.78	23.42	24.11
2	7203	5.1	29.47	30.24
2	7173	15.64	15.34	16.42
2	7158	39.42	19.72	22.58
2	7138	122.51	134	112.71
2	7004	122.09	124.01	159.38
2	6880	98.33	103.46	102.58
2	6777	16.15	16.24	16.49
2	6760	28.54	29.58	28.82
2	6731	93.52	93.46	93.51
2	6637	8.55	8.63	8.72
2	6629	33.67	33.88	34.11
2	6595	70.88	71.24	71.72
2	6524	8.83	8.78	8.72
2	6515	48.37	48.52	48.7
2	6466	12.47	12.18	11.89
2	6454	31.11	31.43	31.79
2	6423	50.83	50.48	50.29
2	6372	10.92	11.01	11.09
2	6361	58.22	58.18	58.17
2	6303	24.78	24.85	24.9
2	6278	13.88	13.57	8.95
2	6265	77.02	36.2	7.71
2	6228	35.83	53.75	49.54
2	6209	Bridge		
2	6175	70.5	92.89	130.25

2	6082	86.97	86.27	86.28
2	5996	37.03	36.68	37.4
2	5959	60.74	58.73	57.45
2	5900	44.45	39.24	34.12
2	5861	99.21	97.96	96.72
2	5763	136.35	138.57	140.79
2	5624	168.47	185.16	190.51
2	5439	88.42	75.77	74.47
2	5363	78.03	75.61	74.86
2	5288	117.68	120.73	130.53
2	5167	117.86	170.61	145.82
2	4996	123.21	74.06	74.57
2	4922	82.41	82.68	82.74
2	4840	142.24	139.33	137.03
2	4700	67.82	70.43	72.48
2	4630	68.94	68.8	68.66
2	4561	74.97	75.2	75.43
2	4486	111.02	111.06	111.09
2	4375	167.05	165.45	163.84
2	4209	73.93	72.85	71.77
2	4137	162.03	160.28	158.5
2	3976	113.99	114.54	115.08
2	3862	181.54	185.19	188.85
2	3677	140.68	140.79	140.9
2	3536	85.06	78.27	71.4
2	3458	63.82	58.47	52.63
2	3399	85.36	88.7	92.04
2	3310	116.05	124.62	132.94
2	3186	167	167.56	168.11
2	3018	103.3	103.38	103.46
2	2915	60.02	53.21	46.38
2	2862	68.54	62.79	56.58
2	2799	109.14	109.36	109.57
2	2689	126.92	126.7	126.49
2	2563	72.4	72.4	72.4
2	2490	56.1	56.07	56.03
2	2434	139.8	140.52	141.25
2	2294	111.19	111.21	111.23
2	2183	99.08	98.84	98.59
2	2084	128.67	128.31	127.94
2	1955	192.85	192.81	192.76
2	1763	151.45	151.4	151.35
2	1611	145.25	145.4	145.55
2	1466	163.24	163.14	163.04
2	1303	141.36	141.47	141.57
2	1161	144.64	144.57	144.49
2	1017	155.28	155.2	155.11
2	861	126.34	126.34	126.34
2	735	125.04	125.26	125.48
1	610	110.44	111.25	112.06
1	499	69.84	69.5	69.16
1	429	97.67	97.65	97.63
1	331	115.42	114.92	114.42
1	216	153.56	177.74	201.12
1	39	53.47	38.74	24.23

River: TCC_S1

Reach	River Sta.	Left	Channel	Right
7	9130	60.27	87.33	140.45
7	9043	119.03	133.82	156.09
7	8909	75.28	83.05	60.78
7	8826	155.7	126.87	72.81
6	8699	68.36	86.97	120.47
6	8612	205.23	165.61	134.51
6	8447	112.79	94.98	92.84
6	8352	191.99	242.58	220.39
6	8109	166.12	176.28	181.04
6	7933	214.47	220.44	249.04
6	7712	126.04	162.15	172.4
6	7550	135.11	141.77	128.71
6	7408	173.87	161.65	154.87
6	7247	107.51	98.92	46.53
6	7148	132.3	170.72	205.23
6	6977	196.43	206.64	210.62
6	6770	94.64	90.24	87.93
6	6680	111.6	121.2	124.41
6	6559	92.24	91.53	91.54
6	6468	85.5	75.76	67.32
6	6392	131.96	147.38	30.25
6	6244	119.1	67.17	80.01
6	6177	91.4	95.39	87.12
6	6082	116.3	137.83	175.36
6	5944	114.39	122.73	127.6
6	5821	68.35	124.13	54.57
6	5697	167.64	121.01	161.74
6	5576	166.12	143	115.06
5	5433	133.05	145.34	176.22
5	5288	182.27	165.66	111.88
5	5122	154.85	144.87	184.91
4	4977	42.09	42.6	43.08
4	4935	58.5	58.58	58.65
4	4876	91.11	91.22	91.34
4	4785	172.75	172.63	172.52
4	4612	70.27	82.92	95.24
4	4529	100.85	100.61	100.37
4	4429	107.72	104.93	102.12
4	4324	19	18.81	18.61
4	4305	128.77	119.06	109.23
3	4186	115.83	116.26	116.62
3	4070	154.76	154.76	154.76
3	3915	176.04	176.04	176.04
3	3739	201.99	201.95	201.91
3	3537	201.49	203.16	204.82
3	3334	164.69	176.5	187.34
3	3157	193.12	193.11	193.1
3	2964	242.27	242.32	242.38
3	2722	169.29	169.21	169.14
3	2553	131.89	131.82	131.76
3	2421	94.17	93.56	92.95
3	2327	90.05	84.11	78.16
3	2243	73.61	70.47	67
2	2173	31.46	29.55	27.6
2	2143	84.84	84.2	83.56
2	2059	75.63	75.68	75.74
2	1983	79.45	79.09	78.73
2	1904	58.97	66.9	73.67
2	1837	70.97	74.95	78.93
2	1762	85.28	80.29	74.36
2	1682	93.4	97.03	100.48
2	1585	119.04	122.5	125.95
2	1462	138.53	126.64	114.57
2	1336	121.25	120.61	119.97
2	1215	94.84	101.4	107.6
2	1114	54.41	60.69	67.11
2	1053	119.16	119.19	119.22
2	934	132.11	132.26	132.42
2	802	98.45	98.4	98.35

2	703	107.9	100.65	93.08
1	603	55.49	61.38	66.4
1	541	81.85	81.88	81.91
1	459	79.16	80.16	81.16
1	379	126.78	127.32	127.87
1	252	77.21	77.03	76.86
1	175	70.97	70.31	69.66
1	105	40.77	104.51	40.02

River: TCC_S1_4TH

Reach	River Sta.	Left	Channel	Right
1	415	76.9	81.58	85.92
1	334	84.95	73.04	60.67
1	260	70.52	70.73	70.94
1	190	111	110.45	109.89
1	79	34.6	79.3	33.1

River: TCC_S1_ELDER

Reach	River Sta.	Left	Channel	Right
1	1548	111.88	111.98	111.87
1	1436	139.8	139.8	139.8
1	1296	128.41	128.42	128.43
1	1168	139.82	139.63	139.43
1	1028	147.22	147.52	147.82
1	880	108.42	108.32	108.21
1	772	114.33	101.79	88.22
1	670	129.96	134.48	138.97
1	536	80.8	76.55	72.06
1	459	139.12	139.33	139.72
1	320	86.69	86.45	86.22
1	234	71.85	71.77	71.68
1	162	70.38	70.49	70.6
1	91	69.5	91.27	76.83

River: TCC_S1_GRAPE

Reach	River Sta.	Left	Channel	Right
2	766	14.73	14.68	14.63
2	751	86.65	86.3	85.93
2	665	41.46	41.99	42.53
2	623	90.73	90	89.28
2	533	103.61	91.62	79.11
1	441	96.67	96.69	96.72
1	345	118.6	118.54	118.49
1	226	99.1	99.18	99.25
1	127	52.62	52.42	52.27
1	75	51.72	74.52	45.17

River: TCC_S1_HAWTHORN

Reach	River Sta.	Left	Channel	Right
1	984	220.91	220.97	220.83
1	763	223.26	223.43	223.6
1	539	173.1	173.04	172.98
1	366	121.42	108.98	96.16
1	257	100.35	100.28	100.2
1	157	110.81	110.68	110.55
1	46	26.84	46.25	25.18

River: TCC_S2

Reach	River Sta.	Left	Channel	Right
1	7815	38.69	49.13	60.03
1	7766	64.65	57.98	70.27
1	7708	93.08	82.57	78.2
1	7625	132.03	114.69	45.15
1	7510	145.41	139.52	167.68
1	7371	65.98	83.41	121.08
1	7287	148.52	164.21	150.17
1	7123	166.93	181.73	189.26
1	6941	110.97	198.16	201.68
1	6743	133.08	87.45	89.59
1	6656	97.88	131.84	126.03
1	6524	198.42	139.07	70.13
1	6385	55.9	72.17	115.59
1	6313	84.61	147.8	96.23
1	6165	78.3	77.55	92.67
1	6087	209.6	125.84	82.3
1	5962	218.91	237.1	301.89
1	5725	153.79	153.62	156.33
1	5571	178.48	182.38	190.35
1	5389	218.31	218.73	219.16
1	5170	243.15	243.06	242.88
1	4927	336.23	335.86	335.49
1	4591	47.9	48.3	48.68
1	4543	88.65	88.02	87.4
1	4455	147.91	147.74	147.58
1	4307	90.83	91.2	91.57
1	4216	177.42	174.64	171.9
1	4041	197.95	199.9	201.78
1	3841	161.3	162.1	162.88
1	3679	110.76	111.05	111.32
1	3568	85.67	83.86	82.08
1	3484	80.76	82.13	83.48
1	3402	131.15	131.64	132.12
1	3270	153.19	153.08	152.98
1	3117	46.03	46.09	46.15
1	3071	156.33	156.13	155.94
1	2915	188.14	188.18	188.22
1	2727	165.41	165.81	166.19
1	2561	155.29	155.13	154.97
1	2406	197.93	198.18	198.43
1	2208	272.65	272.77	272.88
1	1935	307.4	307.13	306.85
1	1628	327.73	327.41	327.1
1	1300	325.08	324.87	324.66
1	975	173.24	173.44	173.65
1	802	239.27	239.5	239.73
1	563	196.11	196.06	196.02
1	366	290.94	288.95	286.99
1	78	83.2	77.54	71.7

River: TCC_S_4TH

Reach	River Sta.	Left	Channel	Right
1	645	139.39	135.78	132.16

1	510	103.39	102.74	102.09
1	407	143.44	143.18	142.93
1	264	160.39	161.77	163.12
1	102	50.5	101.99	67.4

River: TCC_S_LINDEN

Reach	River Sta.	Left	Channel	Right
1	228	58.73	58.63	58.54
1	169	56.11	56.06	56.01
1	113	34.59	34.73	34.75
1	79	25.93	25.89	25.84
1	53	4.47	52.64	6.3

River: TCC_S_SVALLEY

Reach	River Sta.	Left	Channel	Right
1	536	52.5	41.8	49.77
1	495	34.91	47.13	53.98
1	447	115.22	149.57	146.75
1	298	106.96	112.14	113.26
1	186	106.05	185.76	135.27

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: TCC

Reach	River Sta.	Contr.	Expan.
5	11886	.1	.3
5	11801	.1	.3
5	11665	.1	.3
5	11524	.1	.3
5	11364	.1	.3
5	11247	.1	.3
5	11120	.1	.3
5	11017	.1	.3
5	10968	.1	.3
5	10881	.1	.3
5	10814	.1	.3
5	10710	.1	.3
5	10638	.1	.3
5	10520	.1	.3
5	10449	.1	.3
5	10342	.1	.3
5	10226	.1	.3
5	10102	.1	.3
5	10013	.1	.3
5	9960	.1	.3
5	9942	.6	.8
5	9937 Culvert		
5	9888	.6	.8
5	9844	.1	.3
5	9755	.1	.3
5	9664	.1	.3
4	9501	.1	.3
4	9475	.3	.5
4	9467 Bridge		
4	9452	.3	.5
4	9423	.1	.3
4	9374	.6	.8
4	9368 Culvert		
4	9260	.6	.8
4	9226	.1	.3
4	9176	.6	.8
4	9168 Culvert		
4	9123	.6	.8
3	9110	.1	.3
3	9005	.1	.3
3	8912	.1	.3
3	8792	.1	.3
2	8675	.1	.3
2	8573	.1	.3
2	8525	.1	.3
2	8474	.3	.5
2	8461 Bridge		
2	8448	.3	.5
2	8437	.3	.5
2	8427 Bridge		
2	8413	.3	.5
2	8395	.1	.3
2	8367	.1	.3
2	8276	.1	.3
2	8215	.6	.8
2	8201 Culvert		
2	8137	.6	.8
2	8109	.1	.3
2	8004	.1	.3
2	7898	.1	.3
2	7857	.3	.5
2	7850 Bridge		
2	7844	.3	.5
2	7822	.1	.3
2	7767	.1	.3
2	7750	.3	.5
2	7749 Bridge		
2	7743	.3	.5
2	7726	.3	.5
2	7719 Bridge		
2	7713	.3	.5
2	7681	.1	.3
2	7608	.1	.3
2	7504	.1	.3
2	7430	.6	.8
2	7426 Culvert		
2	7371	.6	.8
2	7359	.1	.3
2	7298	.1	.3
2	7226	.1	.3
2	7203	.1	.3
2	7173	.1	.3
2	7158	.1	.3
2	7138	.1	.3
2	7004	.1	.3
2	6880	.1	.3
2	6777	.1	.3
2	6760	.1	.3
2	6731	.1	.3
2	6637	.1	.3
2	6629	.1	.3
2	6595	.1	.3
2	6524	.1	.3
2	6515	.1	.3

2	6466		.1	.3
2	6454		.1	.3
2	6423		.1	.3
2	6372		.1	.3
2	6361		.1	.3
2	6303		.1	.3
2	6278		.1	.3
2	6265		.1	.3
2	6228		.3	.5
2	6209	Bridge		
2	6175		.3	.5
2	6082		.1	.3
2	5996		.1	.3
2	5959		.1	.3
2	5900		.1	.3
2	5861		.1	.3
2	5763		.1	.3
2	5624		.1	.3
2	5439		.1	.3
2	5363		.1	.3
2	5288		.1	.3
2	5167		.1	.3
2	4996		.1	.3
2	4922		.1	.3
2	4840		.1	.3
2	4700		.1	.3
2	4630		.1	.3
2	4561		.1	.3
2	4486		.1	.3
2	4375		.1	.3
2	4209		.1	.3
2	4137		.1	.3
2	3976		.1	.3
2	3862		.1	.3
2	3677		.1	.3
2	3536		.1	.3
2	3458		.1	.3
2	3399		.1	.3
2	3310		.1	.3
2	3186		.1	.3
2	3018		.1	.3
2	2915		.1	.3
2	2862		.1	.3
2	2799		.1	.3
2	2689		.1	.3
2	2563		.1	.3
2	2490		.1	.3
2	2434		.1	.3
2	2294		.1	.3
2	2183		.1	.3
2	2084		.1	.3
2	1955		.1	.3
2	1763		.1	.3
2	1611		.1	.3
2	1466		.1	.3
2	1303		.1	.3
2	1161		.1	.3
2	1017		.1	.3
2	861		.1	.3
2	735		.1	.3
1	610		.1	.3
1	499		.1	.3
1	429		.1	.3
1	331		.1	.3
1	216		.1	.3
1	39		.1	.3

River: TCC_S1

Reach	River Sta.	Contr.	Expan.
7	9130	.1	.3
7	9043	.1	.3
7	8909	.1	.3
7	8826	.1	.3
6	8699	.1	.3
6	8612	.1	.3
6	8447	.1	.3
6	8352	.1	.3
6	8109	.1	.3
6	7933	.1	.3
6	7712	.1	.3
6	7550	.1	.3
6	7408	.1	.3
6	7247	.1	.3
6	7148	.1	.3
6	6977	.1	.3
6	6770	.1	.3
6	6680	.1	.3
6	6559	.1	.3
6	6468	.1	.3
6	6392	.1	.3
6	6244	.1	.3
6	6177	.1	.3
6	6082	.1	.3
6	5944	.1	.3
6	5821	.1	.3
6	5697	.1	.3
6	5576	.1	.3
5	5433	.1	.3
5	5288	.1	.3
5	5122	.1	.3
4	4977	.1	.3
4	4935	.1	.3
4	4876	.1	.3
4	4785	.1	.3
4	4612	.1	.3
4	4529	.1	.3
4	4429	.1	.3
4	4324	.1	.3
4	4305	.1	.3
3	4186	.1	.3
3	4070	.1	.3
3	3915	.1	.3
3	3739	.1	.3
3	3537	.1	.3
3	3334	.1	.3
3	3157	.1	.3
3	2964	.1	.3
3	2722	.1	.3
3	2553	.1	.3
3	2421	.1	.3
3	2327	.1	.3
3	2243	.1	.3
2	2173	.1	.3
2	2143	.1	.3
2	2059	.1	.3
2	1983	.1	.3
2	1904	.1	.3

2	1837	.1	.3
2	1762	.1	.3
2	1682	.1	.3
2	1585	.1	.3
2	1462	.1	.3
2	1336	.1	.3
2	1215	.1	.3
2	1114	.1	.3
2	1053	.1	.3
2	934	.1	.3
2	802	.1	.3
2	703	.1	.3
1	603	.1	.3
1	541	.1	.3
1	459	.1	.3
1	379	.1	.3
1	252	.1	.3
1	175	.1	.3
1	105	.1	.3

River: TCC_S1_4TH

Reach	River Sta.	Contr.	Expan.
1	415	.1	.3
1	334	.1	.3
1	260	.1	.3
1	190	.1	.3
1	79	.1	.3

River: TCC_S1_ELDER

Reach	River Sta.	Contr.	Expan.
1	1548	.1	.3
1	1436	.1	.3
1	1296	.1	.3
1	1168	.1	.3
1	1028	.1	.3
1	880	.1	.3
1	772	.1	.3
1	670	.1	.3
1	536	.1	.3
1	459	.1	.3
1	320	.1	.3
1	234	.1	.3
1	162	.1	.3
1	91	.1	.3

River: TCC_S1_GRAPE

Reach	River Sta.	Contr.	Expan.
2	766	.1	.3
2	751	.1	.3
2	665	.1	.3
2	623	.1	.3
2	533	.1	.3
1	441	.1	.3
1	345	.1	.3
1	226	.1	.3
1	127	.1	.3
1	75	.1	.3

River: TCC_S1_HAWTHORN

Reach	River Sta.	Contr.	Expan.
1	984	.1	.3
1	763	.1	.3
1	539	.1	.3
1	366	.1	.3
1	257	.1	.3
1	157	.1	.3
1	46	.1	.3

River: TCC_S2

Reach	River Sta.	Contr.	Expan.
1	7815	.1	.3
1	7766	.1	.3
1	7708	.1	.3
1	7625	.1	.3
1	7510	.1	.3
1	7371	.1	.3
1	7287	.1	.3
1	7123	.1	.3
1	6941	.1	.3
1	6743	.1	.3
1	6656	.1	.3
1	6524	.1	.3
1	6385	.1	.3
1	6313	.1	.3
1	6165	.1	.3
1	6087	.1	.3
1	5962	.1	.3
1	5725	.1	.3
1	5571	.1	.3
1	5389	.1	.3
1	5170	.1	.3
1	4927	.1	.3
1	4591	.1	.3
1	4543	.1	.3
1	4455	.1	.3
1	4307	.1	.3
1	4216	.1	.3
1	4041	.1	.3
1	3841	.1	.3
1	3679	.1	.3
1	3568	.1	.3
1	3484	.1	.3
1	3402	.1	.3
1	3270	.1	.3
1	3117	.1	.3
1	3071	.1	.3
1	2915	.1	.3
1	2727	.1	.3
1	2561	.1	.3
1	2406	.1	.3
1	2208	.1	.3
1	1935	.1	.3
1	1628	.1	.3
1	1300	.1	.3
1	975	.1	.3

1	802	.1	.3
1	563	.1	.3
1	366	.1	.3
1	78	.1	.3

River: TCC_S_4TH

Reach	River Sta.	Contr.	Expan.
1	645	.1	.3
1	510	.1	.3
1	407	.1	.3
1	264	.1	.3
1	102	.1	.3

River: TCC_S_LINDEN

Reach	River Sta.	Contr.	Expan.
1	228	.1	.3
1	169	.1	.3
1	113	.1	.3
1	79	.1	.3
1	53	.1	.3

River: TCC_S_SVALLEY

Reach	River Sta.	Contr.	Expan.
1	536	.1	.3
1	495	.1	.3
1	447	.1	.3
1	298	.1	.3
1	186	.1	.3

Profile Output Table - Standard Table 1

River	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)	
TCC	1	39	100_Year	2419.00	5339.24	5347.32	5345.96	5347.47	0.000212	4.41	893.33	383.52	0.32
TCC	1	39	CZ	2419.00	5339.24	5347.78	5346.09	5348.00	0.000243	4.49	659.30	175.00	0.31
TCC	1	216	100_Year	652.00	5344.13	5347.46		5347.52	0.000215	1.73	392.31	229.31	0.18
TCC	1	216	CZ	652.00	5344.13	5347.90		5348.05	0.000298	2.24	243.23	85.00	0.21
TCC	1	331	100_Year	652.00	5345.26	5347.15	5347.15	5347.80	0.086426	6.51	103.19	82.67	1.00
TCC	1	331	CZ	652.00	5345.26	5347.54	5347.50	5348.37	0.035457	7.31	89.16	50.00	0.97
TCC	1	429	100_Year	652.00	5346.56	5348.63	5348.63	5349.35	0.006100	6.95	122.74	96.23	1.01
TCC	1	429	CZ	652.00	5346.56	5348.87	5348.87	5349.75	0.004239	7.51	86.78	50.00	1.00
TCC	1	499	100_Year	652.00	5348.08	5350.17	5350.17	5350.93	0.004800	7.14	126.11	99.78	1.01
TCC	1	499	CZ	652.00	5348.08	5350.45	5350.45	5351.40	0.003210	7.79	83.69	45.00	1.01
TCC	1	610	100_Year	652.00	5349.89	5351.90	5351.90	5352.68	0.004537	7.27	121.52	81.44	1.04
TCC	1	610	CZ	652.00	5349.89	5352.22	5352.22	5353.13	0.003079	7.67	84.99	45.00	0.98
TCC	2	735	100_Year	325.00	5350.42	5352.84		5352.95	0.000503	2.72	159.05	104.57	0.35
TCC	2	735	CZ	325.00	5350.42	5353.18		5353.39	0.000579	3.70	87.77	40.00	0.44
TCC	2	861	100_Year	325.00	5351.01	5352.85		5353.11	0.002083	4.13	95.12	98.96	0.65
TCC	2	861	CZ	325.00	5351.01	5353.25		5353.49	0.000906	3.89	83.48	50.00	0.53
TCC	2	1017	100_Year	325.00	5353.58	5354.88	5354.88	5355.33	0.008532	6.14	108.78	120.45	1.29
TCC	2	1017	CZ	325.00	5353.58	5355.25	5355.25	5355.80	0.004103	5.98	54.42	50.00	1.01
TCC	2	1161	100_Year	325.00	5360.85	5362.50	5362.50	5362.99	0.004459	5.66	60.71	69.92	1.02
TCC	2	1161	CZ	325.00	5360.85	5362.80	5362.80	5363.44	0.003519	6.46	50.32	40.00	1.01
TCC	2	1303	100_Year	325.00	5365.92	5367.58	5367.58	5368.06	0.004455	5.56	65.26	84.54	1.00
TCC	2	1303	CZ	325.00	5366.07	5367.92	5367.92	5368.56	0.003444	6.44	50.49	40.00	1.01
TCC	2	1466	100_Year	325.00	5366.78	5368.43		5368.68	0.003103	4.21	129.18	153.35	0.73
TCC	2	1466	CZ	325.00	5366.78	5368.59	5368.59	5369.18	0.003490	6.20	52.42	45.00	1.01
TCC	2	1611	100_Year	325.00	5367.63	5369.09	5369.09	5369.53	0.004586	5.50	99.60	148.89	1.00
TCC	2	1611	CZ	325.00	5367.63	5369.33	5369.33	5369.92	0.003489	6.20	52.38	45.00	1.01
TCC	2	1763	100_Year	325.00	5368.30	5369.90		5370.12	0.003193	4.61	96.32	90.91	0.79
TCC	2	1763	CZ	325.00	5368.30	5370.03	5370.03	5370.63	0.003387	6.51	52.67	45.00	1.01

TCC	2	1955	100_Year	325.00	5369.48	5371.09	5371.09	5371.62	0.019187	5.86	58.04	58.17	1.02
TCC	2	1955	CZ	325.00	5369.48	5371.31	5371.31	5371.93	0.003494	6.35	51.20	42.00	1.01
TCC	2	2084	100_Year	325.00	5370.39	5372.05	5371.90	5372.37	0.002708	4.64	91.04	104.15	0.79
TCC	2	2084	CZ	325.00	5370.39	5372.17	5372.17	5372.76	0.003428	6.16	52.77	45.00	1.00
TCC	2	2183	100_Year	325.00	5371.05	5372.43	5372.43	5372.83	0.006198	5.10	75.21	101.87	1.01
TCC	2	2183	CZ	325.00	5371.05	5372.73	5372.73	5373.28	0.003513	5.98	54.35	50.00	1.01
TCC	2	2294	100_Year	325.00	5371.75	5373.35	5373.35	5373.85	0.003648	5.70	59.49	75.32	1.01
TCC	2	2294	CZ	325.00	5371.79	5373.63	5373.63	5374.27	0.003441	6.42	50.60	40.00	1.01
TCC	2	2434	100_Year	325.00	5373.36	5375.56	5375.56	5376.37	0.015768	6.53	47.87	30.17	0.88
TCC	2	2434	CZ	325.00	5373.36	5375.75	5375.75	5376.76	0.003038	8.22	40.83	20.00	1.01
TCC	2	2490	100_Year	325.00	5373.52	5376.21		5376.59	0.001338	5.05	67.03	37.88	0.63
TCC	2	2490	CZ	325.00	5373.52	5376.32	5375.83	5376.91	0.001333	6.27	53.45	23.00	0.72
TCC	2	2563	100_Year	325.00	5374.38	5376.48	5376.48	5377.23	0.003533	7.05	48.43	36.63	1.02
TCC	2	2563	CZ	325.00	5374.38	5376.58	5376.58	5377.47	0.002997	7.66	43.47	25.00	1.02
TCC	2	2689	100_Year	325.00	5375.45	5377.56	5377.56	5378.30	0.004029	7.01	49.63	39.90	1.01
TCC	2	2689	CZ	325.00	5375.45	5377.69	5377.69	5378.58	0.003203	7.65	43.46	25.00	1.01
TCC	2	2799	100_Year	325.00	5376.22	5378.45	5378.45	5379.17	0.004065	6.89	48.06	36.65	1.01
TCC	2	2799	CZ	325.00	5376.22	5378.50	5378.50	5379.38	0.003735	7.62	43.49	25.00	1.01
TCC	2	2862	100_Year	325.00	5376.67	5379.10		5379.32	0.000778	3.82	109.26	86.17	0.48
TCC	2	2862	CZ	325.00	5376.67	5379.19		5379.55	0.001108	4.86	66.91	30.00	0.57
TCC	2	2915	100_Year	274.00	5377.74	5379.05	5379.05	5379.50	0.004051	5.35	52.45	72.02	1.00
TCC	2	2915	CZ	274.00	5377.74	5379.28	5379.28	5379.90	0.003347	6.31	43.41	35.00	1.00
TCC	2	3018	100_Year	274.00	5379.38	5380.73	5380.73	5381.14	0.004109	5.15	55.72	82.38	1.00
TCC	2	3018	CZ	274.00	5379.38	5380.84	5380.84	5381.42	0.003417	6.06	45.20	40.00	1.00
TCC	2	3186	100_Year	274.00	5381.18	5382.48	5382.48	5382.93	0.003599	5.41	50.62	55.79	1.00
TCC	2	3186	CZ	274.00	5381.26	5382.68	5382.68	5383.31	0.003441	6.35	43.14	35.00	1.01
TCC	2	3310	100_Year	274.00	5382.25	5383.52	5383.52	5383.96	0.003987	5.31	51.72	62.29	1.01
TCC	2	3310	CZ	274.00	5382.25	5383.74	5383.74	5384.37	0.003398	6.32	43.33	35.00	1.00
TCC	2	3399	100_Year	274.00	5383.15	5384.39	5384.39	5384.83	0.003810	5.31	51.84	62.56	1.00
TCC	2	3399	CZ	274.00	5383.15	5384.59	5384.59	5385.22	0.003442	6.36	43.11	35.00	1.01
TCC	2	3458	100_Year	274.00	5384.13	5385.18	5385.18	5385.57	0.004277	5.04	54.38	70.29	1.01
TCC	2	3458	CZ	274.00	5384.13	5385.35	5385.35	5385.88	0.003653	5.83	47.02	45.00	1.00
TCC	2	3536	100_Year	274.00	5385.79	5387.09	5387.09	5387.55	0.003793	5.41	50.87	62.37	1.02
TCC	2	3536	CZ	274.00	5385.79	5387.28	5387.28	5387.91	0.003443	6.36	43.11	35.00	1.01
TCC	2	3677	100_Year	274.00	5388.70	5390.04	5390.04	5390.51	0.003591	5.52	50.34	59.81	1.01
TCC	2	3677	CZ	274.00	5388.70	5390.23	5390.23	5390.85	0.003383	6.33	43.31	35.00	1.00
TCC	2	3862	100_Year	274.00	5393.12	5394.33	5394.33	5394.79	0.003620	5.49	60.20	75.70	0.99
TCC	2	3862	CZ	274.00	5393.12	5394.53	5394.53	5395.16	0.003458	6.38	42.97	35.00	1.01
TCC	2	3976	100_Year	274.00	5395.84	5397.23	5397.23	5397.67	0.003601	5.40	61.23	80.53	0.97
TCC	2	3976	CZ	274.00	5395.85	5397.46	5397.46	5398.09	0.003440	6.34	43.23	35.00	1.01
TCC	2	4137	100_Year	274.00	5403.35	5404.52	5404.52	5405.01	0.003419	5.76	53.23	55.10	1.00
TCC	2	4137	CZ	274.00	5403.35	5404.69	5404.69	5405.32	0.003260	6.35	43.17	35.00	1.01
TCC	2	4209	100_Year	274.00	5403.92	5405.17	5405.17	5405.65	0.004405	5.92	75.35	79.41	1.11

TCC	2	4209	CZ	274.00	5403.92	5405.52	5405.52	5406.14	0.003396	6.33	43.26	35.00
1.00												
TCC	2	4375	100_Year	274.00	5405.74	5407.13	5407.13	5407.62	0.003490	5.65	51.99	55.64
1.01												
TCC	2	4375	CZ	274.00	5405.74	5407.20	5407.20	5407.78	0.003438	6.09	44.99	40.00
1.01												
TCC	2	4486	100_Year	274.00	5407.60	5409.00	5409.00	5409.42	0.004463	5.18	54.81	77.70
1.00												
TCC	2	4486	CZ	274.00	5407.60	5409.27	5409.27	5409.90	0.003457	6.37	43.02	35.00
1.01												
TCC	2	4561	100_Year	274.00	5409.20	5410.64	5410.64	5411.10	0.003918	5.45	51.02	62.50
1.01												
TCC	2	4561	CZ	274.00	5409.26	5410.93	5410.93	5411.55	0.003399	6.35	43.16	35.00
1.01												
TCC	2	4630	100_Year	274.00	5410.53	5412.03	5412.03	5412.44	0.002768	5.18	55.19	74.16
0.91												
TCC	2	4630	CZ	274.00	5410.53	5412.11	5412.11	5412.68	0.003421	6.08	45.05	40.00
1.01												
TCC	2	4700	100_Year	274.00	5412.30	5413.28	5413.28	5413.67	0.005056	5.85	118.39	176.47
1.18												
TCC	2	4700	CZ	274.00	5412.30	5413.60	5413.60	5414.16	0.003215	6.08	45.86	40.00
0.99												
TCC	2	4840	100_Year	274.00	5414.92	5416.35	5416.35	5416.79	0.004502	5.32	53.29	70.08
1.00												
TCC	2	4840	CZ	274.00	5414.92	5416.58	5416.58	5417.20	0.003364	6.33	43.29	35.00
1.00												
TCC	2	4922	100_Year	274.00	5417.07	5418.37	5418.37	5418.86	0.003229	5.66	65.04	80.23
0.99												
TCC	2	4922	CZ	274.00	5417.07	5418.47	5418.47	5419.10	0.003316	6.33	43.28	35.00
1.00												
TCC	2	4996	100_Year	274.00	5418.98	5420.23	5420.23	5420.56	0.002901	4.67	63.12	105.82
0.91												
TCC	2	4996	CZ	274.00	5418.98	5420.50	5420.50	5420.94	0.002730	5.57	54.22	60.00
0.91												
TCC	2	5167	100_Year	274.00	5423.64	5424.95	5424.95	5425.39	0.257380	5.84	53.18	62.31
0.96												
TCC	2	5167	CZ	274.00	5423.64	5425.11	5425.11	5425.87	0.271878	6.84	39.13	25.82
1.02												
TCC	2	5288	100_Year	274.00	5427.15	5428.97	5427.98	5429.00	0.010101	1.34	192.58	156.36
0.20												
TCC	2	5288	CZ	274.00	5427.42	5429.46	5428.21	5429.51	0.009880	1.56	158.38	80.00
0.21												
TCC	2	5363	100_Year	274.00	5428.92	5430.57	5430.57	5430.89	0.019143	1.73	75.79	117.00
0.27												
TCC	2	5363	CZ	274.00	5428.92	5431.05		5431.54	0.155576	5.93	50.15	33.88
0.79												
TCC	2	5439	100_Year	274.00	5430.53	5431.45	5431.45	5431.69	0.006532	4.03	72.84	154.20
0.90												
TCC	2	5439	CZ	274.00	5430.69	5431.82	5431.71	5432.04	0.001948	4.00	73.37	95.00
0.75												
TCC	2	5624	100_Year	274.00	5435.14	5436.27	5436.27	5436.53	0.184290	4.49	70.41	178.12
0.84												
TCC	2	5624	CZ	274.00	5435.14	5436.60	5436.60	5437.16	0.230358	6.18	46.09	39.81
1.00												
TCC	2	5763	100_Year	274.00	5439.47	5440.81	5440.81	5441.19	0.003350	0.57	94.30	115.89
0.11												
TCC	2	5763	CZ	274.00	5439.47	5441.26	5441.13	5441.50	0.011747	1.43	107.71	100.00
0.23												
TCC	2	5861	100_Year	323.00	5445.04	5445.96	5445.96	5446.22	0.003704	4.15	78.14	151.88
1.02												
TCC	2	5861	CZ	323.00	5445.04	5446.14	5446.14	5446.63	0.003526	5.61	57.56	60.00
1.01												
TCC	2	5900	100_Year	323.00	5445.80	5446.87	5446.87	5447.19	0.013230	4.57	72.39	117.45
1.00												
TCC	2	5900	CZ	323.00	5445.80	5447.23	5447.23	5447.70	0.004900	5.55	58.23	62.00
1.01												
TCC	2	5959	100_Year	323.00	5445.11	5447.55	5447.55	5447.93	0.037932	6.84	100.21	158.99
1.04												
TCC	2	5959	CZ	323.00	5445.11	5447.97	5447.97	5448.50	0.029764	7.15	80.86	65.00
0.94												
TCC	2	5996	100_Year	323.00	5445.17	5448.46	5448.39	5448.93	0.019306	6.27	70.08	54.00
0.78												
TCC	2	5996	CZ	323.00	5445.17	5448.76	5448.47	5449.38	0.018672	6.74	56.91	28.00
0.77												
TCC	2	6082	100_Year	323.00	5447.25	5450.85	5450.25	5451.30	0.042323	5.41	59.76	77.12
0.66												
TCC	2	6082	CZ	323.00	5447.25	5451.09	5450.68	5451.79	0.045211	6.76	47.80	20.00
0.77												
TCC	2	6175	100_Year	323.00	5449.16	5452.67	5451.24	5452.82	0.007941	3.15	102.59	113.29
0.36												
TCC	2	6175	CZ	323.00	5449.16	5453.06	5451.37	5453.28	0.006951	3.76	85.95	25.00
0.36												
TCC	2	6209		Bridge								
TCC	2	6228	100_Year	323.00	5450.67	5453.91	5453.02	5454.11	0.007270	3.67	103.73	166.01
0.48												

TCC	2	6228	CZ	323.00	5450.67	5454.05	5453.11	5454.41	0.009496	4.80	67.30	25.00	0.52
TCC	2	6265	100_Year	323.00	5451.97	5454.84	5454.84	5455.17	0.051872	5.29	71.55	93.59	0.48
TCC	2	6265	CZ	323.00	5451.97	5455.08	5455.08	5455.70	0.065065	6.51	51.29	40.00	0.63
TCC	2	6278	100_Year	323.00	5452.01	5455.28	5454.95	5455.45	0.013299	3.76	103.34	88.33	0.47
TCC	2	6278	CZ	323.00	5452.01	5455.76	5455.19	5456.00	0.011213	4.30	84.83	45.00	0.46
TCC	2	6303	100_Year	323.00	5453.22	5455.68	5455.61	5456.20	0.071511	5.43	55.58	45.15	0.66
TCC	2	6303	CZ	323.00	5453.22	5456.07	5455.76	5456.68	0.068332	4.46	54.16	48.00	0.65
TCC	2	6361	100_Year	323.00	5454.50	5458.13	5458.02	5458.98	0.032081	7.39	43.77	159.34	0.92
TCC	2	6361	CZ	323.00	5454.50	5458.29	5457.99	5459.02	0.025641	6.86	47.22	22.00	0.82
TCC	2	6372	100_Year	323.00	5455.23	5458.83	5458.83	5459.75	0.034747	7.71	42.36	184.75	0.98
TCC	2	6372	CZ	323.00	5455.23	5458.95	5458.95	5460.28	0.037885	9.26	34.90	13.00	1.00
TCC	2	6423	100_Year	323.00	5456.81	5460.37	5460.22	5461.22	0.024653	7.40	44.05	128.08	0.90
TCC	2	6423	CZ	323.00	5456.81	5460.83	5460.21	5461.41	0.013147	6.10	53.41	21.00	0.66
TCC	2	6454	100_Year	323.00	5457.32	5461.14	5460.99	5462.03	0.026075	7.60	42.49	126.93	0.91
TCC	2	6454	CZ	323.00	5457.32	5461.19	5460.99	5462.04	0.024231	7.43	43.48	19.80	0.88
TCC	2	6466	100_Year	323.00	5457.42	5462.25	5462.25	5463.11	0.087615	7.45	44.03	155.72	0.60
TCC	2	6466	CZ	323.00	5457.42	5462.28	5462.28	5463.11	0.084134	7.36	44.66	28.51	0.59
TCC	2	6515	100_Year	323.00	5458.09	5463.53	5461.73	5463.85	0.005448	4.50	71.91	133.84	0.44
TCC	2	6515	CZ	323.00	5458.09	5463.53	5461.70	5463.84	0.005479	4.51	71.80	21.97	0.44
TCC	2	6524	100_Year	323.00	5459.97	5463.65	5463.65	5464.65	0.030329	8.04	40.18	91.79	0.99
TCC	2	6524	CZ	323.00	5459.97	5463.65	5463.65	5464.65	0.030391	8.05	40.16	19.55	0.99
TCC	2	6595	100_Year	184.00	5461.62	5465.53	5464.45	5465.77	0.006171	3.96	46.84	72.88	0.46
TCC	2	6595	CZ	184.00	5461.62	5465.56	5464.42	5465.80	0.006471	3.91	47.03	19.84	0.45
TCC	2	6629	100_Year	184.00	5462.93	5465.79	5465.79	5466.55	0.032343	7.00	26.32	80.48	0.98
TCC	2	6629	CZ	184.00	5462.93	5465.78	5465.78	5466.55	0.032714	7.03	26.23	16.76	0.99
TCC	2	6637	100_Year	184.00	5462.87	5466.79	5466.79	5467.48	0.089927	6.46	27.86	92.98	0.59
TCC	2	6637	CZ	184.00	5462.87	5466.81	5466.81	5467.47	0.088566	6.48	28.35	20.98	0.58
TCC	2	6731	100_Year	184.00	5464.36	5469.03	5467.42	5469.21	0.007378	3.38	54.50	144.68	0.36
TCC	2	6731	CZ	184.00	5464.36	5469.06	5467.42	5469.23	0.007702	3.33	55.18	20.49	0.36
TCC	2	6760	100_Year	184.00	5465.18	5469.29	5467.94	5469.51	0.013743	3.75	49.05	148.01	0.42
TCC	2	6760	CZ	184.00	5465.18	5469.33	5467.94	5469.54	0.013147	3.70	49.78	19.86	0.41
TCC	2	6777	100_Year	184.00	5465.21	5469.49	5468.36	5469.83	0.022316	4.67	39.37	15.53	0.52
TCC	2	6777	CZ	184.00	5465.21	5469.51	5468.35	5469.84	0.021573	4.63	39.77	15.53	0.51
TCC	2	6880	100_Year	184.00	5469.10	5472.80	5472.49	5473.37	0.056083	6.05	30.43	85.11	0.80
TCC	2	6880	CZ	184.00	5469.10	5472.78	5472.46	5473.36	0.057957	6.13	30.03	17.09	0.81
TCC	2	7004	100_Year	184.00	5473.14	5476.34	5476.18	5476.66	0.015265	4.79	61.68	94.95	0.62
TCC	2	7004	CZ	184.00	5473.14	5476.42	5475.85	5476.88	0.016710	5.47	33.66	15.00	0.64
TCC	2	7138	100_Year	184.00	5477.58	5479.92	5479.92	5480.63	0.020932	6.77	27.19	63.69	0.98
TCC	2	7138	CZ	184.00	5477.58	5479.91	5479.91	5480.63	0.021131	6.79	27.10	18.51	0.99
TCC	2	7158	100_Year	184.00	5478.44	5480.44	5480.44	5481.19	0.021902	6.95	26.46	17.78	1.00
TCC	2	7158	CZ	184.00	5478.44	5480.45	5480.45	5481.19	0.021287	6.89	26.70	17.78	0.99
TCC	2	7173	100_Year	184.00	5478.22	5480.92	5480.58	5481.46	0.012077	5.86	31.39	17.03	0.76
TCC	2	7173	CZ	184.00	5478.22	5480.91	5480.59	5481.45	0.012243	5.89	31.24	17.01	0.77

TCC	2	7203	100_Year	184.00	5479.37	5482.19	5482.19	5483.00	0.022366	7.21	25.53	16.18
1.01												
TCC	2	7203	CZ	184.00	5479.37	5482.19	5482.19	5483.00	0.022603	7.24	25.42	16.14
1.02												
TCC	2	7226	100_Year	184.00	5479.60	5482.78	5482.53	5483.44	0.015046	6.50	28.31	15.11
0.84												
TCC	2	7226	CZ	184.00	5479.60	5482.79	5482.53	5483.44	0.014848	6.47	28.43	15.11
0.83												
TCC	2	7298	100_Year	184.00	5483.08	5485.71	5485.71	5486.48	0.021147	7.05	26.11	16.55
0.99												
TCC	2	7298	CZ	184.00	5483.08	5485.71	5485.71	5486.48	0.021098	7.04	26.13	16.55
0.99												
TCC	2	7359	100_Year	184.00	5485.53	5488.13	5488.13	5488.96	0.021416	7.34	25.08	14.86
0.99												
TCC	2	7359	CZ	184.00	5485.53	5488.13	5488.13	5488.96	0.021325	7.33	25.12	14.86
0.99												
TCC	2	7371	100_Year	136.00	5486.49	5489.09	5489.09	5489.85	0.022479	7.01	19.41	12.46
0.99												
TCC	2	7371	CZ	136.00	5486.49	5489.07	5489.07	5489.85	0.023354	7.11	19.12	12.36
1.01												
TCC	2	7426		Culvert								
TCC	2	7430	100_Year	136.00	5488.00	5492.78	5490.70	5492.90	0.003049	2.87	52.00	106.55
0.31												
TCC	2	7430	CZ	136.00	5488.00	5493.18	5490.70	5493.26	0.001814	2.40	67.70	40.00
0.24												
TCC	2	7504	100_Year	136.00	5490.09	5493.08	5492.21	5493.36	0.012788	4.20	32.38	28.54
0.52												
TCC	2	7504	CZ	136.00	5490.09	5493.34	5492.20	5493.56	0.009168	3.71	36.61	16.19
0.44												
TCC	2	7608	100_Year	136.00	5493.23	5495.70	5495.70	5496.41	0.034655	6.74	20.19	13.98
0.99												
TCC	2	7608	CZ	136.00	5493.23	5495.70	5495.70	5496.41	0.034720	6.74	20.17	13.98
0.99												
TCC	2	7681	100_Year	136.00	5494.89	5497.62		5498.11	0.016598	5.59	24.32	11.71
0.68												
TCC	2	7681	CZ	136.00	5494.89	5497.63		5498.11	0.016543	5.58	24.35	11.71
0.68												
TCC	2	7713	100_Year	136.00	5495.39	5498.19	5498.18	5499.10	0.037873	7.65	17.77	9.79
1.00												
TCC	2	7713	CZ	136.00	5495.39	5498.19	5498.18	5499.10	0.037830	7.65	17.77	9.78
1.00												
TCC	2	7719		Bridge								
TCC	2	7726	100_Year	136.00	5495.42	5501.25	5498.43	5501.31	0.001231	2.22	91.32	101.83
0.20												
TCC	2	7726	CZ	136.00	5495.42	5501.59	5498.43	5501.66	0.001068	2.18	68.26	20.00
0.18												
TCC	2	7743	100_Year	136.00	5496.03	5501.22	5499.22	5501.40	0.004094	3.45	45.77	33.90
0.34												
TCC	2	7743	CZ	136.00	5496.03	5501.59	5499.23	5501.72	0.002610	2.96	56.51	30.00
0.28												
TCC	2	7749		Bridge								
TCC	2	7750	100_Year	136.00	5496.22	5501.91	5498.73	5501.95	0.000967	1.81	112.22	88.32
0.18												
TCC	2	7750	CZ	136.00	5496.22	5502.22	5498.73	5502.27	0.000929	1.92	71.93	20.00
0.17												
TCC	2	7767	100_Year	136.00	5496.50	5501.90	5500.06	5502.00	0.004431	2.48	54.86	24.23
0.29												
TCC	2	7767	CZ	136.00	5496.50	5502.23	5500.06	5502.31	0.002621	2.27	60.02	20.00
0.23												
TCC	2	7822	100_Year	136.00	5499.54	5502.13	5501.66	5502.51	0.016349	4.90	27.77	19.93
0.67												
TCC	2	7822	CZ	136.00	5499.54	5502.32	5501.67	5502.64	0.010706	4.51	30.18	15.00
0.56												
TCC	2	7844	100_Year	136.00	5499.64	5502.46	5502.06	5502.91	0.017744	5.43	25.06	14.30
0.72												
TCC	2	7844	CZ	136.00	5499.64	5502.54	5502.06	5502.96	0.015285	5.17	26.32	14.29
0.67												
TCC	2	7850		Bridge								
TCC	2	7857	100_Year	136.00	5499.88	5502.86	5502.22	5503.21	0.012913	4.78	28.43	15.38
0.62												
TCC	2	7857	CZ	136.00	5499.88	5502.88	5502.22	5503.23	0.012427	4.72	28.79	15.38
0.61												
TCC	2	7898	100_Year	136.00	5501.66	5503.78	5503.78	5504.56	0.035847	7.09	19.19	12.42
1.00												
TCC	2	7898	CZ	136.00	5501.66	5503.79	5503.79	5504.56	0.035090	7.04	19.32	12.41
0.99												
TCC	2	8004	100_Year	136.00	5504.19	5506.97	5506.70	5507.55	0.022309	6.10	22.30	12.35
0.80												
TCC	2	8004	CZ	136.00	5504.19	5506.96	5506.69	5507.55	0.022659	6.13	22.18	12.32
0.81												

TCC	2	8109	100_Year	136.00	5509.92	5511.94	5511.94	5512.63	0.035589	6.65	20.44	15.09
1.01												
TCC	2	8109	CZ	136.00	5509.92	5511.94	5511.94	5512.63	0.035771	6.67	20.40	15.08
1.01												
TCC	2	8137	100_Year	136.00	5510.65	5512.92	5512.92	5513.72	0.036271	7.17	18.98	12.03
1.01												
TCC	2	8137	CZ	136.00	5510.65	5512.92	5512.92	5513.72	0.036204	7.16	18.99	12.03
1.00												
TCC	2	8201		Culvert								
TCC	2	8215	100_Year	314.00	5512.93	5519.20	5516.77	5519.35	0.002784	3.20	111.54	83.37
0.32												
TCC	2	8215	CZ	314.00	5512.93	5519.61	5516.77	5519.76	0.002089	3.09	101.51	25.00
0.27												
TCC	2	8276	100_Year	314.00	5515.47	5519.13	5518.80	5519.91	0.020782	7.08	44.35	19.25
0.82												
TCC	2	8276	CZ	314.00	5515.47	5519.60	5518.83	5520.13	0.011874	5.88	53.39	19.25
0.62												
TCC	2	8367	100_Year	314.00	5521.16	5523.56	5523.56	5524.32	0.051584	6.99	46.03	40.96
0.96												
TCC	2	8367	CZ	314.00	5521.16	5523.62	5523.62	5524.59	0.053846	7.88	39.83	20.00
0.98												
TCC	2	8395	100_Year	314.00	5521.68	5525.19	5525.19	5525.82	0.024367	6.48	56.81	54.34
0.91												
TCC	2	8395	CZ	314.00	5521.68	5525.24	5525.24	5526.43	0.036308	8.77	35.82	15.00
1.00												
TCC	2	8413	100_Year	314.00	5522.66	5526.49	5526.49	5527.17	0.022791	6.74	57.61	57.46
0.85												
TCC	2	8413	CZ	314.00	5522.66	5526.48	5526.48	5527.17	0.022974	6.79	56.94	57.00
0.85												
TCC	2	8427		Bridge								
TCC	2	8437	100_Year	314.00	5523.04	5528.37	5526.83	5528.56	0.003580	3.88	140.51	99.50
0.36												
TCC	2	8437	CZ	314.00	5523.04	5528.85	5526.78	5529.02	0.002627	3.61	120.12	46.00
0.31												
TCC	2	8448	100_Year	314.00	5523.07	5528.39	5526.82	5528.62	0.003852	4.13	109.66	66.95
0.38												
TCC	2	8448	CZ	314.00	5523.07	5528.86	5526.79	5529.07	0.002822	3.83	89.62	27.00
0.33												
TCC	2	8461		Bridge								
TCC	2	8474	100_Year	314.00	5523.73	5530.02	5527.57	5530.14	0.002006	3.09	150.67	99.63
0.27												
TCC	2	8474	CZ	314.00	5523.73	5530.31	5527.57	5530.44	0.001740	3.01	119.03	38.00
0.26												
TCC	2	8525	100_Year	314.00	5526.07	5529.92	5529.38	5530.51	0.018088	6.15	51.04	81.62
0.76												
TCC	2	8525	CZ	314.00	5526.07	5530.28	5529.34	5530.71	0.010697	5.23	60.14	25.25
0.59												
TCC	2	8573	100_Year	314.00	5527.31	5531.51	5531.51	5532.60	0.032440	8.37	37.52	16.78
0.99												
TCC	2	8573	CZ	314.00	5527.31	5531.47	5531.47	5532.60	0.033966	8.52	36.85	16.60
1.01												
TCC	2	8675	100_Year	314.00	5535.23	5537.36	5537.36	5538.13	0.032984	7.08	44.36	28.99
1.01												
TCC	2	8675	CZ	314.00	5535.23	5537.37	5537.37	5538.13	0.032058	7.02	44.76	28.99
1.00												
TCC	3	8792	100_Year	208.00	5538.90	5541.94	5541.94	5542.83	0.034285	7.55	27.55	15.88
1.01												
TCC	3	8792	CZ	208.00	5538.90	5541.94	5541.94	5542.83	0.034586	7.57	27.46	15.85
1.01												
TCC	3	8912	100_Year	208.00	5544.98	5547.32	5547.32	5548.12	0.033596	7.21	28.85	18.08
1.01												
TCC	3	8912	CZ	208.00	5544.98	5547.31	5547.31	5548.12	0.033875	7.23	28.76	18.05
1.01												
TCC	3	9005	100_Year	208.00	5550.22	5552.74	5552.74	5553.43	0.040355	6.67	31.18	22.35
1.00												
TCC	3	9005	CZ	208.00	5550.22	5552.75	5552.75	5553.43	0.039782	6.64	31.33	22.35
0.99												
TCC	3	9110	100_Year	208.00	5556.48	5559.06	5559.06	5559.84	0.034946	7.08	29.39	19.29
1.01												
TCC	3	9110	CZ	208.00	5556.48	5559.06	5559.06	5559.84	0.035042	7.08	29.36	19.29
1.01												
TCC	4	9123	100_Year	208.00	5558.53	5560.67	5560.67	5561.61	0.016780	7.81	26.65	14.21
1.00												
TCC	4	9123	CZ	208.00	5558.53	5560.66	5560.66	5561.61	0.016923	7.83	26.57	14.20
1.01												
TCC	4	9168		Culvert								
TCC	4	9176	100_Year	208.00	5562.90	5566.20	5563.03	5566.24	0.000283	0.27	151.85	57.40
0.04												
TCC	4	9176	CZ	208.00	5562.90	5566.20	5563.04	5566.24	0.000283	0.27	151.94	57.40
0.04												

TCC	4	9226	100_Year	208.00	5563.48	5567.59	5567.59	5568.25	0.013129	1.67	64.05	52.68	0.23
TCC	4	9226	CZ	208.00	5563.48	5566.74	5566.74	5567.72	0.422975	7.94	26.17	29.35	1.26
TCC	4	9260	100_Year	208.00	5566.33	5568.56	5568.42	5570.24	0.244453	6.33	27.38	36.88	1.06
TCC	4	9260	CZ	208.00	5566.33	5569.02	5568.42	5570.07	0.026232	2.59	45.75	43.76	0.38
TCC	4	9368		Culvert									
TCC	4	9374	100_Year	208.00	5568.86	5575.16	5572.52	5575.27	0.001416	1.90	100.77	64.56	0.18
TCC	4	9374	CZ	208.00	5568.86	5575.60	5572.52	5575.70	0.002097	2.51	83.96	24.00	0.23
TCC	4	9423	100_Year	208.00	5574.45	5577.05	5577.05	5577.68	0.031969	5.82	33.37	33.12	0.81
TCC	4	9423	CZ	208.00	5574.45	5577.25	5577.25	5578.13	0.046880	7.56	27.90	16.30	1.00
TCC	4	9452	100_Year	208.00	5575.75	5578.39	5578.39	5579.17	0.047056	7.08	29.38	18.51	0.99
TCC	4	9452	CZ	208.00	5575.75	5578.69	5578.37	5579.24	0.027323	5.95	34.96	18.40	0.76
TCC	4	9467		Bridge									
TCC	4	9475	100_Year	208.00	5577.66	5582.24	5580.03	5582.29	0.001612	1.87	151.78	194.85	0.22
TCC	4	9475	CZ	208.00	5577.66	5582.59	5580.01	5582.76	0.004238	3.31	62.92	14.00	0.27
TCC	4	9501	100_Year	208.00	5578.37	5582.28	5581.20	5582.36	0.004088	2.32	95.42	129.41	0.32
TCC	4	9501	CZ	208.00	5578.37	5582.74	5581.16	5582.87	0.004132	2.89	72.08	25.00	0.30
TCC	5	9664	100_Year	208.00	5582.81	5586.07	5586.07	5587.08	0.050325	8.06	25.81	12.98	1.01
TCC	5	9664	CZ	208.00	5582.81	5586.06	5586.06	5587.08	0.050722	8.08	25.73	12.96	1.01
TCC	5	9755	100_Year	208.00	5590.23	5592.48	5592.48	5593.21	0.050348	6.85	30.38	21.25	1.01
TCC	5	9755	CZ	208.00	5590.23	5592.47	5592.47	5593.21	0.051075	6.88	30.23	21.22	1.02
TCC	5	9844	100_Year	208.00	5595.96	5598.34	5598.34	5599.06	0.050112	6.84	30.42	21.60	1.02
TCC	5	9844	CZ	208.00	5595.96	5598.33	5598.33	5599.06	0.050314	6.85	30.38	21.59	1.02
TCC	5	9888	100_Year	208.00	5598.72	5600.94	5600.94	5601.80	0.050423	7.47	27.83	16.30	1.01
TCC	5	9888	CZ	208.00	5598.72	5600.94	5600.94	5601.80	0.050550	7.48	27.81	16.30	1.01
TCC	5	9937		Culvert									
TCC	5	9942	100_Year	699.00	5599.44	5609.30	5603.75	5609.40	0.000916	2.37	280.57	83.04	0.16
TCC	5	9942	CZ	699.00	5599.44	5609.36	5603.75	5609.51	0.001580	3.13	224.98	35.00	0.21
TCC	5	9960	100_Year	699.00	5602.44	5609.14		5609.52	0.007953	4.92	142.04	55.00	0.45
TCC	5	9960	CZ	699.00	5602.44	5609.27		5609.62	0.007048	4.79	145.79	36.66	0.42
TCC	5	10013	100_Year	699.00	5606.43	5611.07	5611.07	5612.52	0.040393	9.67	72.31	41.69	0.99
TCC	5	10013	CZ	699.00	5606.43	5611.08	5611.08	5612.52	0.040310	9.66	72.36	24.53	0.99
TCC	5	10102	100_Year	699.00	5612.55	5617.69	5617.69	5619.00	0.040007	9.19	76.07	28.62	0.99
TCC	5	10102	CZ	699.00	5612.55	5617.70	5617.70	5619.00	0.039689	9.17	76.26	28.62	0.99
TCC	5	10226	100_Year	699.00	5621.12	5624.92	5624.92	5625.87	0.063847	7.81	89.50	48.56	1.01
TCC	5	10226	CZ	699.00	5621.12	5624.93	5624.93	5625.87	0.063369	7.79	89.71	48.56	1.01
TCC	5	10342	100_Year	699.00	5628.91	5631.84	5631.71	5632.62	0.053490	7.07	98.92	52.17	0.90
TCC	5	10342	CZ	699.00	5628.91	5631.84	5631.71	5632.62	0.053770	7.08	98.74	52.15	0.91
TCC	5	10449	100_Year	699.00	5635.62	5638.98	5638.98	5640.11	0.046149	8.54	82.57	56.00	0.97
TCC	5	10449	CZ	699.00	5635.62	5639.07	5639.07	5640.50	0.046822	9.60	72.82	25.00	0.99
TCC	5	10520	100_Year	699.00	5642.09	5644.96	5644.96	5645.70	0.084025	6.89	101.43	90.39	0.99
TCC	5	10520	CZ	699.00	5642.09	5645.16	5645.16	5646.13	0.085236	7.89	88.63	45.00	0.99
TCC	5	10638	100_Year	699.00	5651.76	5654.73	5654.73	5655.55	0.042987	7.29	95.91	58.22	1.00
TCC	5	10638	CZ	699.00	5651.76	5654.82	5654.82	5655.97	0.042722	8.61	81.21	35.00	1.00

TCC	5	10710	100_Year	699.00	5655.39	5659.52	5659.52	5660.69	0.039335	8.67	81.19	38.09	1.00
TCC	5	10710	CZ	699.00	5655.39	5659.56	5659.56	5661.02	0.046102	9.72	71.93	25.00	1.01
TCC	5	10814	100_Year	699.00	5661.20	5665.98	5665.98	5666.98	0.045036	8.23	94.09	53.25	0.91
TCC	5	10814	CZ	699.00	5661.20	5666.00	5666.00	5666.97	0.043340	8.13	95.47	53.24	0.89
TCC	5	10881	100_Year	699.00	5666.47	5670.82	5670.82	5671.72	0.032087	8.32	104.36	55.90	0.88
TCC	5	10881	CZ	699.00	5666.47	5670.96	5670.96	5672.21	0.037310	9.26	82.74	32.45	0.95
TCC	5	10968	100_Year	699.00	5674.06	5677.69	5677.69	5678.76	0.035706	8.29	84.30	39.96	1.01
TCC	5	10968	CZ	699.00	5674.06	5677.74	5677.74	5679.18	0.044011	9.66	72.38	25.00	1.00
TCC	5	11017	100_Year	699.00	5678.31	5681.78	5681.78	5682.78	0.036380	8.11	92.62	52.88	0.94
TCC	5	11017	CZ	699.00	5678.31	5682.03	5682.03	5683.49	0.045937	9.69	72.12	25.00	1.01
TCC	5	11120	100_Year	699.00	5684.29	5687.55	5687.55	5688.71	0.043250	8.66	80.74	35.16	1.01
TCC	5	11120	CZ	699.00	5684.29	5687.55	5687.55	5688.71	0.043297	8.66	80.70	35.15	1.01
TCC	5	11247	100_Year	699.00	5692.00	5696.30	5696.30	5697.54	0.041326	8.95	78.13	31.99	1.00
TCC	5	11247	CZ	699.00	5692.00	5696.27	5696.27	5697.54	0.042414	9.06	77.19	30.92	1.01
TCC	5	11364	100_Year	699.00	5703.47	5707.77	5707.77	5708.86	0.089877	8.37	83.47	37.28	0.99
TCC	5	11364	CZ	699.00	5703.47	5707.77	5707.77	5708.86	0.089570	8.37	83.56	37.28	0.98
TCC	5	11524	100_Year	699.00	5716.63	5721.34	5721.34	5722.85	0.057065	9.86	70.92	23.85	1.01
TCC	5	11524	CZ	699.00	5716.63	5721.34	5721.34	5722.85	0.057295	9.87	70.81	23.83	1.01
TCC	5	11665	100_Year	699.00	5729.37	5734.27	5734.27	5735.88	0.042581	10.18	68.64	25.96	1.01
TCC	5	11665	CZ	699.00	5729.37	5734.26	5734.26	5735.88	0.042812	10.20	68.50	21.50	1.01
TCC	5	11801	100_Year	699.00	5743.19	5747.68	5747.68	5749.21	0.041314	9.94	70.29	22.93	1.00
TCC	5	11801	CZ	699.00	5743.19	5747.67	5747.67	5749.21	0.041440	9.96	70.21	22.92	1.00
TCC	5	11886	100_Year	699.00	5747.42	5752.64	5752.64	5754.21	0.042723	10.05	69.59	22.57	1.01
TCC	5	11886	CZ	699.00	5747.42	5752.65	5752.65	5754.21	0.042434	10.02	69.74	22.56	1.00
TCC_S1	1	105	100_Year	314.00	5351.43	5352.93	5352.93	5353.39	0.003631	5.42	58.24	70.08	1.00
TCC_S1	1	105	CZ	314.00	5351.43	5353.11	5353.11	5353.80	0.003307	6.63	47.36	35.00	1.00
TCC_S1	1	175	100_Year	314.00	5352.60	5354.06	5354.06	5354.53	0.069766	5.47	57.43	63.05	1.01
TCC_S1	1	175	CZ	314.00	5352.60	5354.21	5354.21	5354.89	0.003257	6.61	47.53	35.00	1.00
TCC_S1	1	252	100_Year	314.00	5354.12	5355.57	5355.57	5356.06	0.003764	5.59	56.17	59.21	1.01
TCC_S1	1	252	CZ	314.00	5354.12	5355.86	5355.86	5356.58	0.003337	6.84	45.90	32.00	1.01
TCC_S1	1	379	100_Year	314.00	5357.43	5358.90	5358.90	5359.39	0.003376	5.62	55.85	57.30	1.00
TCC_S1	1	379	CZ	314.00	5357.43	5359.02	5359.02	5359.71	0.003364	6.67	47.08	35.00	1.01
TCC_S1	1	459	100_Year	314.00	5359.56	5360.95	5360.95	5361.35	0.006529	5.12	63.40	85.56	1.01
TCC_S1	1	459	CZ	314.00	5359.56	5361.18	5361.18	5361.81	0.003999	6.37	49.29	40.00	1.01
TCC_S1	1	541	100_Year	314.00	5361.82	5363.19	5363.19	5363.69	0.003994	5.77	72.45	93.73	0.98
TCC_S1	1	541	CZ	314.00	5361.82	5363.38	5363.38	5364.07	0.003182	6.64	47.31	35.00	1.01
TCC_S1	1	603	100_Year	314.00	5363.40	5364.96	5364.96	5365.35	0.011065	4.32	72.70	116.55	0.72
TCC_S1	1	603	CZ	314.00	5363.40	5365.08	5365.08	5365.60	0.008903	5.16	55.56	60.00	0.79
TCC_S1	2	703	100_Year	182.00	5365.10	5366.11	5366.11	5366.41	0.006404	4.38	41.72	72.28	1.00
TCC_S1	2	703	CZ	182.00	5365.10	5366.38	5366.38	5366.89	0.003538	5.72	31.83	32.00	1.01
TCC_S1	2	802	100_Year	182.00	5366.40	5367.68	5367.68	5368.04	0.004775	4.82	37.77	53.57	1.01
TCC_S1	2	802	CZ	182.00	5366.40	5367.88	5367.88	5368.39	0.003988	5.74	31.71	32.00	1.02
TCC_S1	2	934	100_Year	182.00	5369.04	5370.20	5370.20	5370.54	0.004194	4.74	38.40	56.40	1.01

TCC_S1	2	934	CZ	182.00	5369.06	5370.43	5370.43	5370.96	0.003638	5.81	31.30	30.00
1.00												
TCC_S1	2	1053	100_Year	182.00	5371.46	5372.51	5372.51	5372.85	0.004661	4.69	39.87	74.06
1.00												
TCC_S1	2	1053	CZ	182.00	5371.46	5372.79	5372.79	5373.31	0.003615	5.80	31.35	30.00
1.00												
TCC_S1	2	1114	100_Year	182.00	5372.42	5373.38	5373.38	5373.63	0.011507	4.85	80.79	128.45
1.39												
TCC_S1	2	1114	CZ	182.00	5372.42	5373.72	5373.72	5374.13	0.004400	5.11	35.63	45.00
1.01												
TCC_S1	2	1215	100_Year	182.00	5372.83	5374.11	5373.77	5374.37	0.005193	5.05	87.17	95.62
1.15												
TCC_S1	2	1215	CZ	182.00	5372.83	5374.40	5374.40	5374.85	0.003584	5.44	35.80	40.00
1.02												
TCC_S1	2	1336	100_Year	182.00	5373.70	5374.82	5374.75	5375.06	0.006346	3.96	48.92	79.83
0.86												
TCC_S1	2	1336	CZ	182.00	5373.70	5374.99	5374.99	5375.43	0.003751	5.32	34.22	40.00
1.01												
TCC_S1	2	1462	100_Year	182.00	5374.75	5375.88	5375.88	5376.26	0.005108	4.92	38.84	59.25
1.00												
TCC_S1	2	1462	CZ	182.00	5374.75	5376.08	5376.08	5376.61	0.003636	5.82	31.25	30.00
1.01												
TCC_S1	2	1585	100_Year	182.00	5376.44	5377.62	5377.62	5377.87	0.049997	4.06	48.76	109.77
1.01												
TCC_S1	2	1585	CZ	182.00	5376.44	5377.68	5377.68	5377.98	0.015936	4.43	41.11	71.00
1.03												
TCC_S1	2	1682	100_Year	182.00	5380.40	5382.20	5381.71	5382.32	0.041038	3.15	66.49	77.38
0.44												
TCC_S1	2	1682	CZ	182.00	5380.40	5382.24	5382.24	5383.05	0.226629	7.25	25.30	15.00
0.98												
TCC_S1	2	1762	100_Year	182.00	5381.05	5382.66	5382.22	5382.78	0.002240	2.87	64.69	70.81
0.50												
TCC_S1	2	1762	CZ	182.00	5381.05	5383.16	5382.48	5383.35	0.000845	3.57	50.97	29.00
0.47												
TCC_S1	2	1837	100_Year	182.00	5382.62	5383.59	5383.59	5383.91	0.010152	4.53	42.11	82.68
0.98												
TCC_S1	2	1837	CZ	182.00	5382.63	5383.81	5383.81	5384.28	0.005285	5.50	33.08	35.00
1.00												
TCC_S1	2	1904	100_Year	182.00	5383.55	5384.75	5384.75	5385.06	0.010654	4.64	54.63	96.55
1.05												
TCC_S1	2	1904	CZ	182.00	5383.55	5385.08	5385.08	5385.58	0.003889	5.64	32.29	33.00
1.00												
TCC_S1	2	1983	100_Year	182.00	5384.48	5385.87	5385.70	5386.09	0.015759	3.98	59.97	70.92
0.73												
TCC_S1	2	1983	CZ	182.00	5384.48	5385.99	5385.99	5386.54	0.003610	5.96	30.55	28.00
1.00												
TCC_S1	2	2059	100_Year	182.00	5385.44	5386.55	5386.55	5386.89	0.005262	5.14	77.45	111.29
1.15												
TCC_S1	2	2059	CZ	182.00	5385.44	5386.82	5386.82	5387.31	0.003613	5.63	32.32	33.00
1.00												
TCC_S1	2	2143	100_Year	182.00	5386.64	5387.87	5387.87	5388.24	0.004668	4.96	50.24	75.14
1.01												
TCC_S1	2	2143	CZ	182.00	5386.64	5388.17	5388.17	5388.69	0.003663	5.83	31.21	30.00
1.01												
TCC_S1	2	2173	100_Year	182.00	5387.18	5388.32	5388.32	5388.70	0.003981	4.98	39.37	53.31
1.00												
TCC_S1	2	2173	CZ	182.00	5387.18	5388.59	5388.59	5389.12	0.003720	5.86	31.06	30.00
1.01												
TCC_S1	3	2243	100_Year	314.00	5388.38	5389.83	5389.83	5390.23	0.004295	5.15	75.97	133.90
0.97												
TCC_S1	3	2243	CZ	314.00	5388.38	5390.06	5390.06	5390.63	0.003354	6.06	51.82	45.00
1.00												
TCC_S1	3	2327	100_Year	314.00	5390.13	5391.49	5391.49	5391.97	0.003874	5.60	68.48	91.19
0.99												
TCC_S1	3	2327	CZ	314.00	5390.13	5391.63	5391.63	5392.25	0.003267	6.34	49.50	40.00
1.01												
TCC_S1	3	2421	100_Year	314.00	5391.69	5393.04	5393.04	5393.48	0.005469	5.52	78.66	104.87
1.03												
TCC_S1	3	2421	CZ	314.00	5391.69	5393.38	5393.38	5394.05	0.003202	6.56	47.89	35.00
0.99												
TCC_S1	3	2553	100_Year	314.00	5394.11	5395.52	5395.52	5395.99	0.003954	5.74	82.79	85.38
1.04												
TCC_S1	3	2553	CZ	314.00	5394.11	5395.76	5395.76	5396.45	0.003376	6.67	47.05	35.00
1.01												
TCC_S1	3	2722	100_Year	314.00	5397.49	5398.85	5398.85	5399.33	0.059844	5.60	56.21	60.74
1.01												
TCC_S1	3	2722	CZ	314.00	5397.49	5399.10	5399.10	5399.80	0.003348	6.71	46.79	34.00
1.01												
TCC_S1	3	2964	100_Year	314.00	5400.69	5402.06	5402.06	5402.53	0.004157	5.54	66.04	79.01
1.00												
TCC_S1	3	2964	CZ	314.00	5400.69	5402.29	5402.29	5402.97	0.003350	6.64	47.27	35.00
1.01												
TCC_S1	3	3157	100_Year	314.00	5401.92	5403.30	5403.30	5403.76	0.004647	5.46	65.46	86.24
0.99												
TCC_S1	3	3157	CZ	314.00	5401.92	5403.59	5403.59	5404.30	0.003384	6.73	46.65	34.00
1.01												

TCC_S1	3	3334	100_Year	314.00	5407.16	5408.42	5408.42	5408.65	0.002628	4.43	154.82	125.67	0.83
TCC_S1	3	3334	CZ	314.00	5407.16	5408.59	5408.59	5409.17	0.003445	6.13	51.26	45.00	1.01
TCC_S1	3	3537	100_Year	314.00	5411.02	5412.22	5412.22	5412.70	0.004166	5.88	101.14	112.07	1.09
TCC_S1	3	3537	CZ	314.00	5411.02	5412.42	5412.42	5413.00	0.003376	6.10	51.51	45.00	1.00
TCC_S1	3	3739	100_Year	314.00	5414.06	5415.51	5415.51	5415.95	0.003373	5.51	75.44	93.00	0.96
TCC_S1	3	3739	CZ	314.00	5414.07	5415.71	5415.71	5416.33	0.003309	6.29	49.92	40.00	0.99
TCC_S1	3	3915	100_Year	314.00	5417.47	5418.50	5418.50	5418.91	0.005181	1.55	68.30	87.99	0.30
TCC_S1	3	3915	CZ	314.00		5418.60	5418.60	5419.15	0.005328		52.50	48.00	0.00
TCC_S1	3	4070	100_Year	314.00	5419.82	5421.17	5421.17	5421.60	0.005455	5.30	67.43	88.76	0.98
TCC_S1	3	4070	CZ	314.00	5419.83	5421.36	5421.36	5421.94	0.004869	6.11	51.37	45.00	1.01
TCC_S1	3	4186	100_Year	314.00	5422.06	5423.26	5423.26	5423.68	0.006207	5.37	70.00	90.75	1.02
TCC_S1	3	4186	CZ	314.00	5422.06	5423.59	5423.59	5424.18	0.003514	6.19	50.71	43.00	1.00
TCC_S1	4	4305	100_Year	70.00	5424.16	5425.02	5425.02	5425.21	0.004797	3.58	19.58	50.07	1.00
TCC_S1	4	4305	CZ	70.00	5424.16	5425.12	5425.12	5425.43	0.004328	4.42	15.84	27.00	1.02
TCC_S1	4	4324	100_Year	70.00	5424.62	5425.53	5425.53	5425.72	0.024799	3.72	25.90	65.73	1.02
TCC_S1	4	4324	CZ	70.00	5424.62	5425.65	5425.65	5425.92	0.004111	4.18	16.75	30.00	0.99
TCC_S1	4	4429	100_Year	70.00	5426.64	5427.56	5427.56	5427.78	0.009003	3.70	18.92	44.70	1.00
TCC_S1	4	4429	CZ	70.00	5426.68	5427.82	5427.82	5428.12	0.003983	4.36	16.06	26.00	0.98
TCC_S1	4	4529	100_Year	70.00	5428.78	5429.77	5429.77	5430.01	0.004918	4.00	20.81	46.12	1.04
TCC_S1	4	4529	CZ	70.00	5428.78	5429.88	5429.88	5430.17	0.004081	4.33	16.17	27.00	0.99
TCC_S1	4	4612	100_Year	70.00	5431.02	5431.88	5431.88	5432.12	0.025817	3.94	18.22	38.63	1.00
TCC_S1	4	4612	CZ	70.00	5431.02	5432.13	5432.13	5432.55	0.009056	5.20	13.45	17.00	1.03
TCC_S1	4	4785	100_Year	70.00	5434.18	5435.14	5435.14	5435.42	0.010892	4.27	16.38	29.14	1.00
TCC_S1	4	4785	CZ	70.00	5434.19	5435.51	5435.51	5435.89	0.003889	4.95	14.14	18.00	0.98
TCC_S1	4	4876	100_Year	70.00	5435.65	5436.80	5436.80	5437.05	0.005586	3.98	17.59	37.07	1.02
TCC_S1	4	4876	CZ	70.00	5435.65	5436.89	5436.89	5437.18	0.004384	4.32	16.21	29.00	1.02
TCC_S1	4	4935	100_Year	70.00	5436.69	5437.80	5437.80	5438.02	0.005474	3.82	25.90	65.31	1.01
TCC_S1	4	4935	CZ	70.00	5436.69	5437.89	5437.89	5438.19	0.004499	4.41	15.86	28.00	1.03
TCC_S1	4	4977	100_Year	70.00	5437.29	5438.28	5438.28	5438.53	0.004626	4.01	17.44	36.73	1.03
TCC_S1	4	4977	CZ	70.00	5437.44	5438.40	5438.40	5438.67	0.004310	4.18	16.74	31.73	1.01
TCC_S1	5	5122	100_Year	130.00	5442.18	5443.08	5443.08	5443.22	0.209364	3.45	47.85	177.48	0.82
TCC_S1	5	5122	CZ	130.00	5442.18	5443.47	5443.47	5443.92	0.271191	5.38	24.31	26.17	0.98
TCC_S1	5	5288	100_Year	130.00	5446.42	5447.94		5447.96	0.010721	1.36	114.17	145.58	0.21
TCC_S1	5	5288	CZ	130.00	5446.42	5448.36		5448.39	0.009207	1.54	88.67	55.00	0.21
TCC_S1	5	5433	100_Year	130.00	5451.11	5452.28	5452.28	5452.67	0.208351	5.24	27.30	55.07	0.92
TCC_S1	5	5433	CZ	130.00	5451.11	5452.40	5452.40	5452.96	0.265621	5.99	21.69	19.00	0.99
TCC_S1	6	5576	100_Year	278.00	5452.96	5454.41	5454.41	5454.75	0.003986	4.68	59.45	86.04	0.99
TCC_S1	6	5576	CZ	278.00	5452.96	5454.55	5454.55	5455.01	0.003433	5.41	51.41	55.00	0.99
TCC_S1	6	5697	100_Year	278.00	5457.19	5458.49	5458.49	5458.84	0.003879	4.73	58.75	87.41	1.02
TCC_S1	6	5697	CZ	278.00	5457.19	5458.52	5458.52	5459.01	0.003417	5.64	49.28	50.00	1.00
TCC_S1	6	5821	100_Year	278.00	5460.34	5461.70	5461.70	5462.07	0.015490	1.40	88.28	129.57	0.24
TCC_S1	6	5821	CZ	278.00	5460.34	5462.07	5462.07	5462.58	0.009160	1.31	68.26	74.87	0.19
TCC_S1	6	5944	100_Year	278.00	5464.06	5465.24	5464.95	5465.31	0.053634	2.35	128.54	205.39	0.45
TCC_S1	6	5944	CZ	278.00	5464.06	5465.23	5465.04	5465.47	0.131609	3.93	70.73	75.00	0.71

TCC_S1	6	6082	100_Year	278.00	5469.02	5469.18	5469.18	5469.54	0.008973	0.22	57.83	84.26
0.12												
TCC_S1	6	6082	CZ	278.00		5469.40	5469.40	5469.98	0.014469		45.66	40.00
0.00												
TCC_S1	6	6177	100_Year	278.00	5469.52	5470.88	5470.88	5471.19	0.008143	4.52	61.54	99.35
1.01												
TCC_S1	6	6177	CZ	278.00	5469.52	5471.06	5471.06	5471.64	0.005170	6.08	45.73	40.00
1.00												
TCC_S1	6	6244	100_Year	278.00	5473.42	5474.75	5474.75	5475.16	0.265578	5.49	53.97	87.00
0.98												
TCC_S1	6	6244	CZ	278.00		5475.13	5475.13	5475.72	0.253136		45.18	39.00
0.00												
TCC_S1	6	6392	100_Year	278.00	5476.25	5478.93		5478.98	0.009281	1.90	146.48	66.03
0.22												
TCC_S1	6	6392	CZ	278.00	5476.25	5479.30		5479.37	0.009093	2.07	134.54	47.00
0.22												
TCC_S1	6	6468	100_Year	278.00	5477.52	5479.94		5480.07	0.023519	2.82	98.45	45.44
0.34												
TCC_S1	6	6468	CZ	278.00	5477.52	5480.39		5480.59	0.032832	3.60	77.23	30.08
0.40												
TCC_S1	6	6559	100_Year	278.00	5480.62	5483.46		5483.91	0.087840	5.40	55.04	38.93
0.63												
TCC_S1	6	6559	CZ	278.00	5480.62	5483.93		5484.22	0.048004	4.43	68.05	34.00
0.47												
TCC_S1	6	6680	100_Year	278.00	5484.25	5487.23		5487.28	0.013868	2.07	169.98	125.94
0.23												
TCC_S1	6	6680	CZ	278.00	5484.34	5487.65		5487.76	0.020567	2.69	104.38	45.00
0.28												
TCC_S1	6	6770	100_Year	278.00	5485.17	5487.98		5488.01	0.005163	1.39	202.43	133.76
0.16												
TCC_S1	6	6770	CZ	278.00	5485.17	5488.47		5488.51	0.004234	1.46	190.60	65.00
0.15												
TCC_S1	6	6977	100_Year	278.00	5492.63	5493.75	5493.75	5494.06	0.293451	4.43	62.79	103.63
1.00												
TCC_S1	6	6977	CZ	278.00	5492.63	5493.81	5493.81	5494.21	0.262893	5.13	54.18	65.00
0.99												
TCC_S1	6	7148	100_Year	278.00	5497.92	5500.69	5499.45	5500.78	0.015661	2.57	119.02	188.91
0.29												
TCC_S1	6	7148	CZ	278.00	5497.92	5500.95	5499.49	5501.06	0.016348	2.81	104.46	40.00
0.30												
TCC_S1	6	7247	100_Year	278.00	5500.66	5502.76	5502.10	5502.86	0.027790	2.71	109.96	140.29
0.37												
TCC_S1	6	7247	CZ	278.00	5500.66	5503.02	5502.15	5503.13	0.026892	2.93	104.27	102.00
0.37												
TCC_S1	6	7408	100_Year	326.00	5507.98	5509.18	5509.18	5509.50	0.025883	4.57	72.37	116.51
1.00												
TCC_S1	6	7408	CZ	326.00	5508.33	5509.46	5509.46	5509.90	0.010375	5.36	60.83	65.00
0.98												
TCC_S1	6	7550	100_Year	326.00	5513.30	5514.19	5514.19	5514.94	0.036729	8.74	67.51	76.25
2.13												
TCC_S1	6	7550	CZ	326.00	5513.30	5514.19	5514.19	5514.94	0.037298	8.77	67.27	69.29
2.15												
TCC_S1	6	7712	100_Year	326.00	5517.48	5520.30	5519.32	5520.47	0.034103	3.34	101.34	99.46
0.42												
TCC_S1	6	7712	CZ	326.00	5517.48	5520.73	5519.68	5520.96	0.039909	3.86	84.56	34.00
0.43												
TCC_S1	6	7933	100_Year	326.00	5526.86	5529.16	5528.99	5529.28	0.047846	3.20	142.21	250.05
0.47												
TCC_S1	6	7933	CZ	326.00	5527.29	5529.63	5529.09	5529.78	0.040358	3.43	108.71	75.00
0.43												
TCC_S1	6	8109	100_Year	326.00	5533.80	5535.72	5535.15	5535.79	0.030081	2.24	152.10	190.07
0.36												
TCC_S1	6	8109	CZ	326.00	5533.80	5535.93	5535.15	5536.05	0.031892	2.80	116.41	70.00
0.38												
TCC_S1	6	8352	100_Year	385.00	5543.14	5545.73	5545.73	5546.15	0.002884	7.35	78.84	273.31
1.02												
TCC_S1	6	8352	CZ	385.00	5544.00	5545.98	5545.98	5546.82	0.003233	7.17	52.51	32.00
0.92												
TCC_S1	6	8447	100_Year	385.00	5547.80	5549.31	5549.31	5549.76	0.270122	5.40	71.36	282.72
1.02												
TCC_S1	6	8447	CZ	385.00	5547.80	5549.37	5549.37	5549.95	0.254021	6.11	63.02	56.06
1.02												
TCC_S1	6	8612	100_Year	385.00	5557.21	5558.57	5558.57	5558.99	0.012180	5.27	84.66	132.64
0.94												
TCC_S1	6	8612	CZ	385.00	5557.21	5558.77	5558.77	5559.43	0.010058	6.52	59.02	45.00
1.00												
TCC_S1	6	8699	100_Year	385.00	5561.27	5562.98	5562.98	5563.47	0.004896	5.59	69.58	73.89
1.01												
TCC_S1	6	8699	CZ	385.00	5561.27	5563.13	5563.13	5563.84	0.003882	6.77	56.85	40.00
1.00												
TCC_S1	7	8826	100_Year	247.00	5568.10	5568.92	5568.92	5569.22	0.020552	1.38	61.04	107.70
0.36												
TCC_S1	7	8826	CZ	247.00		5569.11	5569.11	5569.65	0.014136		42.28	40.00
0.00												
TCC_S1	7	8909	100_Year	247.00	5572.73	5573.58	5573.58	5573.85	0.037512	2.29	77.70	161.28
0.52												

TCC_S1	7	8909	CZ	247.00	5572.73	5573.75	5573.75	5574.18	0.128385	5.25	47.09	55.00
1.00												
TCC_S1	7	9043	100_Year	247.00	5581.06	5582.12	5582.11	5582.44	0.116880	4.60	55.88	92.16
0.94												
TCC_S1	7	9043	CZ	247.00	5581.06	5582.57	5582.17	5582.79	0.038422	3.76	65.64	50.00
0.58												
TCC_S1	7	9130	100_Year	247.00	5587.31	5587.55	5587.55	5588.09	0.015911	0.51	42.67	46.55
0.26												
TCC_S1	7	9130	CZ	247.00	5587.31	5587.86	5587.86	5588.39	0.035118	1.26	46.41	53.26
0.43												
TCC_S1_4TH	1	79	100_Year	138.00	5565.08	5566.19	5566.19	5566.62	0.003585	5.32	28.06	38.47
1.00												
TCC_S1_4TH	1	79	CZ	138.00	5565.08	5566.35	5566.35	5566.92	0.003624	6.07	22.74	20.00
1.00												
TCC_S1_4TH	1	190	100_Year	138.00	5569.53	5570.51	5570.51	5570.85	0.005565	4.71	29.29	43.40
1.01												
TCC_S1_4TH	1	190	CZ	138.00	5569.53	5570.66	5570.66	5571.15	0.003614	5.62	24.57	25.00
1.00												
TCC_S1_4TH	1	260	100_Year	138.00	5573.23	5574.31	5574.31	5574.71	0.005727	5.06	27.27	34.93
1.01												
TCC_S1_4TH	1	260	CZ	138.00	5573.23	5574.53	5574.53	5575.05	0.003605	5.79	23.81	23.00
1.00												
TCC_S1_4TH	1	334	100_Year	244.00	5577.82	5579.23	5579.23	5579.53	0.110109	4.51	55.88	90.98
0.92												
TCC_S1_4TH	1	334	CZ	244.00	5577.82	5579.35	5579.35	5579.91	0.116654	6.03	40.67	37.00
1.00												
TCC_S1_4TH	1	415	100_Year	244.00	5582.11	5583.45	5583.45	5584.08	0.006323	2.14	74.00	61.46
0.35												
TCC_S1_4TH	1	415	CZ	244.00	5582.11	5583.68	5583.68	5584.40	0.011159	3.18	67.15	45.00
0.48												
TCC_S1_ELDER	1	91	100_Year	132.00	5363.37	5365.50		5365.52	0.000219	1.25	118.18	96.61
0.18												
TCC_S1_ELDER	1	91	CZ	132.00	5363.48	5365.72		5365.84	0.000411	2.77	47.57	25.00
0.35												
TCC_S1_ELDER	1	162	100_Year	132.00	5363.12	5365.52		5365.54	0.000112	1.00	162.39	113.66
0.13												
TCC_S1_ELDER	1	162	CZ	132.00	5363.29	5365.81		5365.86	0.000148	1.90	69.60	30.00
0.22												
TCC_S1_ELDER	1	234	100_Year	132.00	5363.57	5365.52		5365.55	0.000274	1.35	116.22	101.42
0.20												
TCC_S1_ELDER	1	234	CZ	132.00	5363.57	5365.80		5365.89	0.000367	2.41	54.83	30.00
0.31												
TCC_S1_ELDER	1	320	100_Year	132.00	5364.79	5365.67	5365.67	5365.93	0.006927	4.05	32.85	70.10
1.00												
TCC_S1_ELDER	1	320	CZ	132.00	5364.79	5365.94	5365.94	5366.38	0.003994	5.28	24.98	30.00
1.02												
TCC_S1_ELDER	1	459	100_Year	132.00	5366.70	5367.69	5367.69	5368.01	0.008033	4.49	29.39	48.14
1.01												
TCC_S1_ELDER	1	459	CZ	132.00	5366.70	5367.91	5367.91	5368.34	0.006635	5.26	25.10	30.00
1.01												
TCC_S1_ELDER	1	536	100_Year	132.00	5371.34	5372.29	5372.29	5372.58	0.005066	4.33	30.62	59.12
1.01												
TCC_S1_ELDER	1	536	CZ	132.00	5371.34	5372.46	5372.46	5372.88	0.003815	5.23	25.22	30.00
1.01												
TCC_S1_ELDER	1	670	100_Year	132.00	5374.64	5375.66	5375.66	5375.96	0.008874	4.40	29.97	50.87
1.01												
TCC_S1_ELDER	1	670	CZ	132.00	5374.64	5375.85	5375.85	5376.28	0.006301	5.23	25.26	30.00
1.00												
TCC_S1_ELDER	1	772	100_Year	132.00	5376.76	5377.77	5377.77	5378.09	0.033460	4.57	28.89	44.93
1.00												
TCC_S1_ELDER	1	772	CZ	132.00	5376.77	5377.90	5377.90	5378.31	0.003829	5.16	25.58	31.00
1.00												
TCC_S1_ELDER	1	880	100_Year	132.00	5378.17	5379.18	5379.18	5379.50	0.004381	4.55	31.11	51.21
1.01												
TCC_S1_ELDER	1	880	CZ	132.00	5378.18	5379.36	5379.36	5379.80	0.003938	5.32	24.81	29.00
1.01												
TCC_S1_ELDER	1	1028	100_Year	132.00	5379.97	5381.03	5381.03	5381.38	0.014137	4.75	27.79	40.48
1.01												
TCC_S1_ELDER	1	1028	CZ	132.00	5379.97	5381.21	5381.21	5381.66	0.003880	5.36	24.61	28.00
1.01												
TCC_S1_ELDER	1	1168	100_Year	132.00	5381.50	5382.69	5382.69	5383.00	0.004435	4.49	40.57	88.95
0.98												
TCC_S1_ELDER	1	1168	CZ	132.00	5381.50	5382.88	5382.88	5383.32	0.003931	5.31	24.84	29.00
1.01												
TCC_S1_ELDER	1	1296	100_Year	132.00	5383.35	5384.73	5384.73	5385.08	0.004923	4.86	35.08	58.96
1.05												
TCC_S1_ELDER	1	1296	CZ	132.00	5383.46	5384.99	5384.99	5385.45	0.004041	5.40	24.43	28.00
1.02												
TCC_S1_ELDER	1	1436	100_Year	132.00	5385.59	5386.85	5386.85	5387.19	0.004140	4.75	33.29	59.80
1.01												
TCC_S1_ELDER	1	1436	CZ	132.00	5385.61	5387.04	5387.04	5387.48	0.003903	5.31	24.84	29.00
1.01												
TCC_S1_ELDER	1	1548	100_Year	132.00	5387.18	5388.37	5388.37	5388.71	0.004472	4.64	29.44	48.90
1.02												
TCC_S1_ELDER	1	1548	CZ	132.00	5387.20	5388.57	5388.57	5389.03	0.004154	5.41	24.40	29.00
1.04												

TCC_S1_GRAPE	1	75	100_Year	244.00	5423.64	5424.83	5424.83	5425.12	0.010172	4.83	70.66	111.88	1.04
TCC_S1_GRAPE	1	75	CZ	244.00	5423.64	5425.07	5425.07	5425.59	0.003609	5.77	42.29	42.00	1.01
TCC_S1_GRAPE	1	127	100_Year	244.00	5424.28	5425.63	5425.63	5425.97	0.003841	4.91	63.90	96.48	1.01
TCC_S1_GRAPE	1	127	CZ	244.00	5424.31	5425.82	5425.82	5426.37	0.003572	5.95	40.98	38.00	1.01
TCC_S1_GRAPE	1	226	100_Year	244.00	5425.78	5427.21	5427.21	5427.66	0.005850	5.48	48.75	56.83	1.04
TCC_S1_GRAPE	1	226	CZ	244.00	5425.78	5427.35	5427.35	5427.90	0.003632	5.93	41.16	39.00	1.02
TCC_S1_GRAPE	1	345	100_Year	244.00	5428.12	5429.50	5429.50	5429.89	0.005216	5.21	52.98	69.13	1.00
TCC_S1_GRAPE	1	345	CZ	244.00	5428.13	5429.70	5429.70	5430.24	0.003639	5.93	41.17	39.00	1.02
TCC_S1_GRAPE	1	441	100_Year	244.00	5430.20	5431.56	5431.56	5431.95	0.004193	5.15	55.16	74.44	1.00
TCC_S1_GRAPE	1	441	CZ	244.00	5430.21	5431.76	5431.76	5432.30	0.003592	5.90	41.34	39.00	1.01
TCC_S1_GRAPE	2	533	100_Year	61.00	5433.30	5434.01	5434.01	5434.18	0.009235	3.48	26.63	75.79	1.15
TCC_S1_GRAPE	2	533	CZ	61.00	5433.30	5434.27	5434.27	5434.60	0.004017	4.58	13.31	20.00	0.99
TCC_S1_GRAPE	2	623	100_Year	61.00	5434.70	5435.82	5435.82	5436.01	0.005900	3.48	17.52	45.75	0.99
TCC_S1_GRAPE	2	623	CZ	61.00	5434.70	5436.08	5436.08	5436.48	0.004130	5.08	12.01	15.00	1.00
TCC_S1_GRAPE	2	665	100_Year	61.00	5435.40	5436.53	5436.53	5436.71	0.007558	3.44	17.71	46.04	0.98
TCC_S1_GRAPE	2	665	CZ	61.00	5435.40	5436.81	5436.81	5437.19	0.003998	4.93	12.38	16.00	0.99
TCC_S1_GRAPE	2	751	100_Year	61.00	5437.05	5438.11	5438.11	5438.29	0.006133	3.42	17.85	47.81	0.99
TCC_S1_GRAPE	2	751	CZ	61.00	5437.05	5438.33	5438.33	5438.72	0.003858	5.00	12.21	15.00	0.98
TCC_S1_GRAPE	2	766	100_Year	61.00	5437.12	5438.32	5438.32	5438.53	0.005777	3.71	16.44	34.63	0.95
TCC_S1_GRAPE	2	766	CZ	61.00	5437.12	5438.49	5438.49	5438.98	0.004024	5.61	10.88	11.00	0.99
TCC_S1_HAWTHORN	1	46	100_Year	184.00	5431.81	5432.95	5432.95	5433.27	0.006444	4.58	43.46	75.22	1.01
TCC_S1_HAWTHORN	1	46	CZ	184.00	5431.81	5433.12	5433.12	5433.53	0.003804	5.14	35.77	44.00	1.01
TCC_S1_HAWTHORN	1	157	100_Year	184.00	5434.42	5435.55	5435.55	5435.87	0.008598	4.66	42.58	65.16	1.02
TCC_S1_HAWTHORN	1	157	CZ	184.00	5434.43	5435.70	5435.70	5436.13	0.003760	5.27	34.95	41.00	1.01
TCC_S1_HAWTHORN	1	257	100_Year	184.00	5436.64	5437.75	5437.75	5438.09	0.004241	4.85	44.00	65.58	1.02
TCC_S1_HAWTHORN	1	257	CZ	184.00	5436.64	5437.90	5437.90	5438.33	0.003714	5.25	35.04	41.00	1.00
TCC_S1_HAWTHORN	1	366	100_Year	148.00	5439.01	5440.15	5440.15	5440.52	0.015790	4.85	30.80	47.84	1.00
TCC_S1_HAWTHORN	1	366	CZ	148.00	5439.08	5440.31	5440.31	5440.79	0.003766	5.57	26.58	28.00	1.01
TCC_S1_HAWTHORN	1	539	100_Year	148.00	5442.72	5443.73	5443.73	5444.02	0.005672	4.43	48.53	90.11	1.01
TCC_S1_HAWTHORN	1	539	CZ	148.00	5442.72	5444.01	5444.01	5444.47	0.003865	5.47	27.07	30.00	1.01
TCC_S1_HAWTHORN	1	763	100_Year	148.00	5447.42	5448.52	5448.52	5448.84	0.005030	4.54	35.96	61.53	1.01
TCC_S1_HAWTHORN	1	763	CZ	148.00	5447.42	5448.69	5448.69	5449.13	0.003775	5.30	27.91	32.00	1.00
TCC_S1_HAWTHORN	1	984	100_Year	148.00	5451.58	5452.36	5452.36	5452.68	0.130194	5.56	36.72	77.70	1.80
TCC_S1_HAWTHORN	1	984	CZ	148.00	5451.58	5452.80	5452.80	5453.17	0.032562	5.05	32.48	44.00	1.04
TCC_S2	1	78	100_Year	222.00	5328.08	5329.25	5329.25	5329.57	0.004153	4.67	58.29	110.92	1.01
TCC_S2	1	78	CZ	222.00	5328.08	5329.29	5329.29	5329.65	0.004055	4.84	45.89	65.00	1.01
TCC_S2	1	366	100_Year	222.00	5330.18	5331.30	5331.30	5331.60	0.004199	4.46	59.15	124.02	0.99
TCC_S2	1	366	CZ	222.00	5330.18	5331.30	5331.30	5331.64	0.004344	4.65	47.75	74.00	1.02
TCC_S2	1	563	100_Year	222.00	5333.25	5334.13	5334.13	5334.29	0.030186	3.20	69.34	207.05	0.96
TCC_S2	1	563	CZ	222.00	5333.41	5334.45	5334.45	5334.75	0.005068	4.45	49.84	85.00	1.02
TCC_S2	1	802	100_Year	222.00	5335.85	5337.12	5337.12	5337.40	0.005783	4.30	55.98	104.70	0.98
TCC_S2	1	802	CZ	222.00	5335.85	5337.16	5337.16	5337.50	0.004953	4.68	47.47	72.00	1.01
TCC_S2	1	975	100_Year	222.00	5338.20	5339.27	5339.27	5339.50	0.029994	3.86	57.48	128.39	1.02
TCC_S2	1	975	CZ	222.00	5338.31	5339.64	5339.64	5339.99	0.004755	4.77	46.52	67.00	1.01

TCC_S2	1	1300	100_Year	222.00	5343.41	5344.61	5344.61	5344.92	0.004001	4.45	49.84	82.36	1.01
TCC_S2	1	1300	CZ	222.00	5343.41	5344.68	5344.68	5345.09	0.003809	5.12	43.38	55.00	1.02
TCC_S2	1	1628	100_Year	222.00	5348.78	5349.90	5349.90	5350.22	0.059558	4.54	48.87	80.88	1.03
TCC_S2	1	1628	CZ	222.00	5348.78	5350.02	5350.02	5350.42	0.007449	5.07	43.79	56.00	1.01
TCC_S2	1	1935	100_Year	222.00	5354.49	5355.86	5355.86	5356.19	0.004915	4.72	53.01	82.66	1.05
TCC_S2	1	1935	CZ	222.00	5354.49	5356.13	5356.13	5356.55	0.003859	5.24	42.34	51.00	1.01
TCC_S2	1	2208	100_Year	222.00	5359.91	5361.41	5361.41	5361.78	0.003807	4.89	45.37	62.90	1.02
TCC_S2	1	2208	CZ	222.00	5359.91	5361.40	5361.40	5361.80	0.003955	5.03	44.16	59.00	1.02
TCC_S2	1	2406	100_Year	222.00	5363.55	5365.06	5365.06	5365.39	0.004650	4.62	48.34	76.47	1.00
TCC_S2	1	2406	CZ	222.00	5363.55	5365.14	5365.14	5365.55	0.003938	5.16	43.04	55.00	1.03
TCC_S2	1	2561	100_Year	222.00	5366.36	5367.89	5367.89	5368.26	0.003706	4.85	45.78	63.15	1.00
TCC_S2	1	2561	CZ	222.00	5366.36	5367.91	5367.91	5368.32	0.003855	5.14	43.23	55.00	1.02
TCC_S2	1	2727	100_Year	258.00	5369.40	5370.75	5370.75	5371.13	0.003791	4.98	60.22	115.14	1.01
TCC_S2	1	2727	CZ	258.00	5369.40	5370.78	5370.78	5371.23	0.003659	5.37	48.02	55.00	1.01
TCC_S2	1	2915	100_Year	258.00	5373.63	5375.01	5375.01	5375.38	0.003615	4.92	52.62	73.36	1.00
TCC_S2	1	2915	CZ	258.00	5373.63	5375.01	5375.01	5375.40	0.003591	5.01	51.52	65.00	0.99
TCC_S2	1	3071	100_Year	258.00	5377.68	5378.92	5378.92	5379.26	0.003805	4.66	55.37	84.72	1.02
TCC_S2	1	3071	CZ	258.00	5377.68	5378.95	5378.95	5379.33	0.003800	4.92	52.41	71.00	1.01
TCC_S2	1	3117	100_Year	258.00	5378.79	5379.97	5379.97	5380.30	0.003936	4.59	56.20	88.27	1.01
TCC_S2	1	3117	CZ	258.00	5378.79	5380.01	5380.01	5380.40	0.003834	5.00	51.56	68.00	1.01
TCC_S2	1	3270	100_Year	250.00	5381.14	5382.23	5382.23	5382.56	0.023569	4.63	55.18	87.67	1.02
TCC_S2	1	3270	CZ	250.00	5381.14	5382.31	5382.31	5382.70	0.003916	5.00	50.04	67.00	1.02
TCC_S2	1	3402	100_Year	250.00	5382.45	5384.19	5383.69	5384.27	0.008036	2.36	107.52	225.58	0.41
TCC_S2	1	3402	CZ	250.00	5382.93	5384.21	5384.21	5384.71	0.003544	5.68	43.99	44.00	1.00
TCC_S2	1	3484	100_Year	250.00	5383.52	5384.94	5384.94	5385.25	0.003783	4.66	99.93	201.72	1.01
TCC_S2	1	3484	CZ	250.00	5383.90	5385.29	5385.29	5385.75	0.003667	5.47	45.74	50.00	1.01
TCC_S2	1	3568	100_Year	250.00	5385.56	5386.75	5386.75	5387.14	0.003717	5.02	49.83	65.50	1.01
TCC_S2	1	3568	CZ	250.00	5385.56	5386.97	5386.97	5387.43	0.003477	5.46	45.82	48.00	0.98
TCC_S2	1	3679	100_Year	250.00	5387.86	5389.03	5389.03	5389.38	0.004181	4.70	53.18	77.75	1.00
TCC_S2	1	3679	CZ	250.00	5387.89	5389.33	5389.33	5389.83	0.003691	5.69	43.96	45.00	1.01
TCC_S2	1	3841	100_Year	250.00	5391.15	5392.49	5392.49	5392.84	0.003641	4.77	64.53	122.86	0.98
TCC_S2	1	3841	CZ	250.00	5391.28	5392.70	5392.70	5393.17	0.003639	5.50	45.47	49.00	1.01
TCC_S2	1	4041	100_Year	250.00	5399.65	5400.65	5400.65	5400.96	0.046407	5.70	63.39	107.84	1.80
TCC_S2	1	4041	CZ	250.00	5399.65	5401.11	5401.11	5401.48	0.007843	4.30	54.70	72.00	0.88
TCC_S2	1	4216	100_Year	250.00	5403.52	5404.85	5404.85	5405.16	0.005198	4.76	86.01	196.33	1.05
TCC_S2	1	4216	CZ	250.00	5403.52	5405.06	5405.06	5405.51	0.003689	5.38	46.49	53.00	1.01
TCC_S2	1	4307	100_Year	250.00	5404.50	5405.70	5405.70	5406.03	0.004863	4.87	71.66	135.87	1.06
TCC_S2	1	4307	CZ	250.00	5404.50	5405.98	5405.98	5406.45	0.003731	5.52	45.28	49.00	1.01
TCC_S2	1	4455	100_Year	250.00	5407.45	5408.77	5408.77	5409.11	0.003810	4.73	69.28	127.35	1.00
TCC_S2	1	4455	CZ	250.00	5407.50	5408.98	5408.98	5409.46	0.003666	5.59	44.76	47.00	1.01
TCC_S2	1	4543	100_Year	250.00	5409.55	5410.57	5410.57	5410.81	0.004118	3.95	63.24	129.80	1.00
TCC_S2	1	4543	CZ	250.00	5409.55	5410.85	5410.85	5411.27	0.003802	5.17	48.37	60.00	1.01
TCC_S2	1	4591	100_Year	250.00	5409.84	5411.85	5411.85	5412.15	0.008615	4.45	59.42	128.36	0.98

TCC_S2	1	4591	CZ	250.00	5410.78	5412.17	5412.17	5412.60	0.003746	5.23	47.77	58.00
1.02												
TCC_S2	1	4927	100_Year	250.00	5417.50	5420.34	5420.34	5420.68	0.014499	4.65	53.91	90.19
1.03												
TCC_S2	1	4927	CZ	250.00	5417.92	5420.69	5420.69	5421.06	0.006357	4.89	51.17	70.00
1.01												
TCC_S2	1	5170	100_Year	250.00	5425.85	5427.12	5427.12	5427.49	0.051292	4.93	50.77	70.44
1.02												
TCC_S2	1	5170	CZ	250.00	5425.88	5427.40	5427.40	5427.89	0.009034	5.66	44.20	45.00
1.01												
TCC_S2	1	5389	100_Year	250.00	5431.67	5433.35	5433.03	5433.53	0.017119	3.44	73.12	74.11
0.60												
TCC_S2	1	5389	CZ	250.00	5431.88	5433.42	5433.42	5433.98	0.003516	6.03	41.46	37.00
1.00												
TCC_S2	1	5571	100_Year	250.00	5437.53	5438.89	5438.89	5439.14	0.013454	5.17	85.50	154.52
1.14												
TCC_S2	1	5571	CZ	250.00	5437.53	5439.24	5439.24	5439.62	0.007999	5.31	64.69	88.00
0.97												
TCC_S2	1	5725	100_Year	237.00	5440.15	5441.65		5441.97	0.027013	4.52	52.44	44.56
0.73												
TCC_S2	1	5725	CZ	237.00	5440.15	5441.67	5441.67	5442.38	0.054328	6.75	35.11	25.00
1.00												
TCC_S2	1	5962	100_Year	237.00	5447.85	5449.42	5449.03	5450.20	0.046614	2.58	57.50	82.84
0.44												
TCC_S2	1	5962	CZ	237.00	5447.85	5449.90	5449.07	5450.34	0.023176	2.33	74.68	55.00
0.33												
TCC_S2	1	6087	100_Year	237.00	5452.38	5453.89	5453.61	5453.98	0.017097	2.17	104.93	155.80
0.35												
TCC_S2	1	6087	CZ	237.00	5452.38	5453.88	5453.69	5454.64	0.045631	3.74	48.19	57.00
0.59												
TCC_S2	1	6165	100_Year	237.00	5454.79	5455.84	5455.84	5456.14	0.030973	4.41	57.13	140.87
0.98												
TCC_S2	1	6165	CZ	237.00	5454.79	5456.05	5455.99	5456.42	0.012725	4.90	48.39	50.00
0.88												
TCC_S2	1	6313	100_Year	237.00	5459.29	5460.54	5460.28	5460.74	0.039787	1.96	79.89	111.00
0.39												
TCC_S2	1	6313	CZ	237.00	5459.29	5460.70	5460.57	5461.01	0.159937	4.43	53.54	55.79
0.80												
TCC_S2	1	6385	100_Year	237.00	5461.17	5462.78		5462.81	0.015424	1.36	202.41	298.87
0.25												
TCC_S2	1	6385	CZ	237.00	5461.17	5463.27		5463.30	0.012315	1.62	151.41	110.00
0.24												
TCC_S2	1	6524	100_Year	237.00	5465.10	5466.93	5466.61	5467.07	0.083642	3.05	82.61	149.35
0.57												
TCC_S2	1	6524	CZ	237.00	5465.71	5467.17	5467.03	5467.46	0.165983	4.31	54.99	60.00
0.79												
TCC_S2	1	6656	100_Year	237.00	5471.04	5472.33	5471.82	5472.37	0.024103	1.82	153.17	257.77
0.31												
TCC_S2	1	6656	CZ	237.00	5471.04	5472.81	5471.89	5472.88	0.018062	2.07	114.41	70.00
0.29												
TCC_S2	1	6743	100_Year	237.00	5473.60	5475.45		5475.55	0.056298	2.51	94.86	112.28
0.46												
TCC_S2	1	6743	CZ	237.00	5473.60	5475.65		5476.01	0.093530	4.82	49.12	27.00
0.63												
TCC_S2	1	6941	100_Year	237.00	5479.61	5480.72	5480.69	5481.04	0.016138	4.53	52.28	75.43
0.96												
TCC_S2	1	6941	CZ	237.00	5479.61	5480.78	5480.72	5481.18	0.011999	5.04	47.01	50.00
0.92												
TCC_S2	1	7123	100_Year	237.00	5484.35	5486.42	5485.96	5486.69	0.082829	4.27	60.82	60.84
0.60												
TCC_S2	1	7123	CZ	237.00	5484.35	5486.49	5486.49	5487.07	0.207763	6.40	39.79	32.00
0.92												
TCC_S2	1	7287	100_Year	237.00	5491.38	5492.99	5492.32	5493.04	0.022331	1.90	139.33	244.66
0.31												
TCC_S2	1	7287	CZ	237.00	5491.38	5493.47	5492.38	5493.54	0.016030	2.11	112.17	60.00
0.27												
TCC_S2	1	7371	100_Year	237.00	5494.84	5496.06	5495.77	5496.17	0.075989	2.70	87.64	110.11
0.53												
TCC_S2	1	7371	CZ	237.00	5494.84	5496.06	5495.79	5496.25	0.094288	3.43	69.10	70.00
0.61												
TCC_S2	1	7510	100_Year	237.00	5500.31	5503.20	5502.76	5503.34	0.034592	3.65	93.55	174.37
0.43												
TCC_S2	1	7510	CZ	237.00	5500.48	5503.30	5502.74	5503.41	0.030047	3.18	92.85	65.72
0.36												
TCC_S2	1	7625	100_Year	237.00	5504.68	5507.03	5506.49	5507.17	0.040673	3.22	88.30	136.68
0.44												
TCC_S2	1	7625	CZ	237.00	5504.68	5507.48	5506.99	5507.80	0.074823	4.73	53.57	31.00
0.58												
TCC_S2	1	7708	100_Year	237.00	5508.06	5509.75	5509.27	5510.19	0.028479	2.21	77.09	75.22
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TCC_S2	1	7708	CZ	237.00	5508.06	5510.18		5510.35	0.016385	2.01	97.67	64.00
0.28												
TCC_S2	1	7766	100_Year	237.00	5509.68	5511.99	5511.34	5512.12	0.035046	3.12	85.52	103.71
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TCC_S2	1	7766	CZ	237.00	5509.68	5511.99	5511.56	5512.45	0.112079	5.46	43.43	22.00
0.68												

TCC_S2	1	7815	100_Year	237.00	5513.06	5514.40	5514.40	5514.79	0.005207	5.36	55.51	78.25	0.96
TCC_S2	1	7815	CZ	237.00	5513.06	5514.61	5514.61	5515.24	0.006429	6.37	37.23	30.00	1.01
TCC_S_4TH	1	102	100_Year	106.00	5542.70	5543.59		5543.74	0.161632	3.12	34.01	62.03	0.73
TCC_S_4TH	1	102	CZ	106.00	5542.70	5543.72	5543.72	5544.17	0.282955	5.37	19.73	22.00	1.00
TCC_S_4TH	1	264	100_Year	106.00	5551.87	5553.34	5552.80	5553.39	0.030760	1.91	55.61	59.75	0.35
TCC_S_4TH	1	264	CZ	106.00	5551.87	5553.73	5552.89	5553.81	0.024953	2.27	46.67	30.00	0.32
TCC_S_4TH	1	407	100_Year	106.00	5560.44	5561.31	5561.21	5561.44	0.132523	3.04	38.46	82.23	0.68
TCC_S_4TH	1	407	CZ	106.00	5560.44	5561.47	5561.38	5561.81	0.212539	4.70	22.55	25.00	0.87
TCC_S_4TH	1	510	100_Year	106.00	5566.38	5567.53		5567.58	0.033709	1.71	62.47	91.07	0.35
TCC_S_4TH	1	510	CZ	106.00	5566.41	5567.94		5568.01	0.027872	2.12	50.04	40.00	0.33
TCC_S_4TH	1	645	100_Year	106.00	5572.58	5573.81		5573.91	0.070110	2.37	41.09	51.97	0.50
TCC_S_4TH	1	645	CZ	106.00	5572.58	5574.14		5574.34	0.093863	3.61	29.54	26.00	0.59
TCC_S_LINDEN	1	53	100_Year	0.01	5562.02	5562.05	5562.05	5562.06	0.148084	0.69	0.01	0.97	1.00
TCC_S_LINDEN	1	53	CZ	0.01	5562.02	5562.05	5562.05	5562.06	0.148084	0.69	0.01	0.97	1.00
TCC_S_LINDEN	1	79	100_Year	0.01	5563.89	5563.94	5563.94	5563.95	0.028345	0.45	0.02	0.84	0.48
TCC_S_LINDEN	1	79	CZ	0.01	5563.89	5563.94	5563.94	5563.95	0.028345	0.45	0.02	0.84	0.48
TCC_S_LINDEN	1	113	100_Year	0.01	5565.73	5565.78	5565.78	5565.78	0.058251	0.57	0.02	0.77	0.67
TCC_S_LINDEN	1	113	CZ	0.01	5565.73	5565.78	5565.78	5565.78	0.058251	0.57	0.02	0.77	0.67
TCC_S_LINDEN	1	169	100_Year	0.01	5568.08	5568.13		5568.13	0.005324	0.19	0.05	1.95	0.21
TCC_S_LINDEN	1	169	CZ	0.01	5568.08	5568.13		5568.13	0.005324	0.19	0.05	1.95	0.21
TCC_S_LINDEN	1	228	100_Year	0.01	5570.31	5570.37	5570.37	5570.37	0.016840	0.35	0.03	1.05	0.37
TCC_S_LINDEN	1	228	CZ	0.01	5570.31	5570.37	5570.37	5570.37	0.016840	0.35	0.03	1.05	0.37
TCC_S_SVALLEY	1	186	100_Year	244.00	5586.67	5588.41	5588.41	5588.82	0.008926	3.62	75.70	97.02	0.58
TCC_S_SVALLEY	1	186	CZ	244.00	5586.67	5588.47	5588.47	5589.02	0.027570	6.29	43.93	40.00	0.98
TCC_S_SVALLEY	1	298	100_Year	491.00	5591.90	5594.14	5594.14	5594.73	0.010723	6.28	86.57	82.09	0.95
TCC_S_SVALLEY	1	298	CZ	491.00	5591.90	5594.24	5594.24	5595.09	0.017096	7.40	66.33	40.00	1.01
TCC_S_SVALLEY	1	447	100_Year	491.00	5599.03	5600.30	5600.30	5600.72	0.032603	5.16	95.57	116.74	1.00
TCC_S_SVALLEY	1	447	CZ	491.00	5599.03	5600.48	5600.48	5601.13	0.036195	6.46	76.02	60.00	1.01
TCC_S_SVALLEY	1	495	100_Year	491.00	5600.90	5602.44	5602.44	5602.94	0.032310	5.54	87.53	97.39	0.95
TCC_S_SVALLEY	1	495	CZ	491.00	5600.90	5602.63	5602.63	5603.41	0.034172	7.08	69.34	45.00	1.01
TCC_S_SVALLEY	1	536	100_Year	491.00	5603.18	5605.27	5605.27	5605.77	0.033101	5.70	87.95	97.11	0.96
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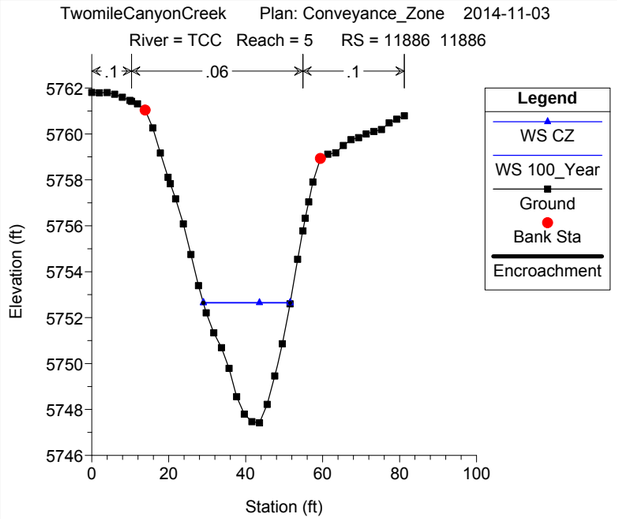
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
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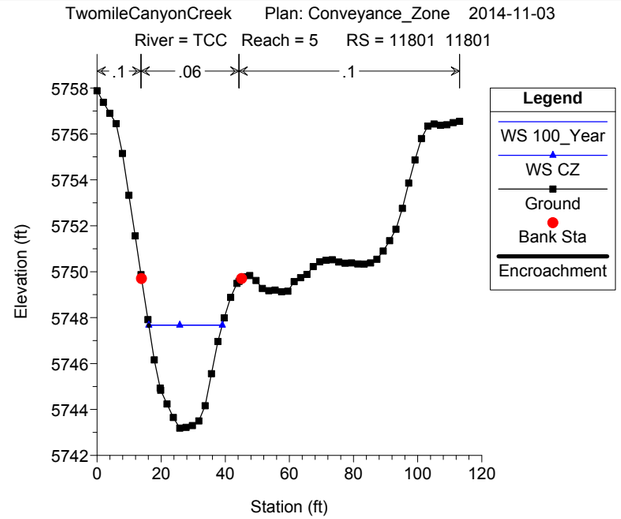
.1 .06 .1
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)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Legend
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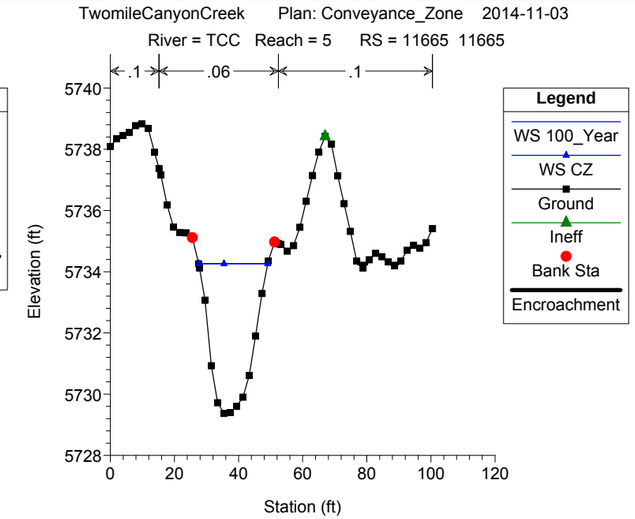
WS CZ
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)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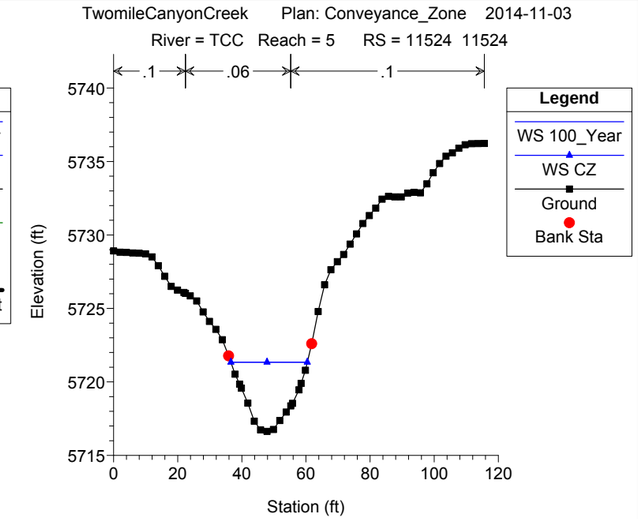
Legend
WS 100_Year
WS CZ
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)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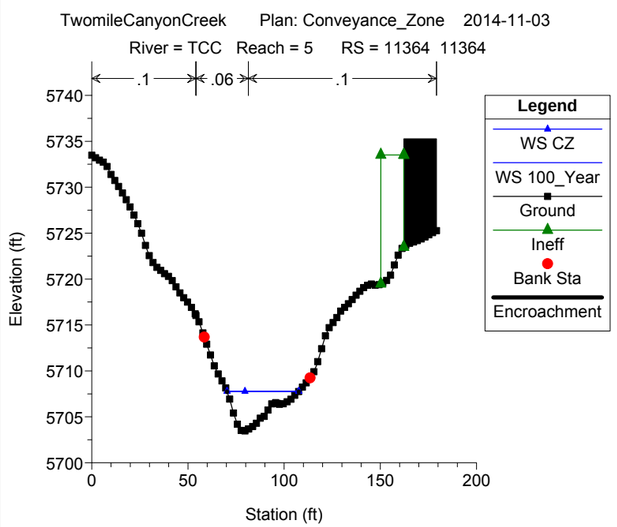
Legend
WS 100_Year
WS CZ
Ground
Bank Sta
Elevation (ft)
Station (ft)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River = TCC Reach = 5 RS = 11364 11364
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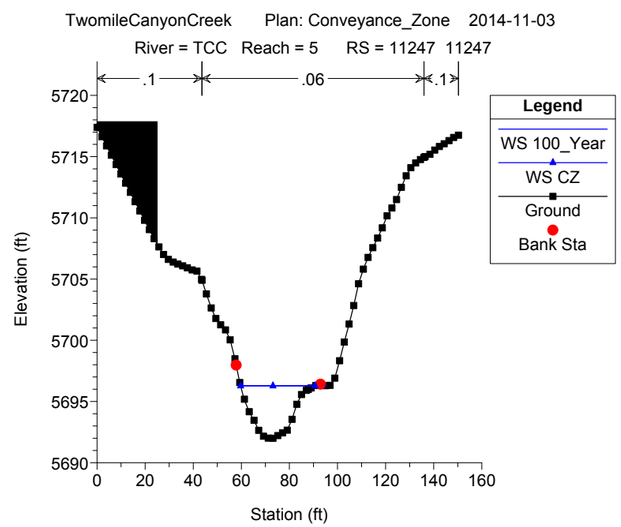
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)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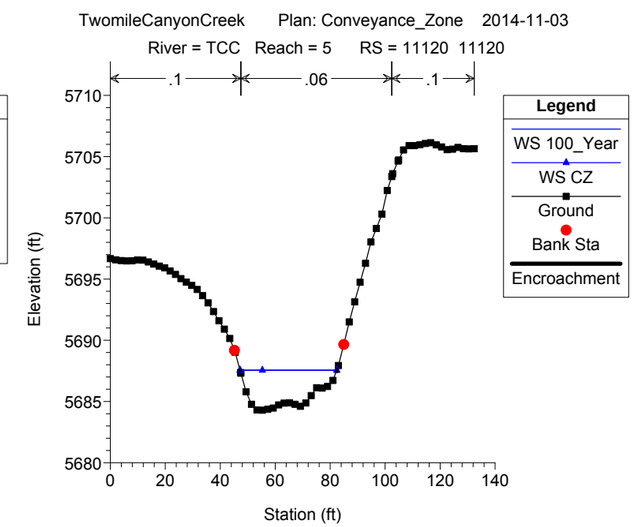
Legend
WS 100_Year
WS CZ
Ground
Bank Sta
Elevation (ft)
Station (ft)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Legend
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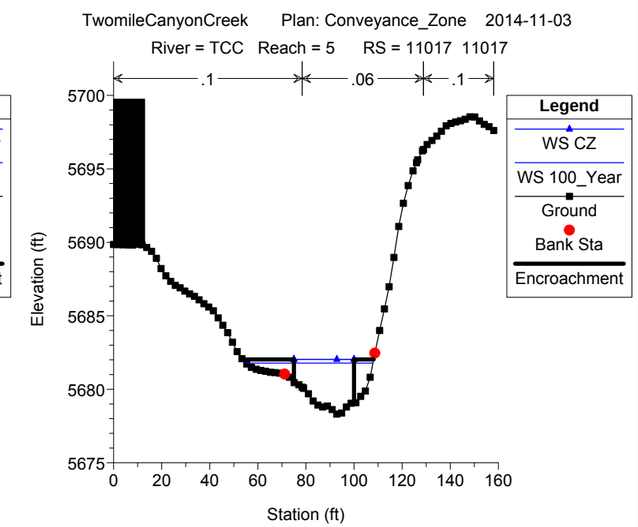
WS CZ
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)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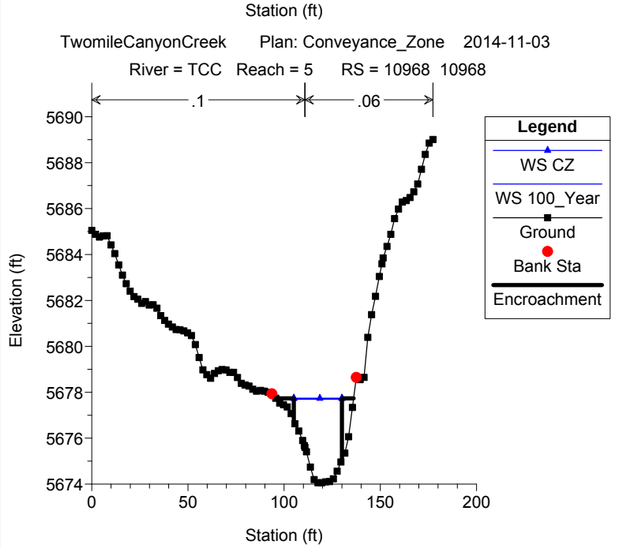
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)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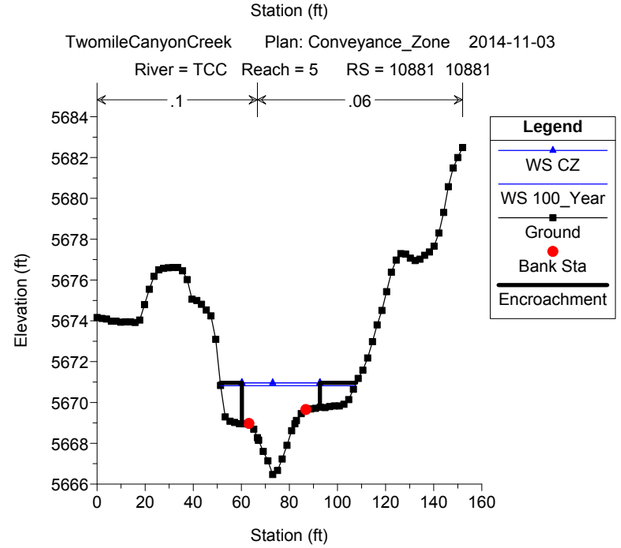
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)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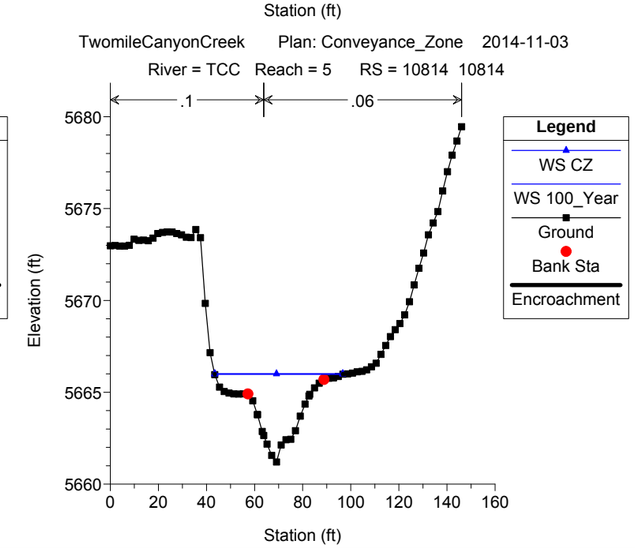
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)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River = TCC Reach = 5 RS = 10814 10814
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Legend
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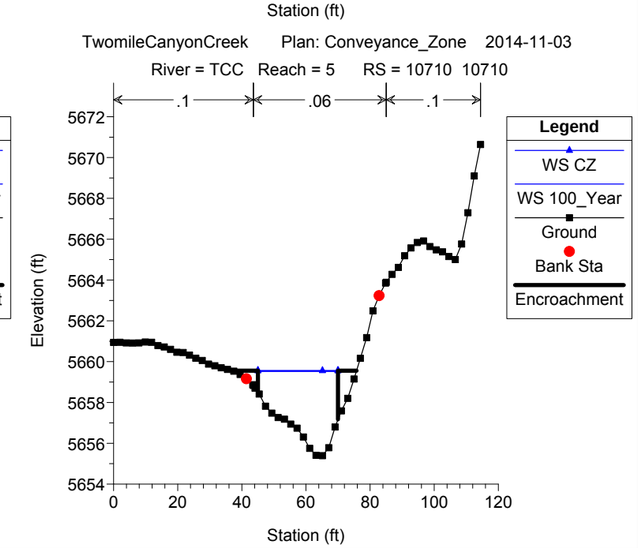
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)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River = TCC Reach = 5 RS = 10710 10710
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Legend
WS CZ
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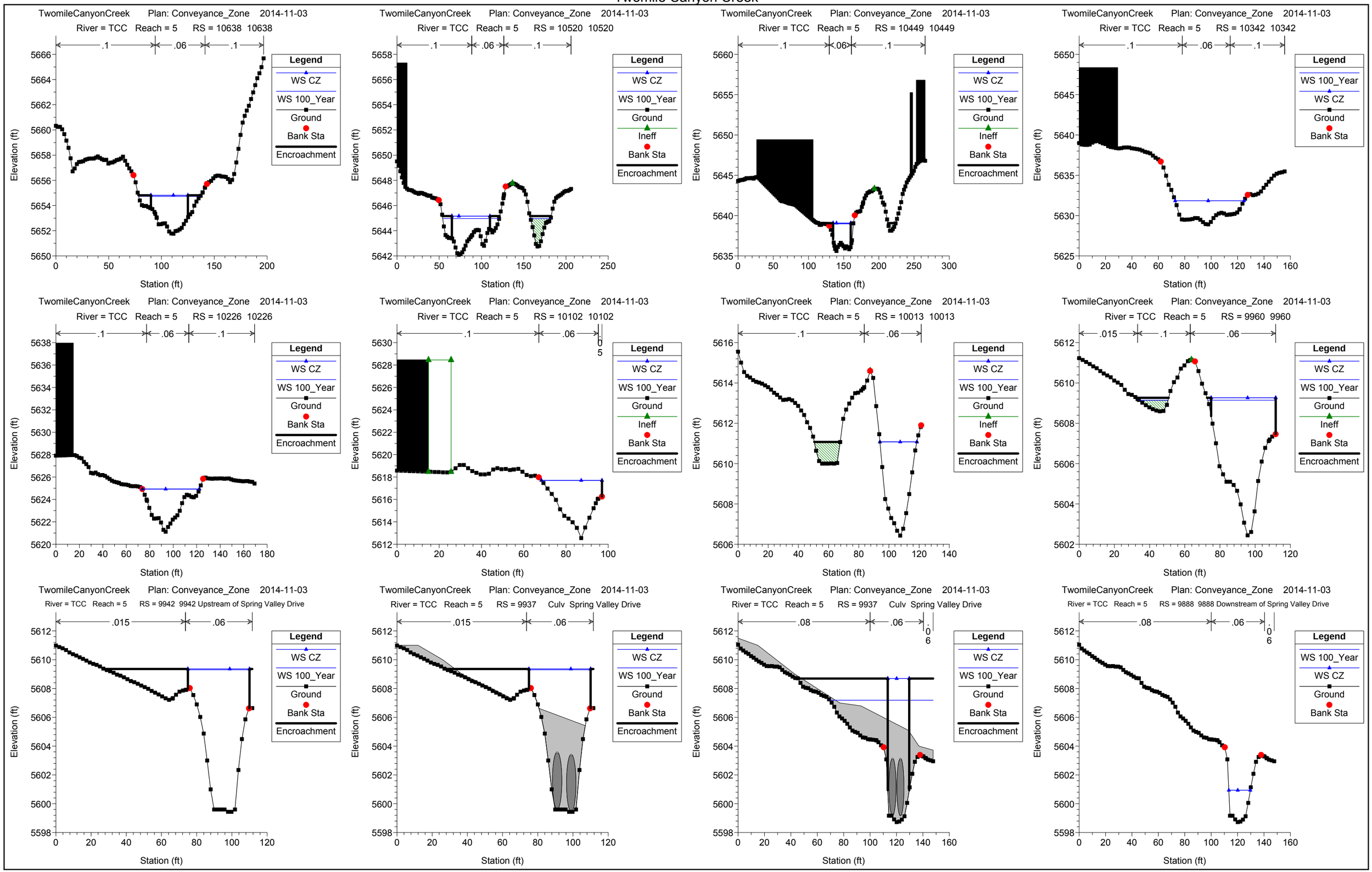
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)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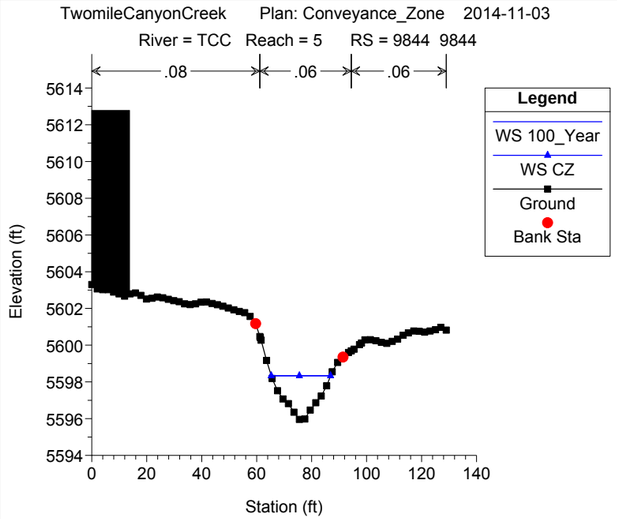
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 5 RS = 10520 10520
.1 .06 .1
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 5 RS = 10449 10449
.1 .06 .1
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 5 RS = 10342 10342
.1 .06 .1
Legend
WS 100_Year
WS CZ
Ground
Bank Sta
Elevation (ft)
Station (ft)
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 5 RS = 10226 10226
.1 .06 .1
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 5 RS = 10102 10102
.1 .06 .05
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 5 RS = 10013 10013
.1 .06
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 5 RS = 9960 9960
.015 .1 .06
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 5 RS = 9942 9942 Upstream of Spring Valley Drive
.015 .06
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 5 RS = 9937 Culv Spring Valley Drive
.015 .06
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 5 RS = 9937 Culv Spring Valley Drive
.08 .06 .06
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 5 RS = 9888 9888 Downstream of Spring Valley Drive
.08 .06 .06
Legend
WS 100_Year
WS CZ
Ground
Bank Sta
Elevation (ft)
Station (ft)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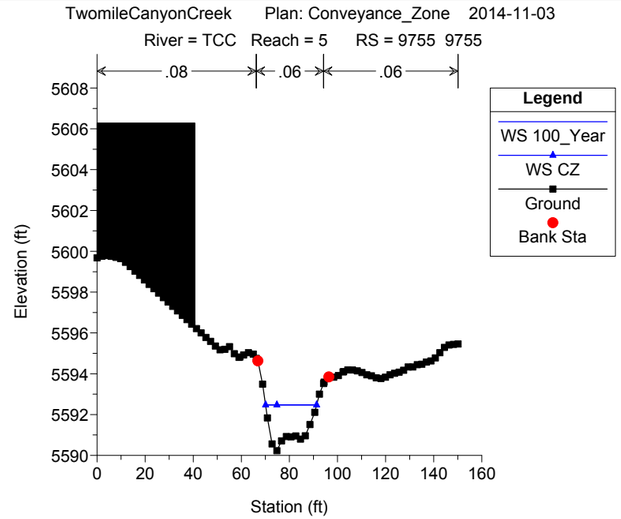
Legend
WS 100_Year
WS CZ
Ground
Bank Sta
Elevation (ft)
Station (ft)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Legend
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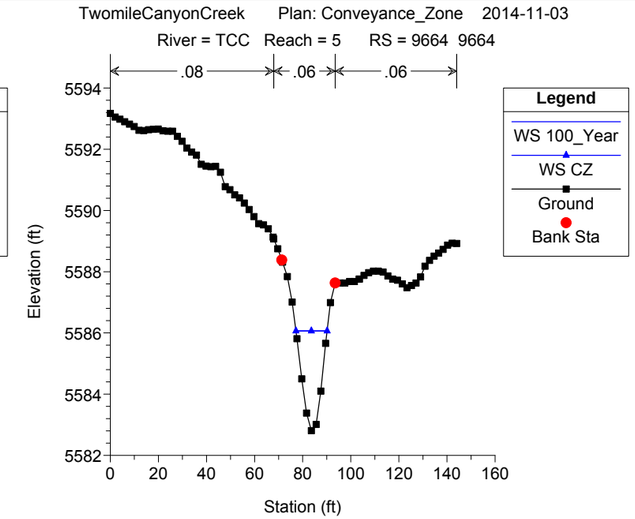
WS CZ
Ground
Bank Sta
Elevation (ft)
Station (ft)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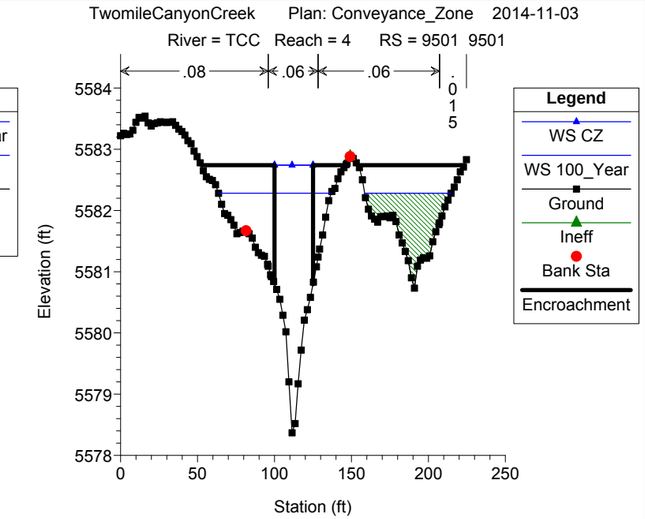
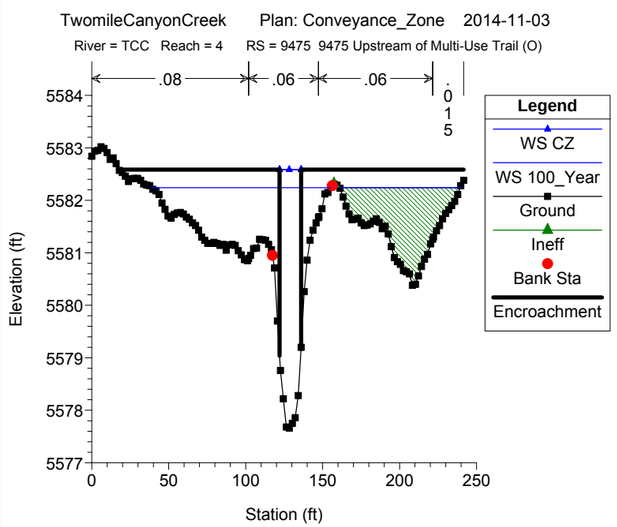
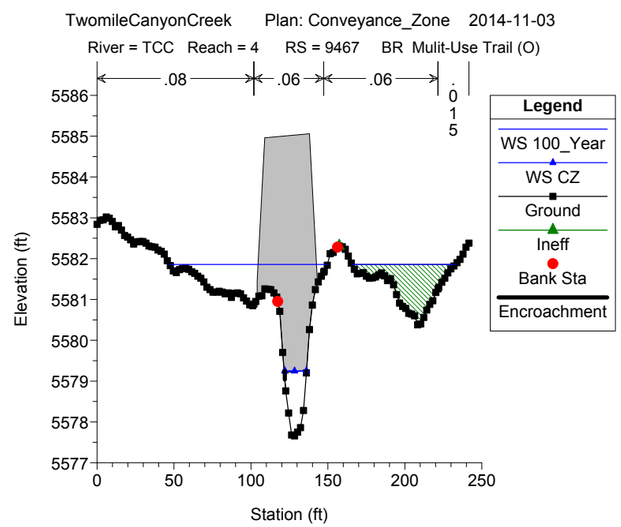
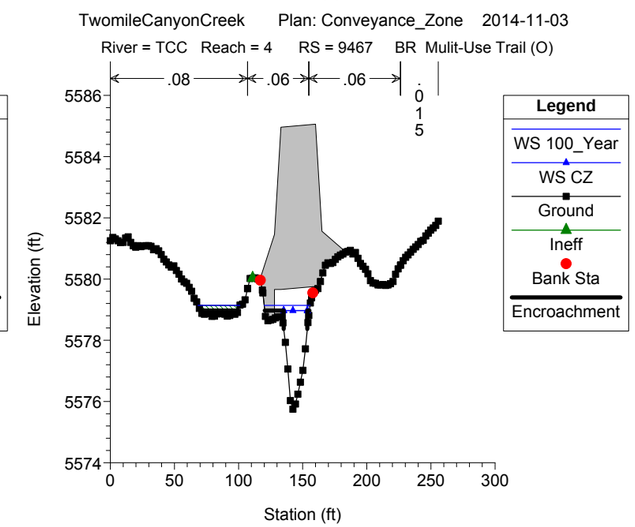
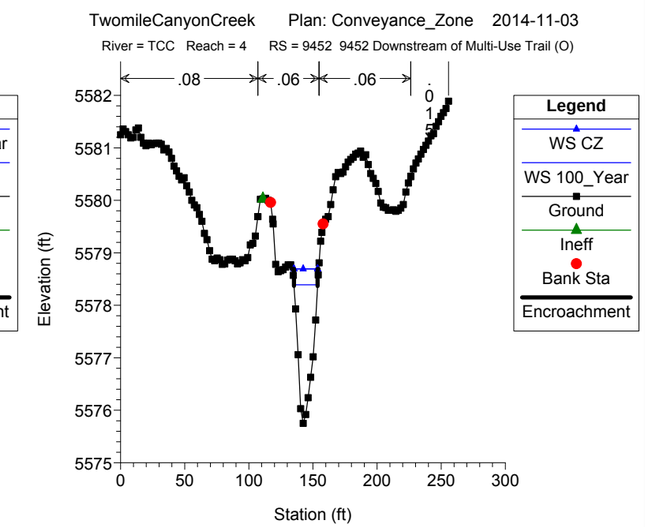
River = TCC Reach = 5 RS = 9664 9664
.08 .06 .06
Legend
WS 100_Year
WS CZ
Ground
Bank Sta
Elevation (ft)
Station (ft)

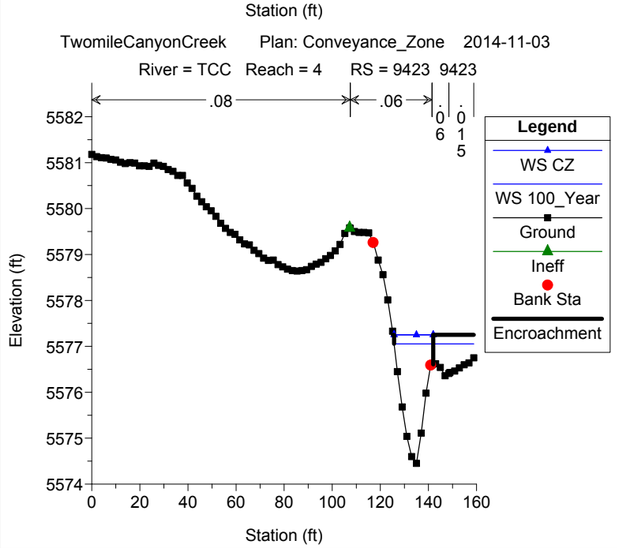

TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 4 RS = 9501 9501
.08 .06 .06 .015
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)

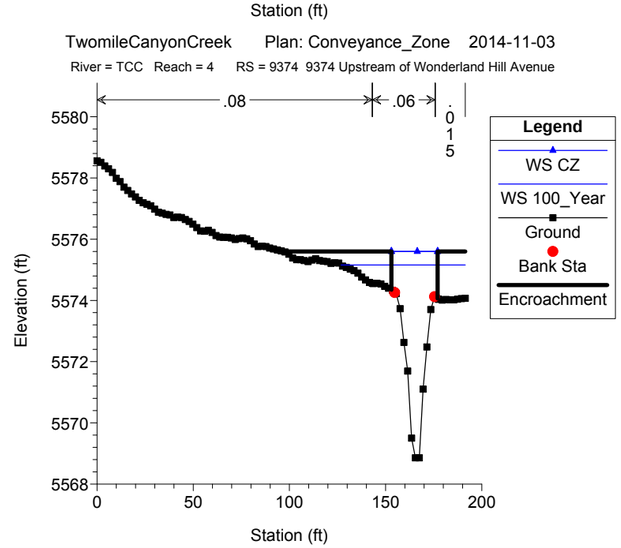

TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 4 RS = 9475 9475 Upstream of Multi-Use Trail (O)
.08 .06 .06 .015
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)

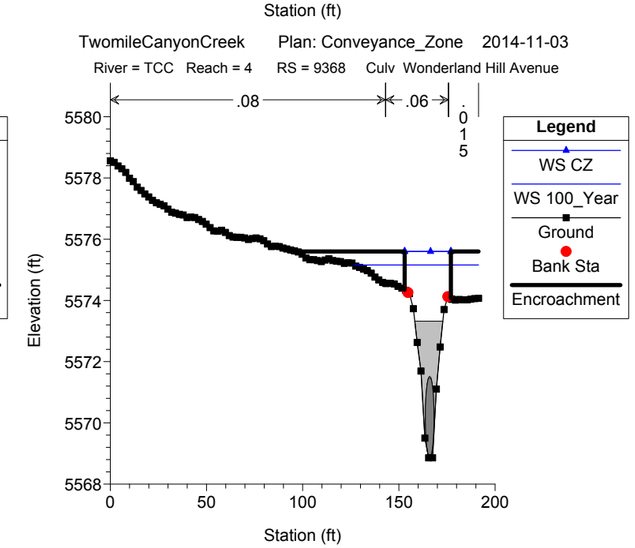

TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 4 RS = 9467 BR Mulit-Use Trail (O)
.08 .06 .06 .015
Legend
WS 100_Year
WS CZ
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)

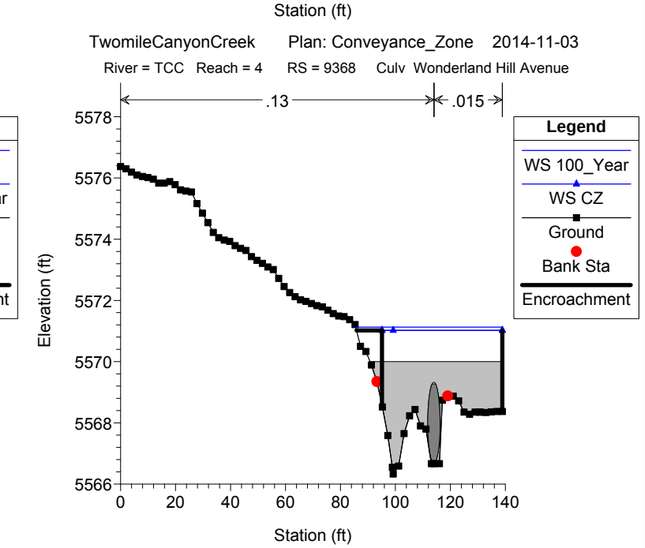

TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 4 RS = 9467 BR Mulit-Use Trail (O)
.08 .06 .06 .015
Legend
WS 100_Year
WS CZ
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)

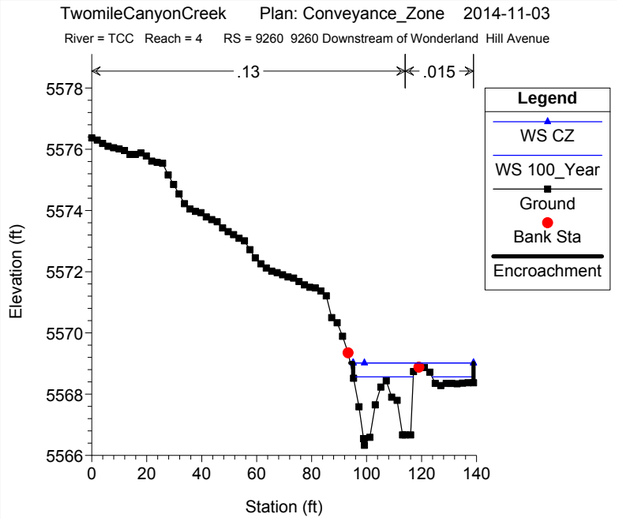

TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 4 RS = 9452 9452 Downstream of Multi-Use Trail (O)
.08 .06 .06 .015
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)

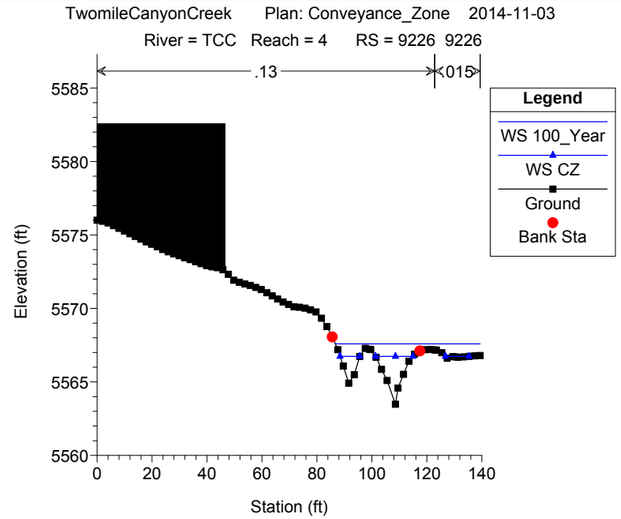

TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 4 RS = 9423 9423
.08 .06 .06 .015
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)

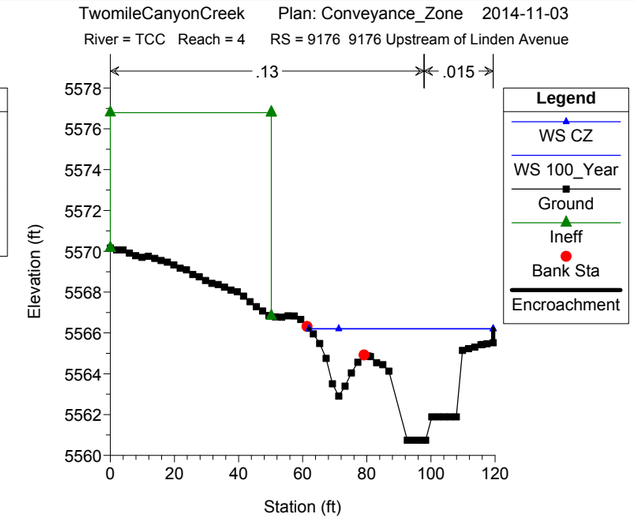

TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 4 RS = 9374 9374 Upstream of Wonderland Hill Avenue
.08 .06 .015
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)

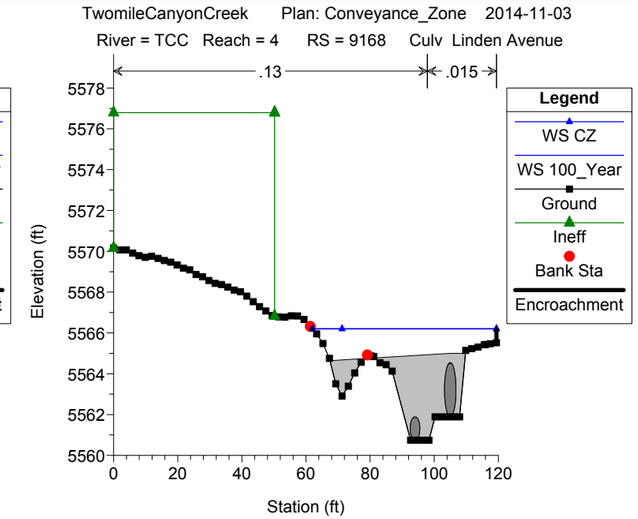

TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 4 RS = 9368 Culv Wonderland Hill Avenue
.08 .06 .015
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)

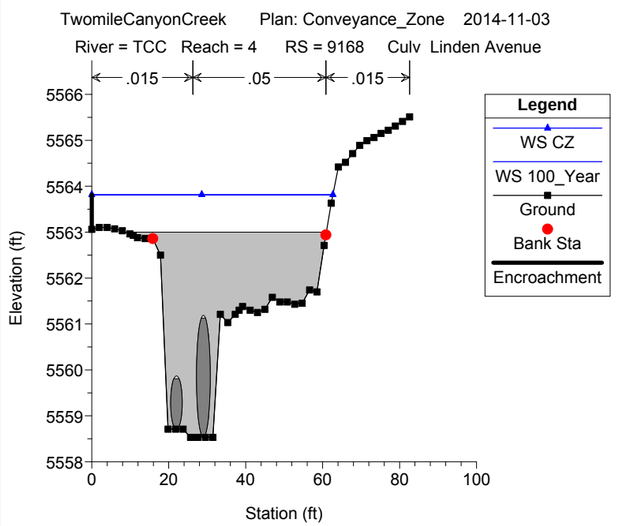

TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 4 RS = 9368 Culv Wonderland Hill Avenue
.13 .015
Legend
WS 100_Year
WS CZ
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)

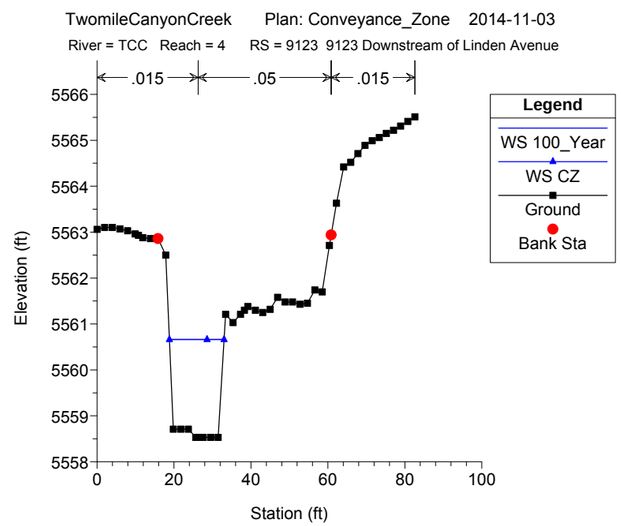

TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 4 RS = 9260 9260 Downstream of Wonderland Hill Avenue
.13
.015
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)

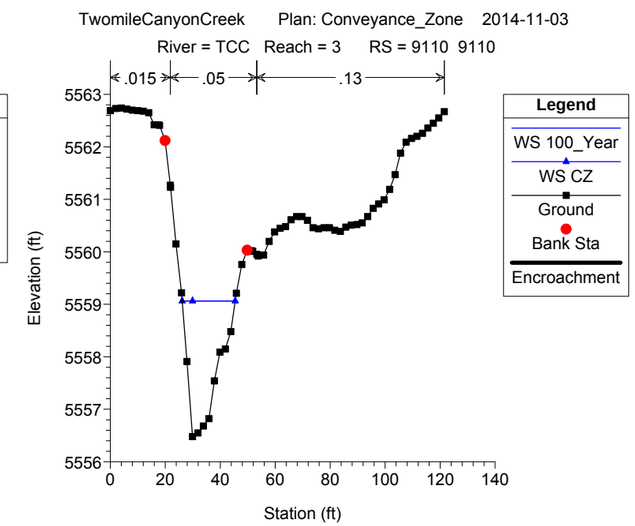

TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 4 RS = 9226 9226
.13
.015
Legend
WS 100_Year
WS CZ
Ground
Bank Sta
Elevation (ft)
Station (ft)

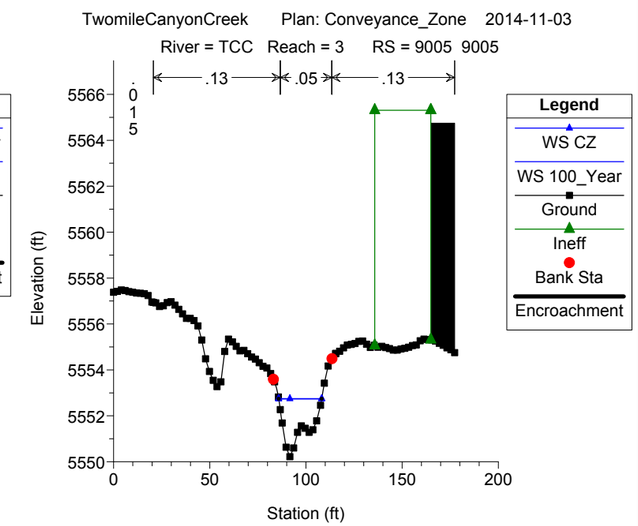

TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 4 RS = 9176 9176 Upstream of Linden Avenue
.13
.015
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)

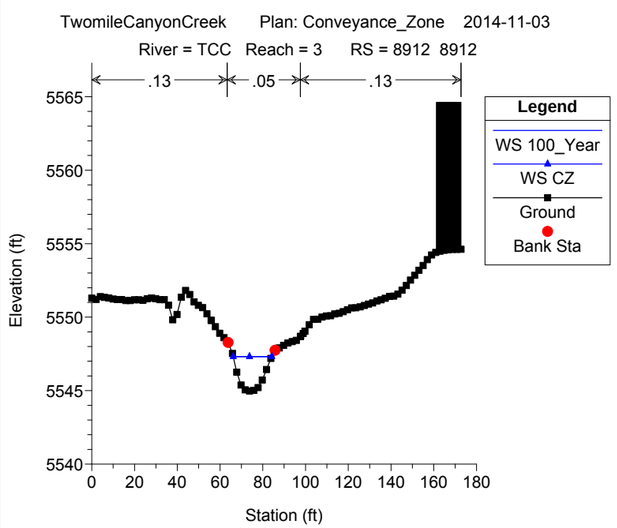

TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 4 RS = 9168 Culv Linden Avenue
.13
.015
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)

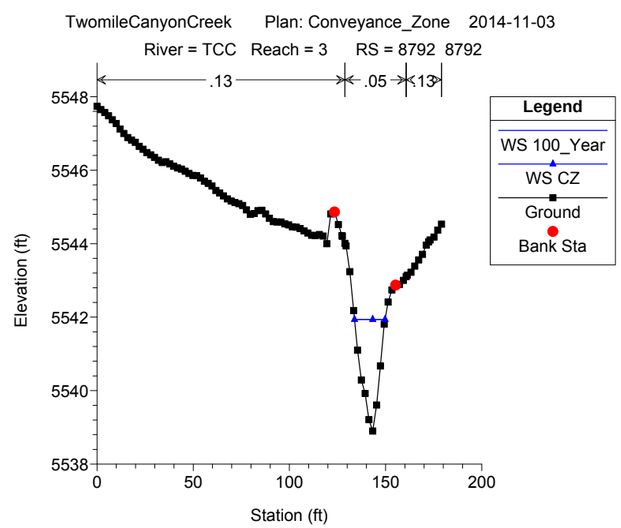

TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 4 RS = 9168 Culv Linden Avenue
.015
.05
.015
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)

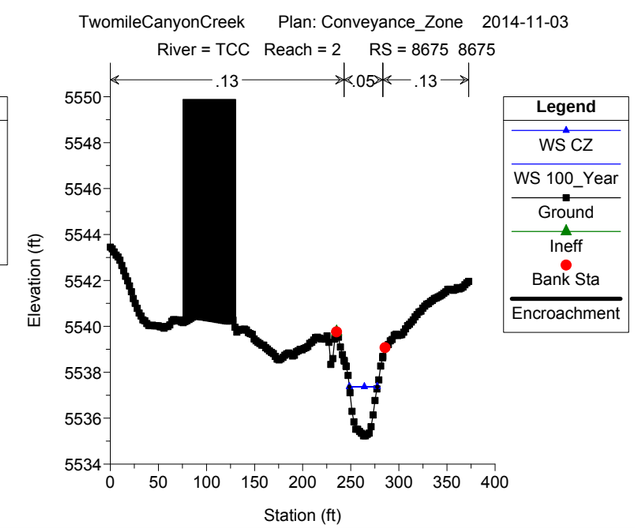

TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 4 RS = 9123 9123 Downstream of Linden Avenue
.015
.05
.015
Legend
WS 100_Year
WS CZ
Ground
Bank Sta
Elevation (ft)
Station (ft)

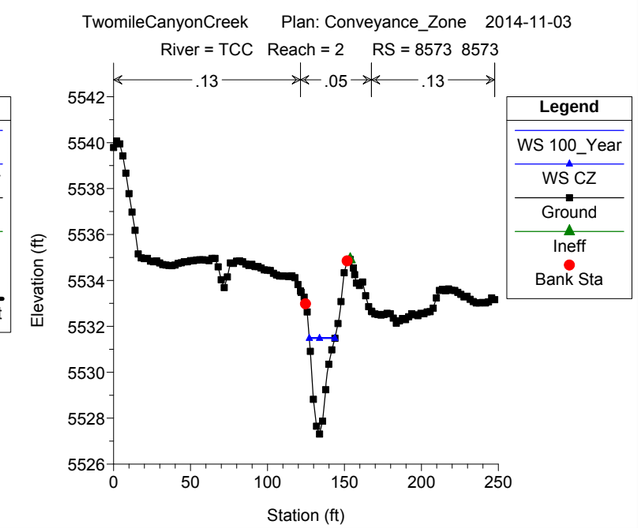

TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 3 RS = 9110 9110
.015
.05
.13
Legend
WS 100_Year
WS CZ
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 3 RS = 9005 9005
.13
.05
.13
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)

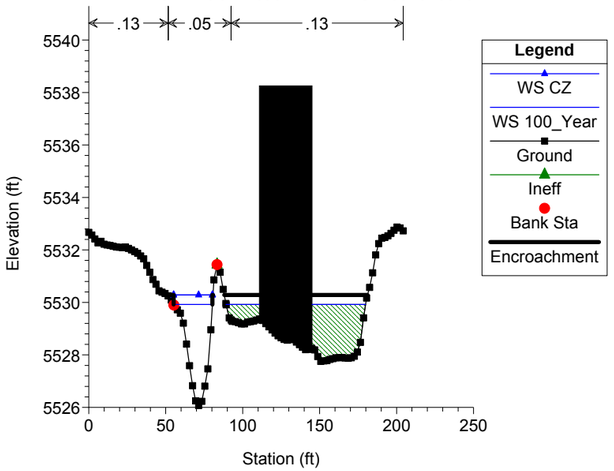

TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 3 RS = 8912 8912
.13
.05
.13
Legend
WS 100_Year
WS CZ
Ground
Bank Sta
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 3 RS = 8792 8792
.13
.05
.13
Legend
WS 100_Year
WS CZ
Ground
Bank Sta
Elevation (ft)
Station (ft)

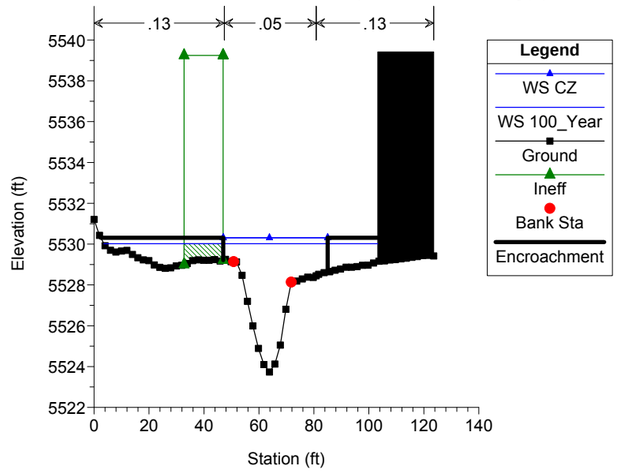

TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 8675 8675
.13
.05
.13
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 8573 8573
.13
.05
.13
Legend
WS 100_Year
WS CZ
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

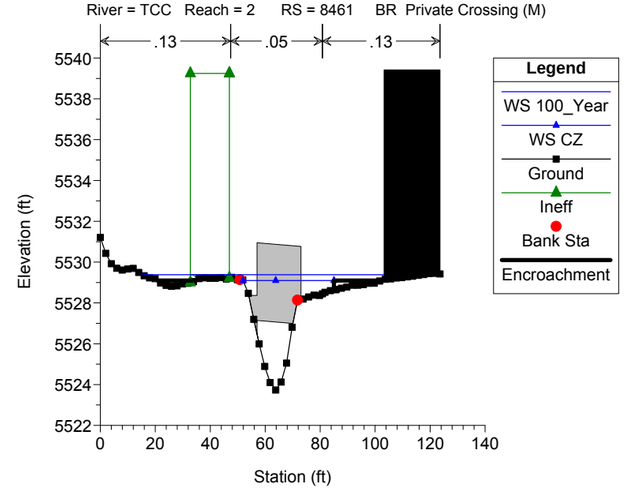
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 8525 8525



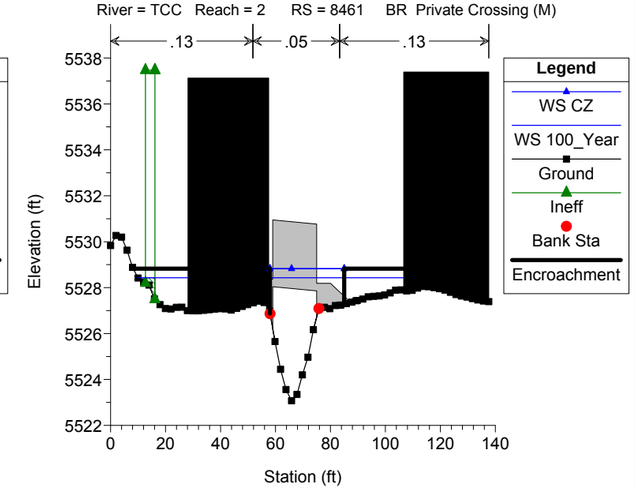
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 8474 8474 Upstream of Private Crossing (M)



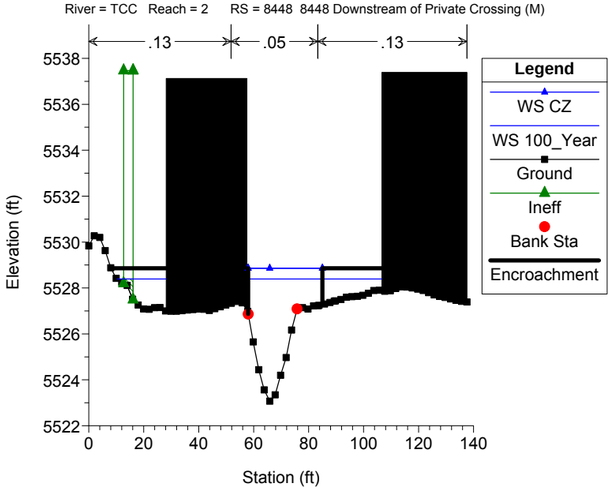
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 8461 BR Private Crossing (M)



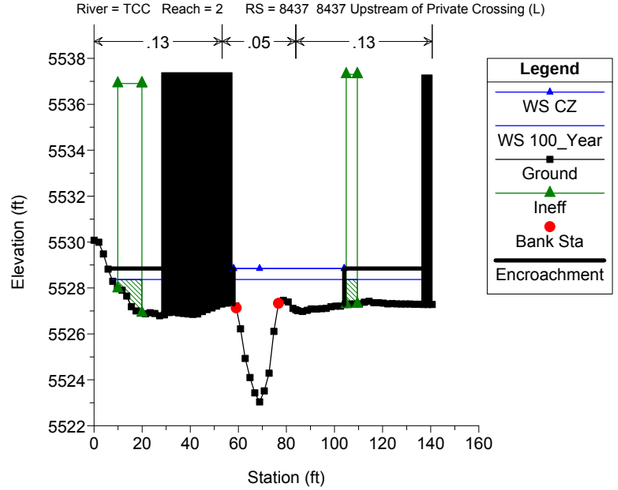
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 8461 BR Private Crossing (M)



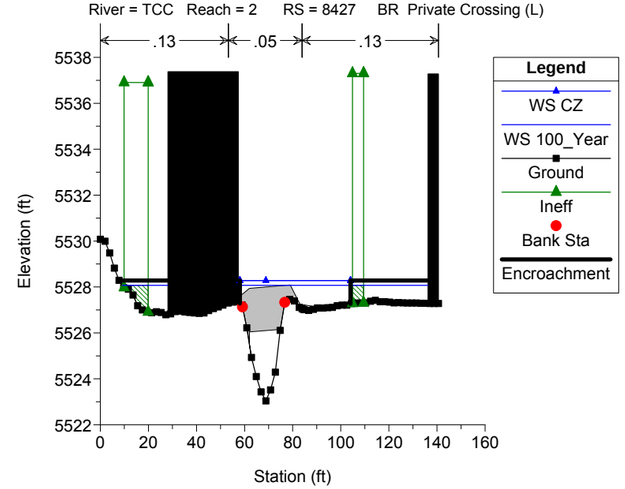
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 8448 8448 Downstream of Private Crossing (M)



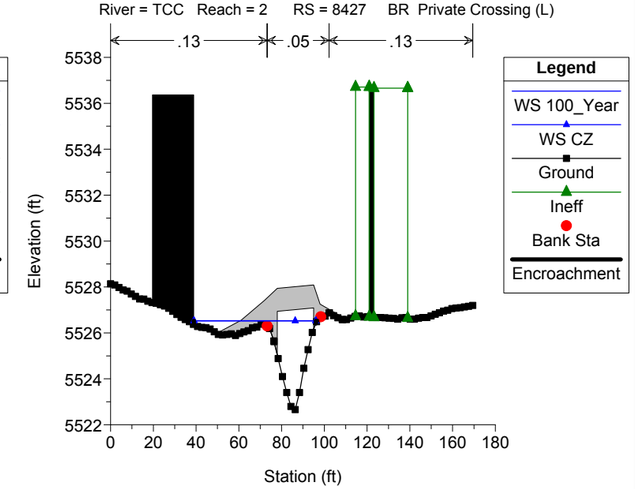
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 8437 8437 Upstream of Private Crossing (L)



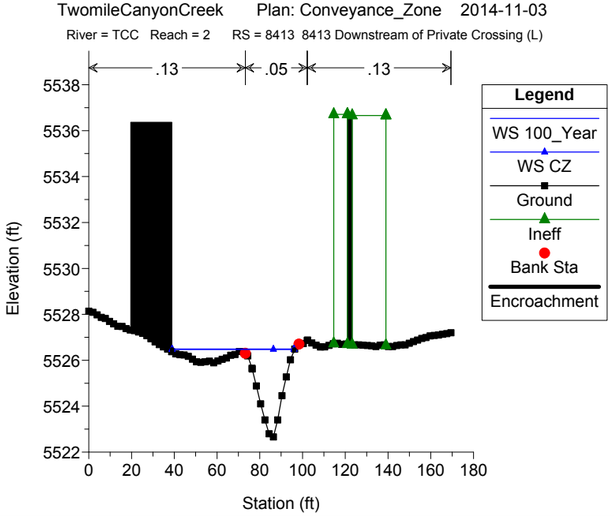
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 8427 BR Private Crossing (L)



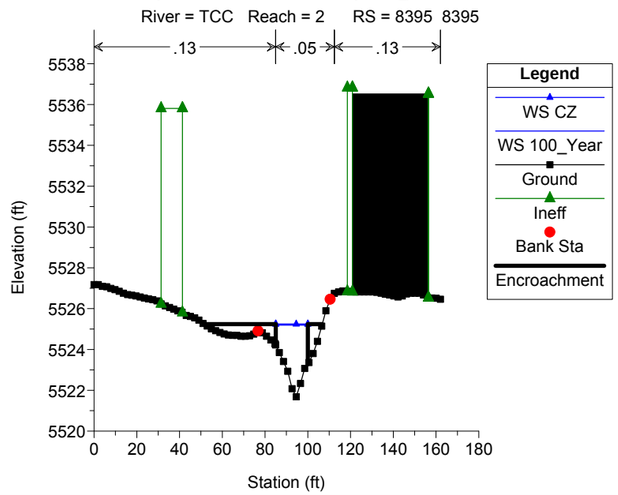
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 8427 BR Private Crossing (L)



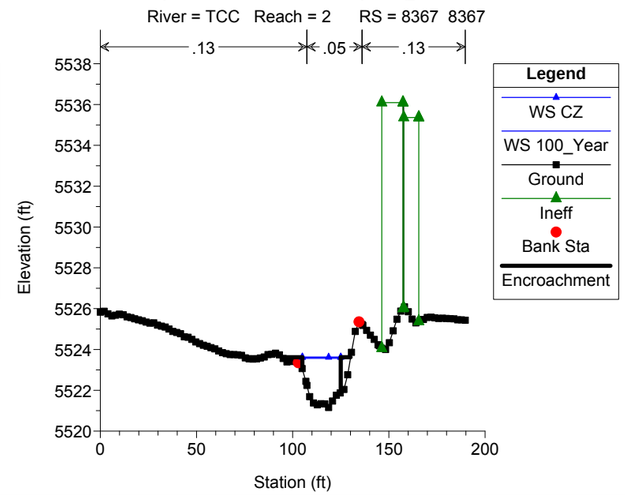
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 8413 8413 Downstream of Private Crossing (L)



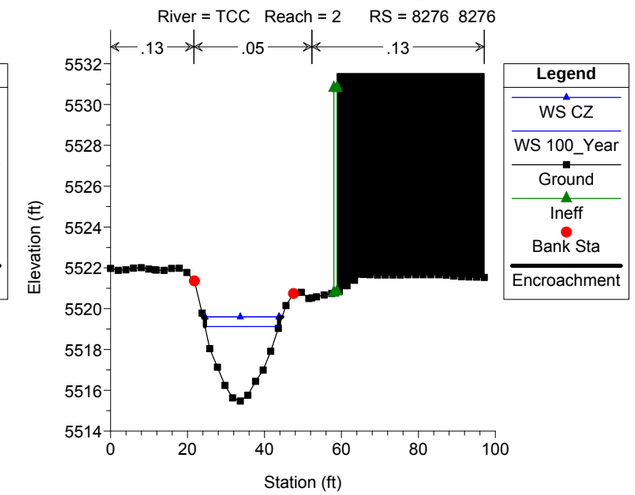
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 8395 8395

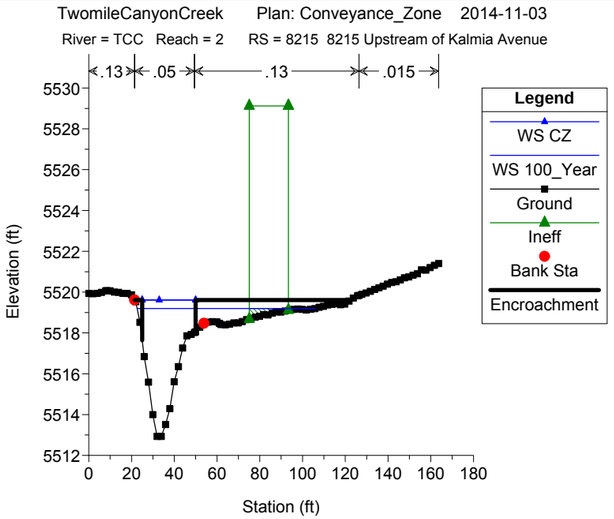


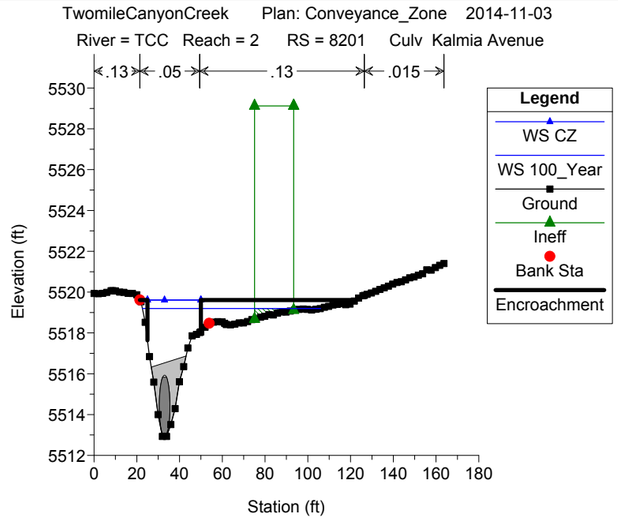
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 8367 8367

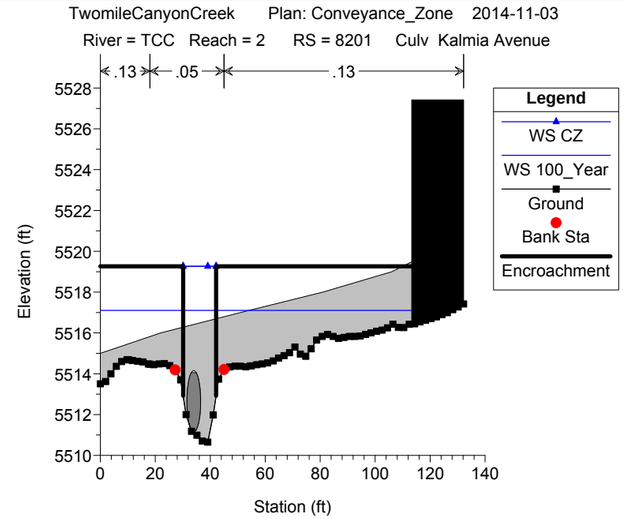


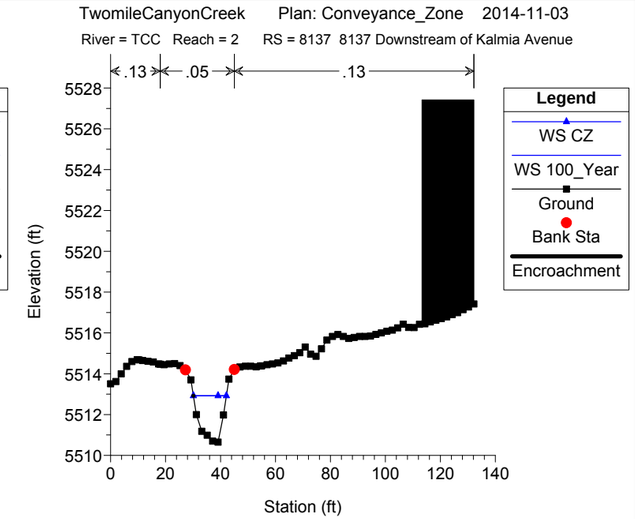
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 8276 8276

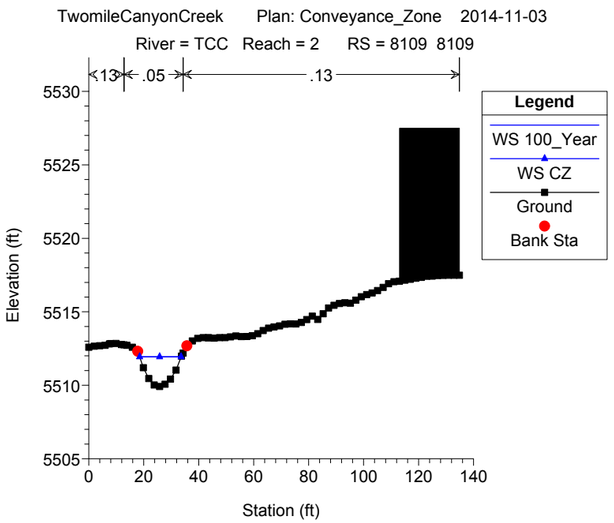


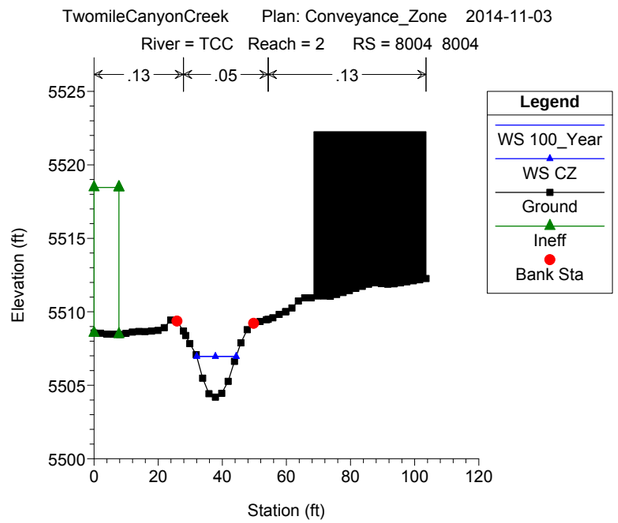

TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 8215 8215 Upstream of Kalmia Avenue
.13 .05 .13 .015
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)

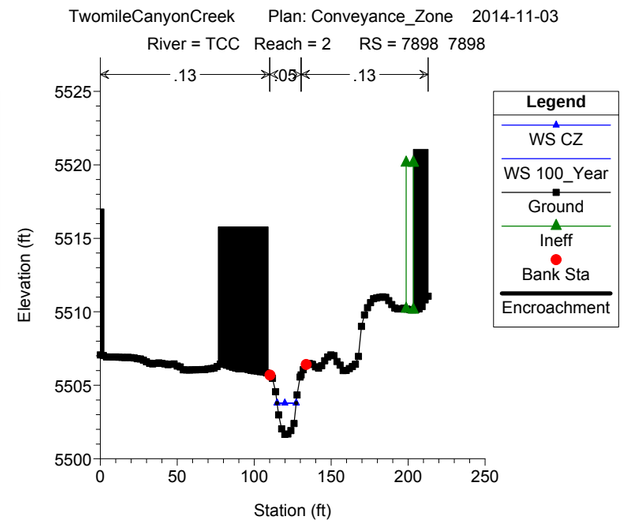

TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 8201 Culv Kalmia Avenue
.13 .05 .13 .015
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)

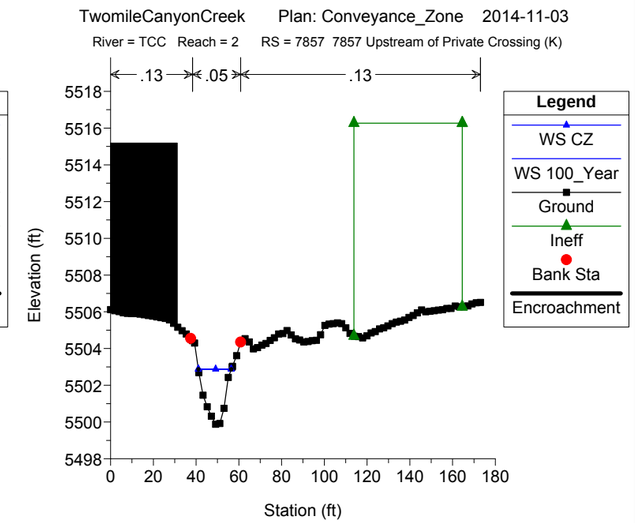

TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 8201 Culv Kalmia Avenue
.13 .05 .13
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 8137 8137 Downstream of Kalmia Avenue
.13 .05 .13
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 8109 8109
.13 .05 .13
Legend
WS 100_Year
WS CZ
Ground
Bank Sta
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 8004 8004
.13 .05 .13
Legend
WS 100_Year
WS CZ
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 7898 7898
.13 .05 .13
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 7857 7857 Upstream of Private Crossing (K)
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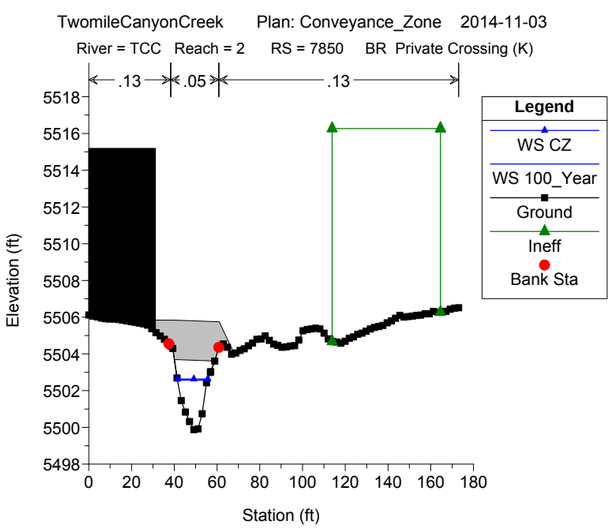
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 7850 BR Private Crossing (K)
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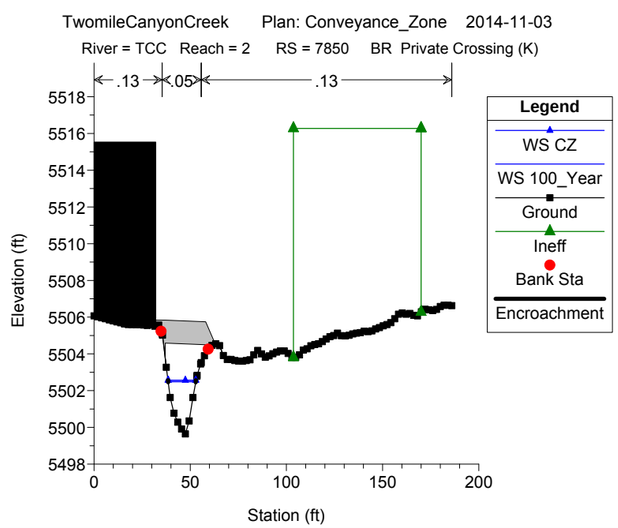
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 7850 BR Private Crossing (K)
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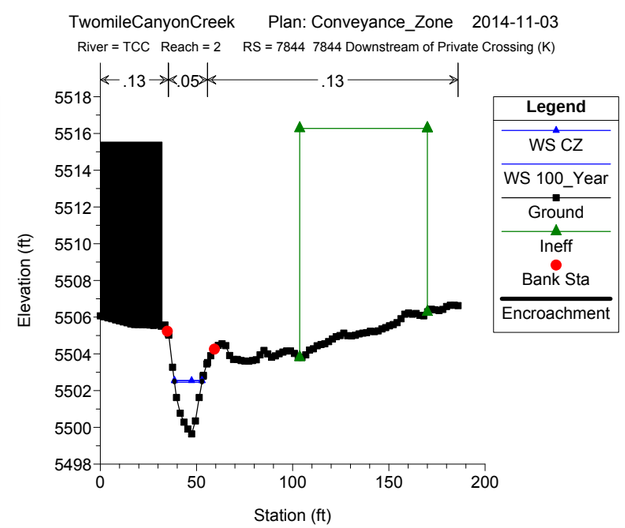
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 7844 7844 Downstream of Private Crossing (K)
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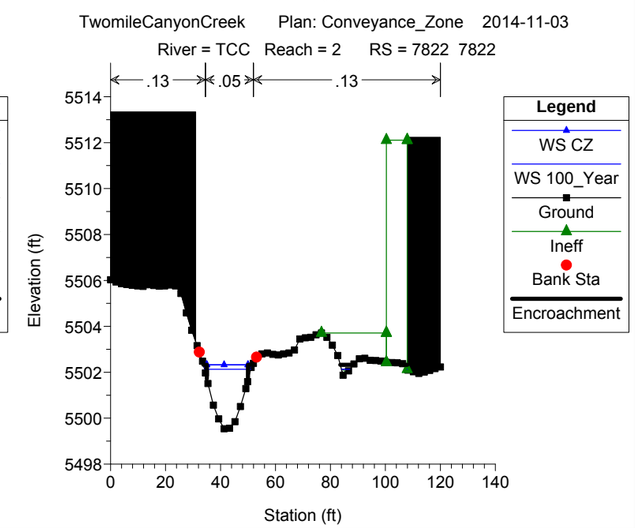
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 7822 7822
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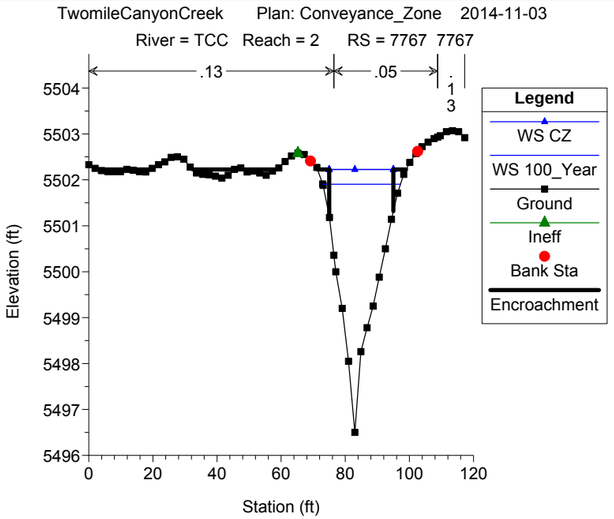
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 7767 7767
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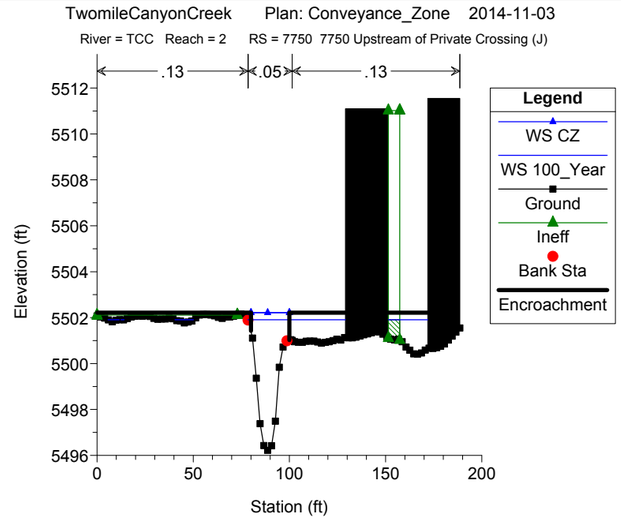
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 7750 7750 Upstream of Private Crossing (J)
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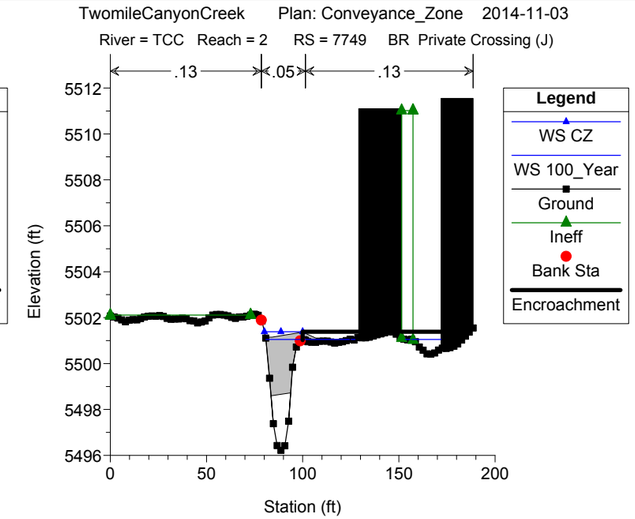
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 7749 BR Private Crossing (J)
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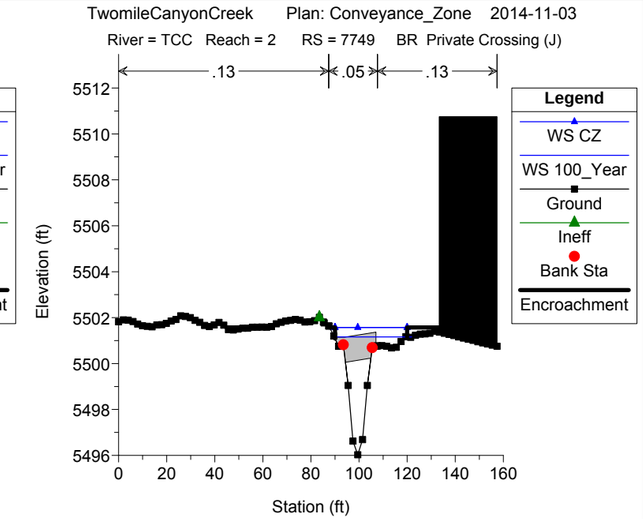
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 7749 BR Private Crossing (J)
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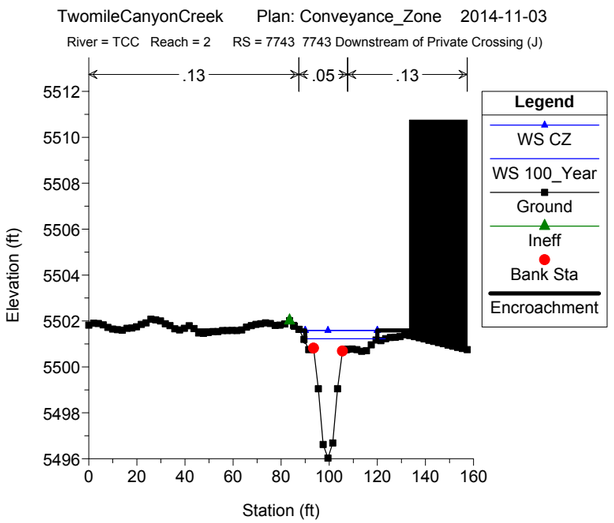
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 7743 7743 Downstream of Private Crossing (J)
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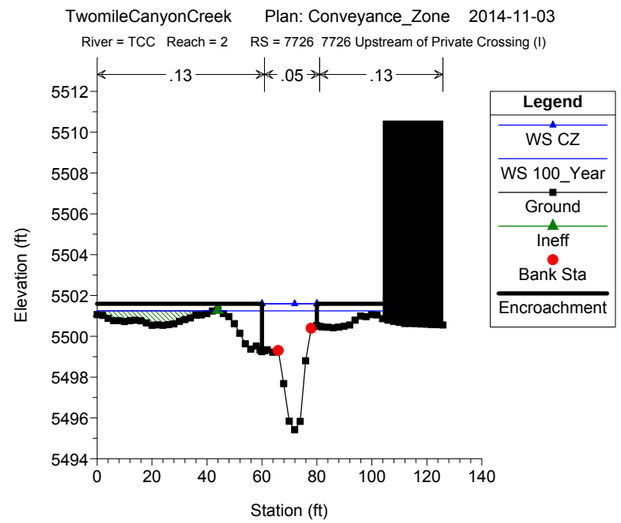
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 7726 7726 Upstream of Private Crossing (I)
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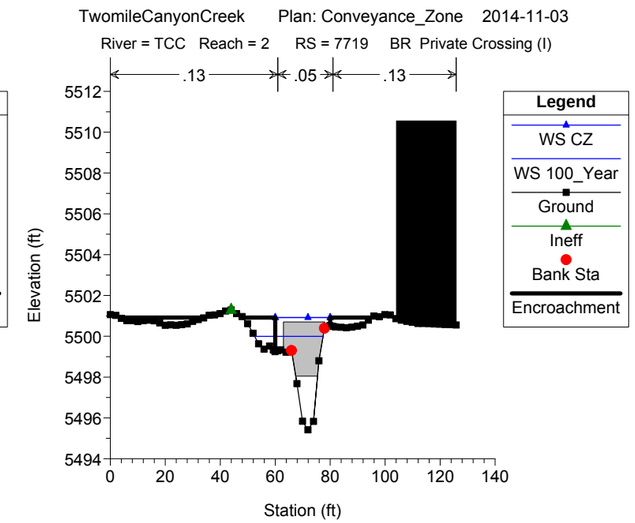
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 7719 BR Private Crossing (I)
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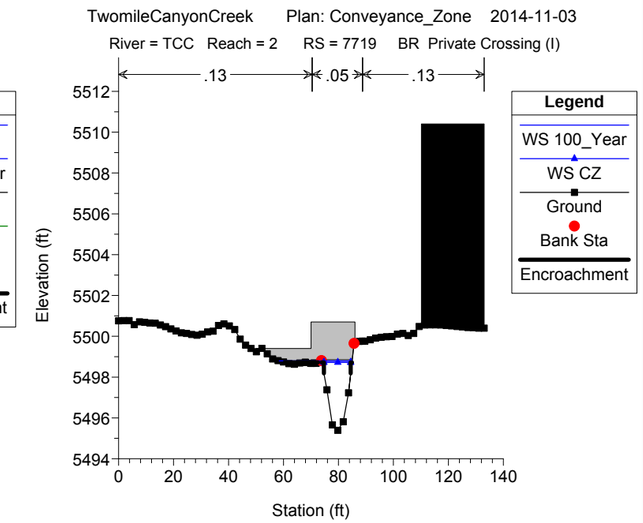
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 7719 BR Private Crossing (I)
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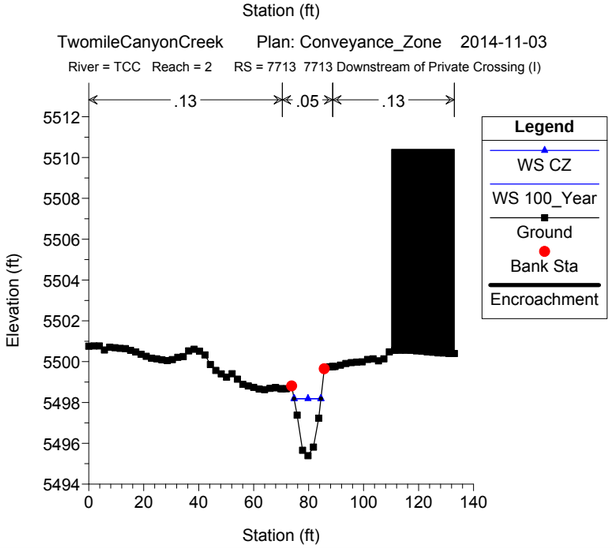
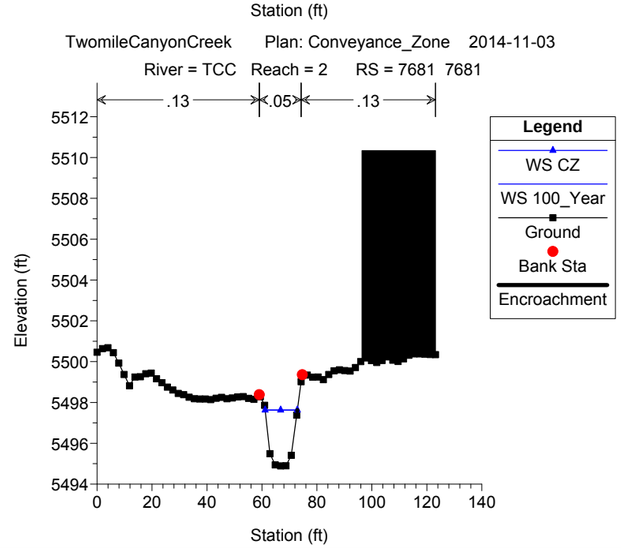
Legend
WS 100_Year
WS CZ
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 7713 7713 Downstream of Private Crossing (I)
.13 .05 .13
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 7681 7681
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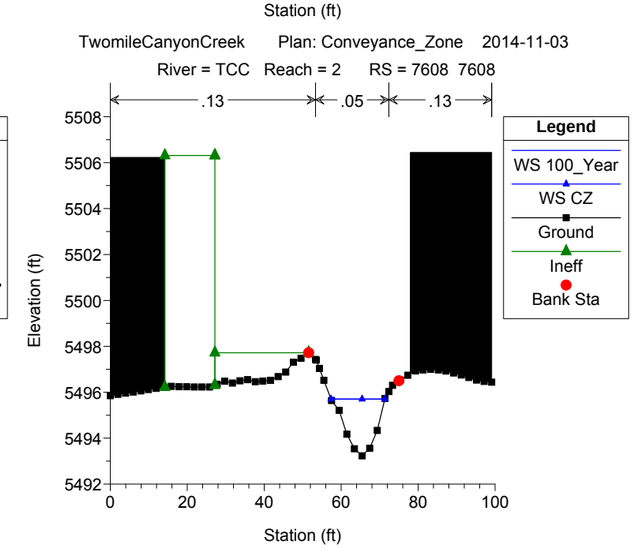
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 7608 7608
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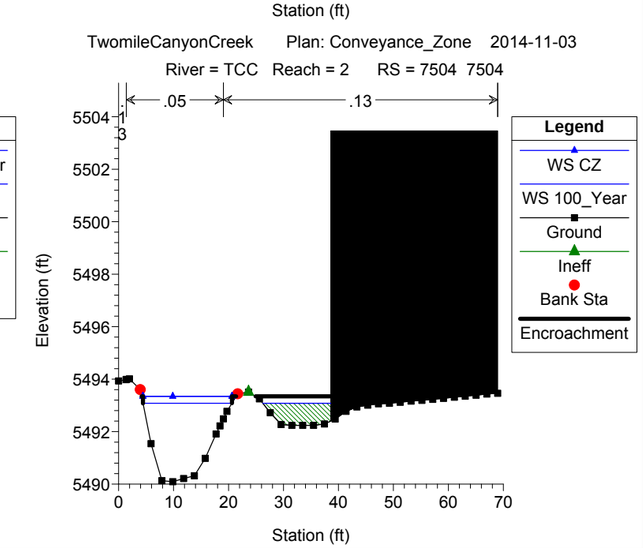
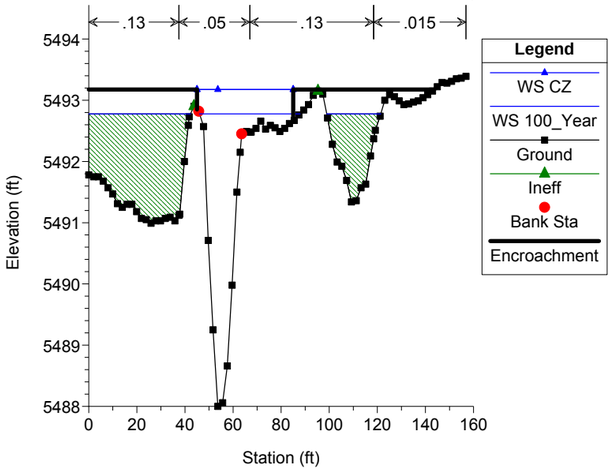
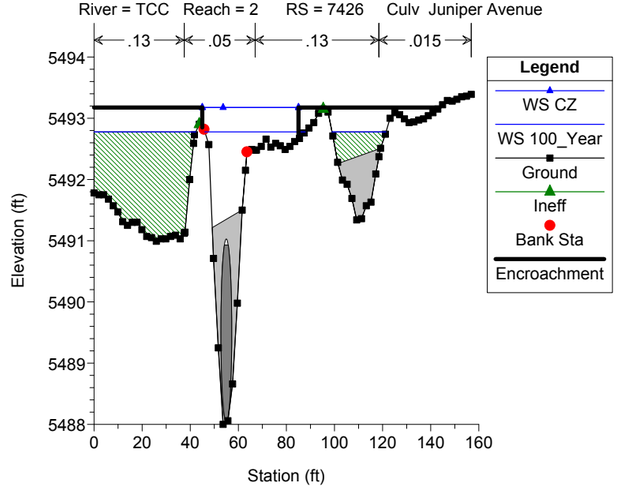
Legend
WS 100_Year
WS CZ
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 7504 7504
.05 .13
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)

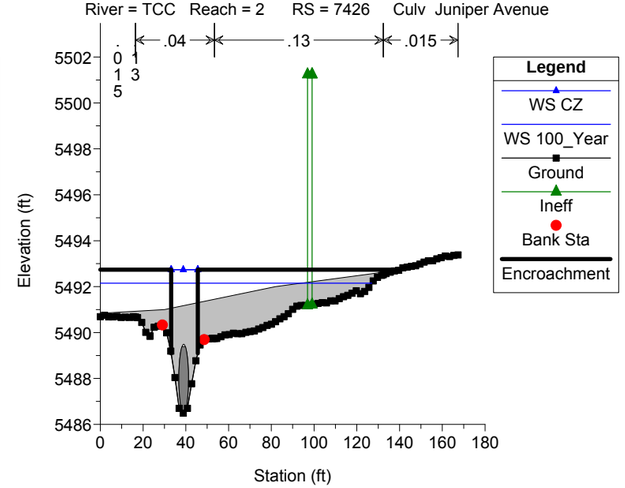
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 7430 7430 Upstream of Juniper Avenue



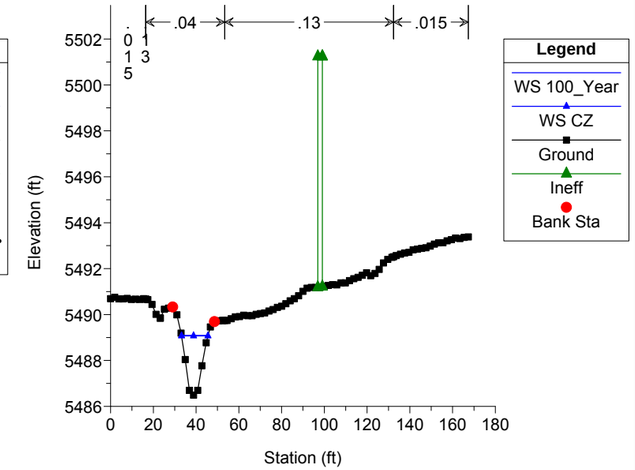
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 7426 Culv Juniper Avenue



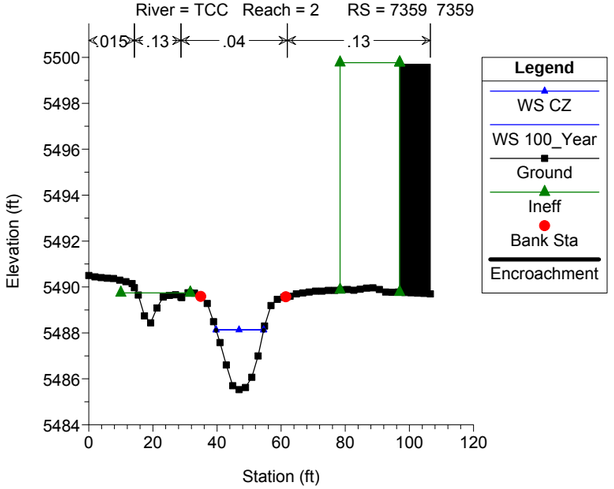
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 7426 Culv Juniper Avenue



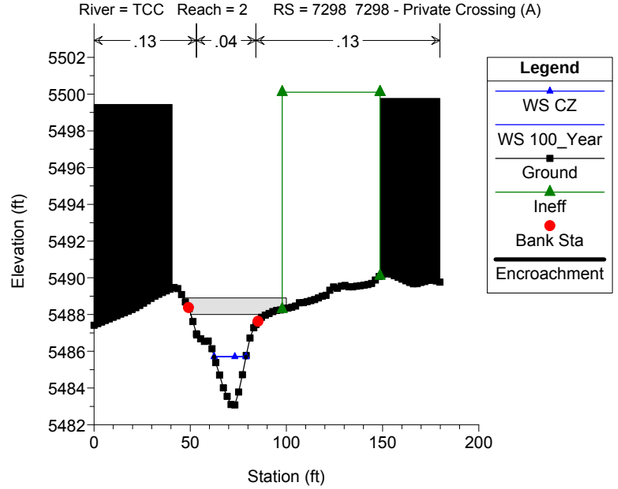
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 7371 7371 Downstream of Juniper Avenue



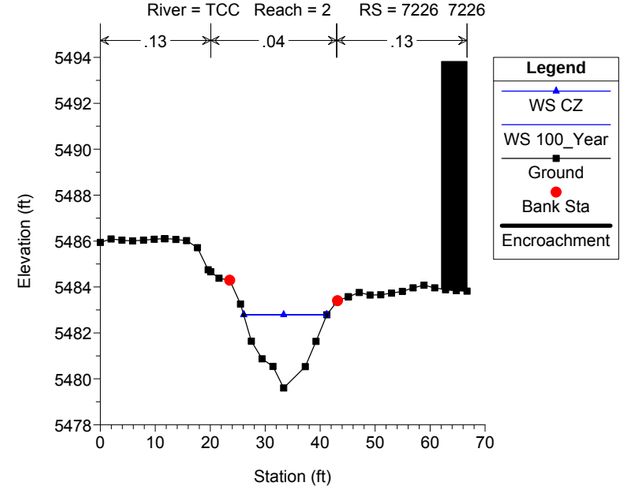
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 7359 7359



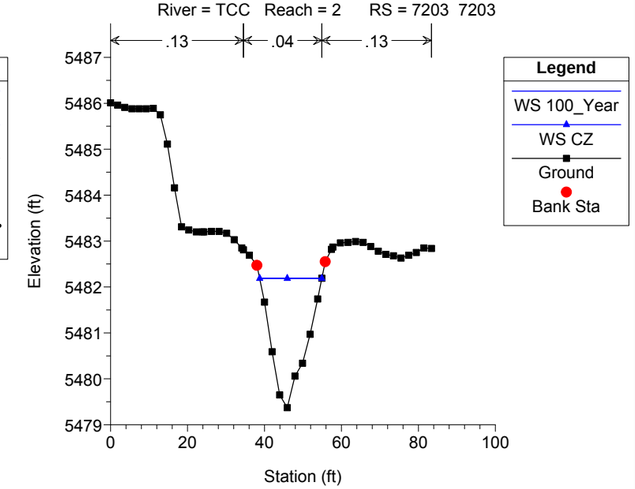
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 7298 7298 - Private Crossing (A)



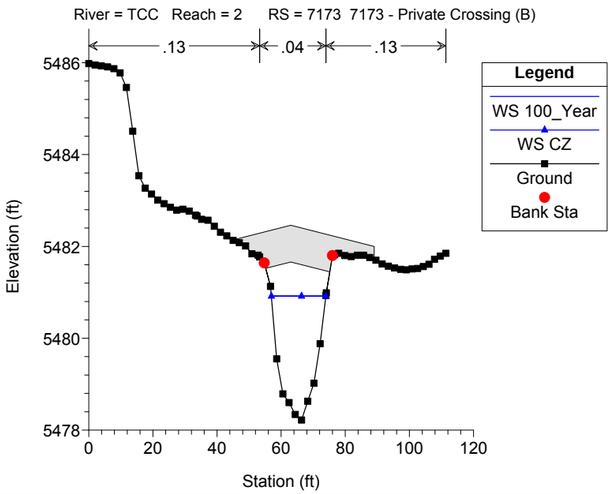
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 7226 7226



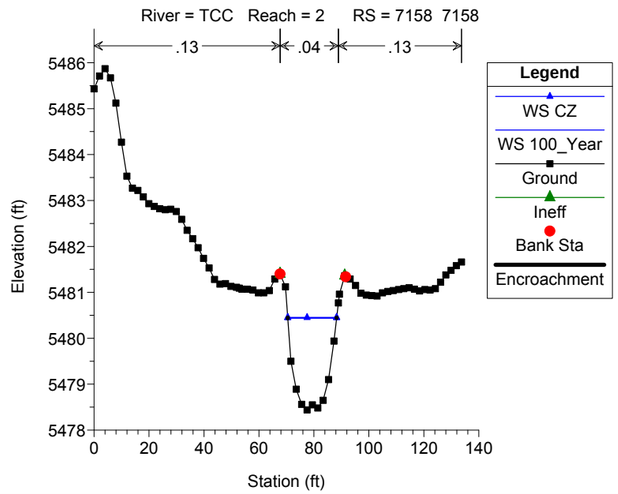
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 7203 7203



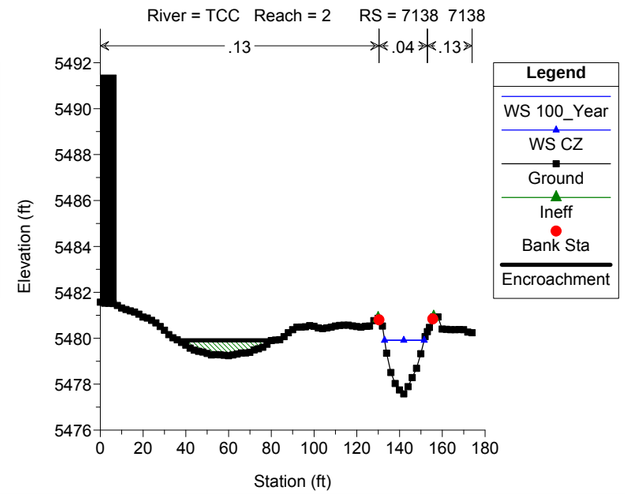
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 7173 7173 - Private Crossing (B)



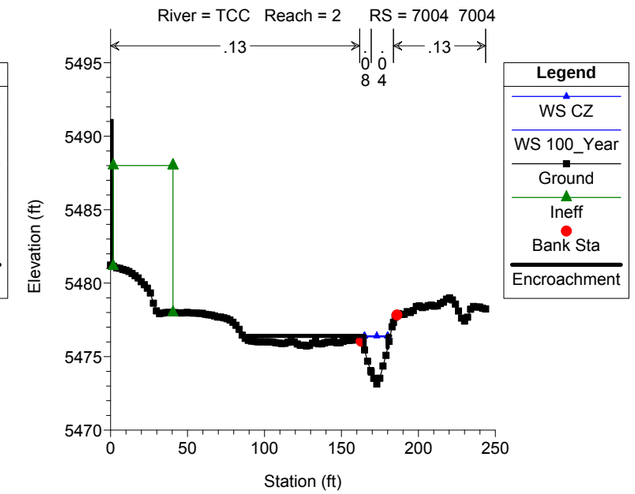
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 7158 7158

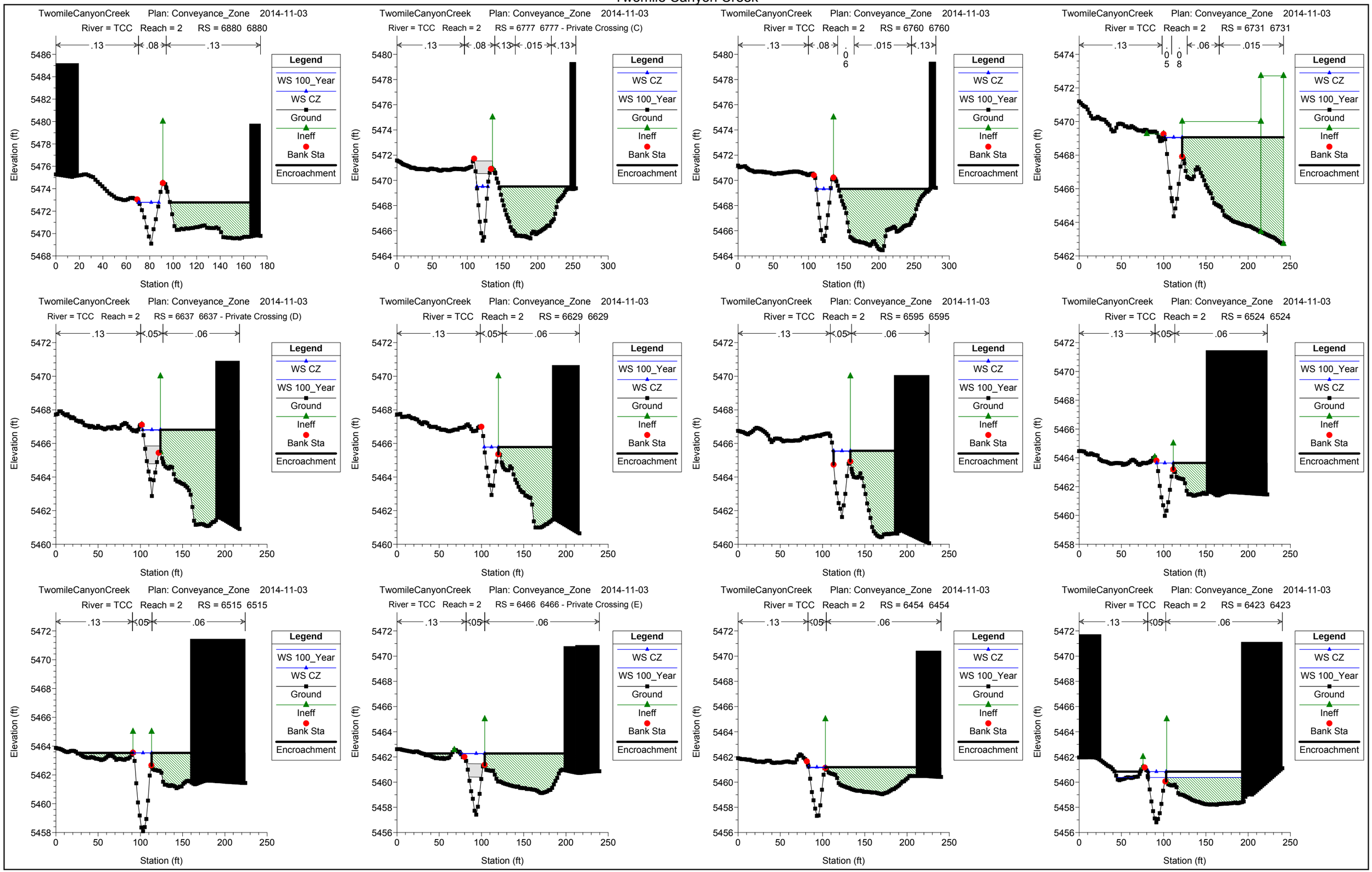


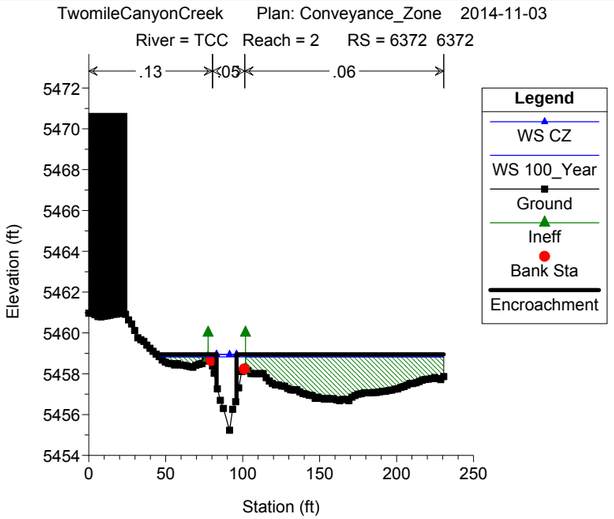
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 7138 7138

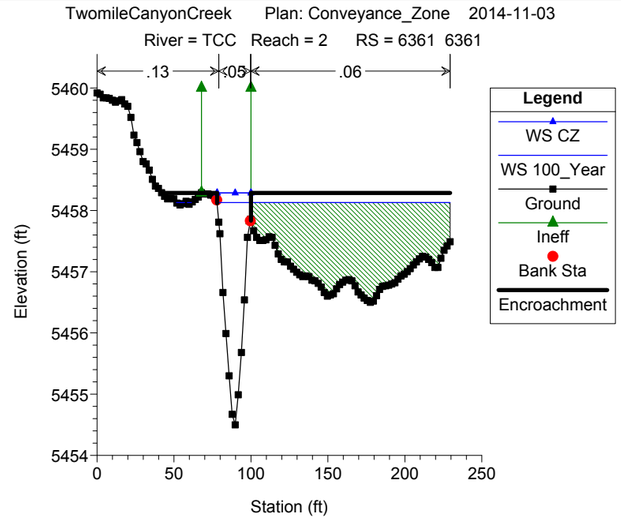


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 7004 7004




TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 6880 6880
River = TCC Reach = 2 RS = 6777 6777 - Private Crossing (C)
River = TCC Reach = 2 RS = 6760 6760
River = TCC Reach = 2 RS = 6731 6731
River = TCC Reach = 2 RS = 6637 6637 - Private Crossing (D)
River = TCC Reach = 2 RS = 6629 6629
River = TCC Reach = 2 RS = 6595 6595
River = TCC Reach = 2 RS = 6524 6524
River = TCC Reach = 2 RS = 6515 6515
River = TCC Reach = 2 RS = 6466 6466 - Private Crossing (E)
River = TCC Reach = 2 RS = 6454 6454
River = TCC Reach = 2 RS = 6423 6423
Legend
WS 100_Year
WS CZ
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 6372 6372
.13
.05
.06
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 6361 6361
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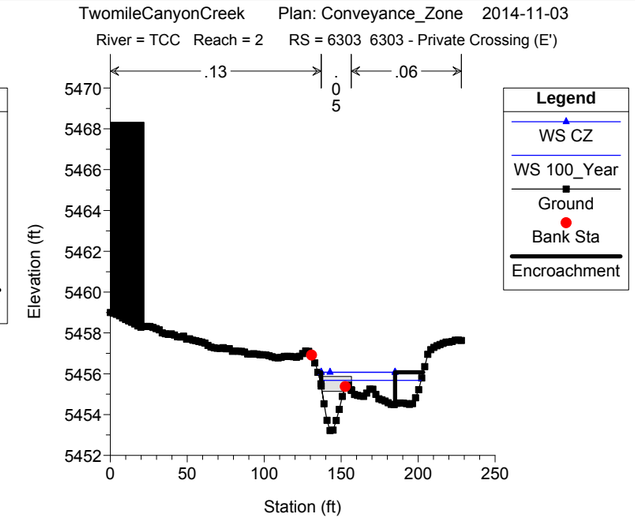
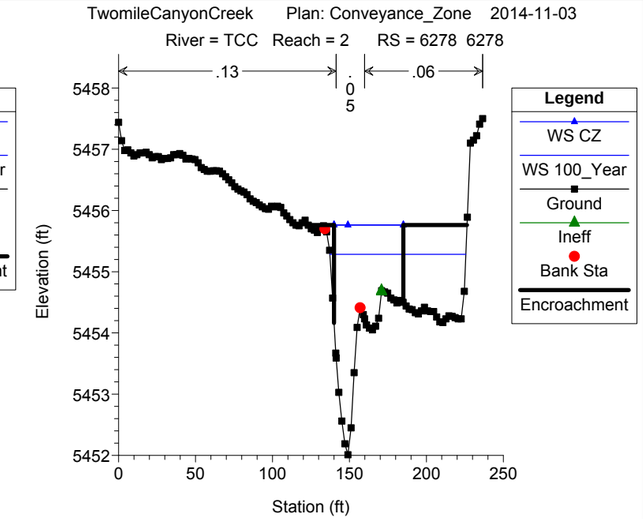
.06
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 6303 6303 - Private Crossing (E')
.13
.05
.06
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 6278 6278
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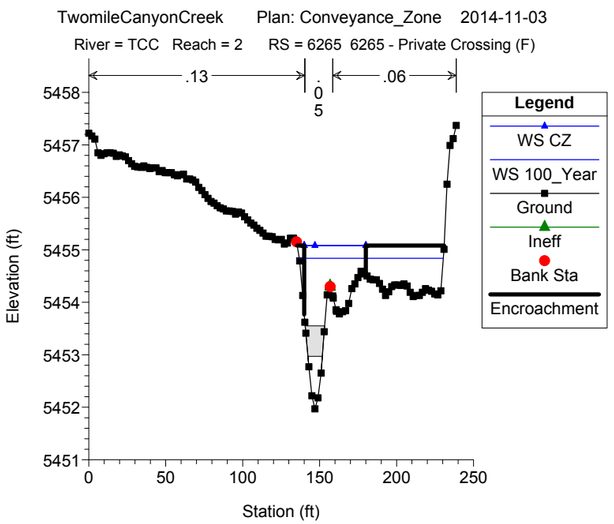
.06
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 6265 6265 - Private Crossing (F)
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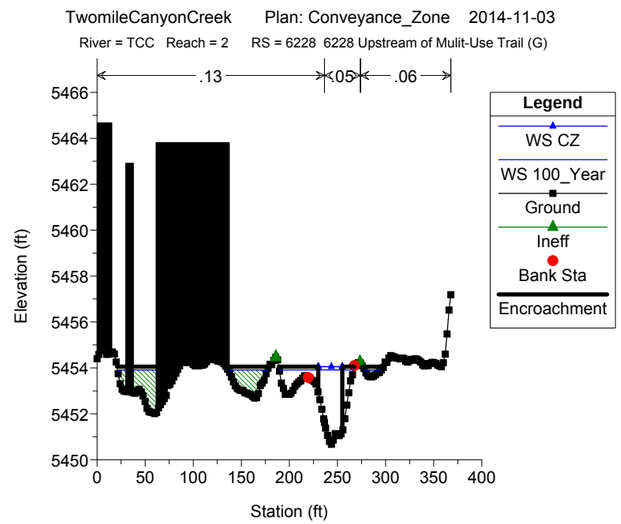
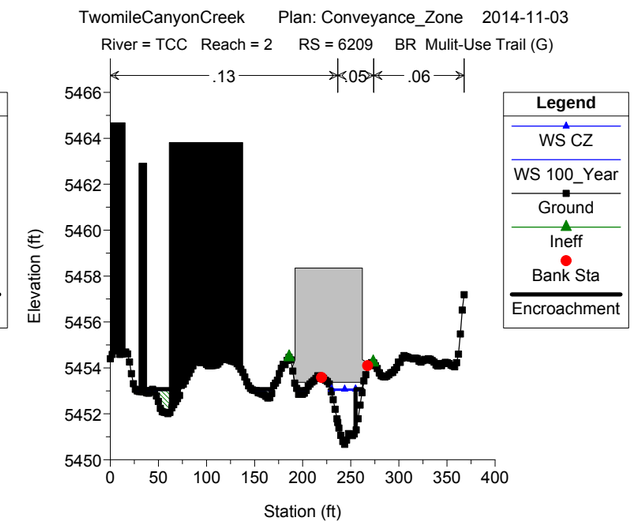
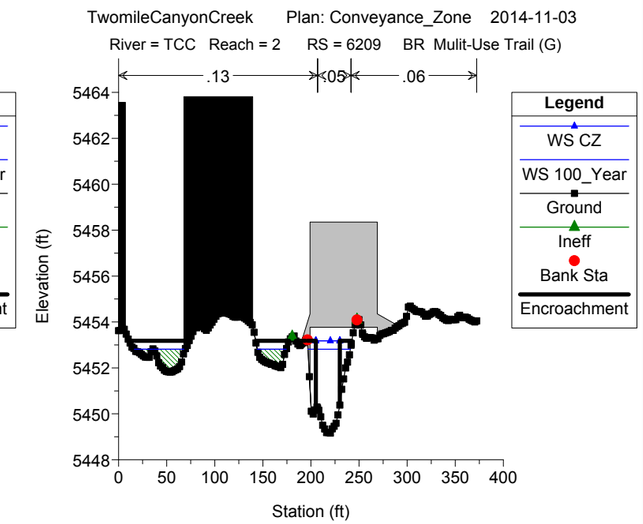
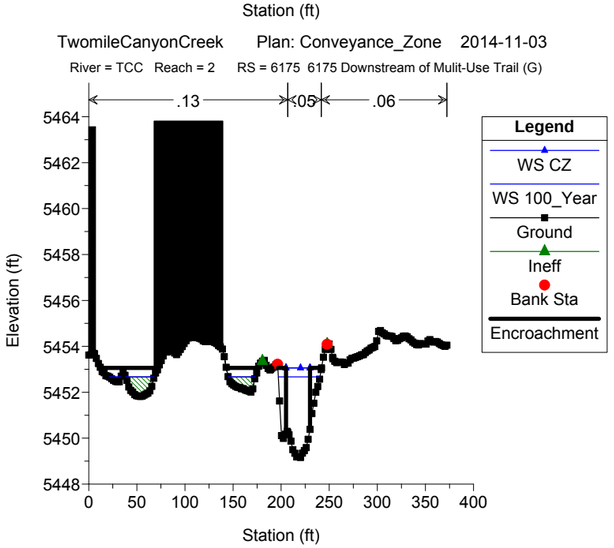
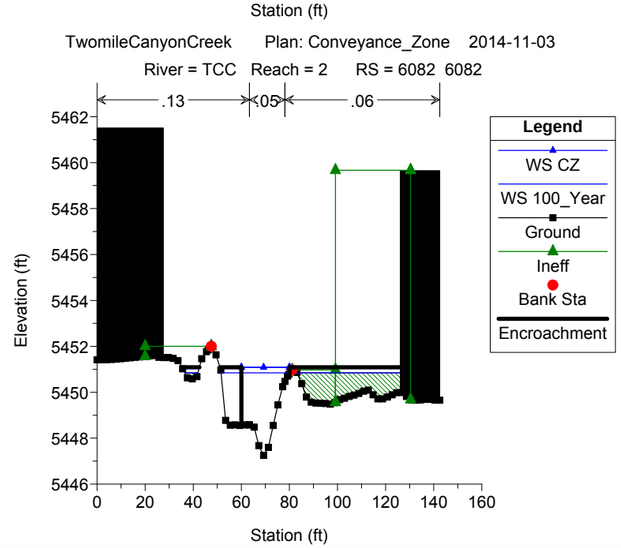
.05
.06
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 6228 6228 Upstream of Mulit-Use Trail (G)
.13
.05
.06
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 6209 BR Mulit-Use Trail (G)
.13
.05
.06
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 6209 BR Mulit-Use Trail (G)
.13
.05
.06
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 6175 6175 Downstream of Mulit-Use Trail (G)
.13
.05
.06
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 6082 6082
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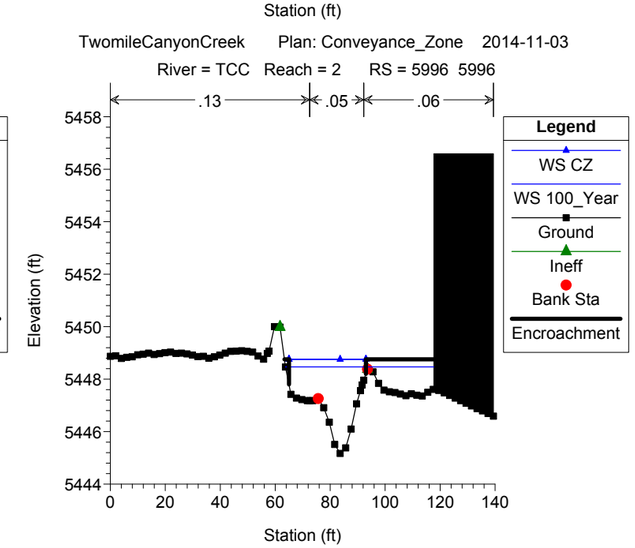
.06
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 5996 5996
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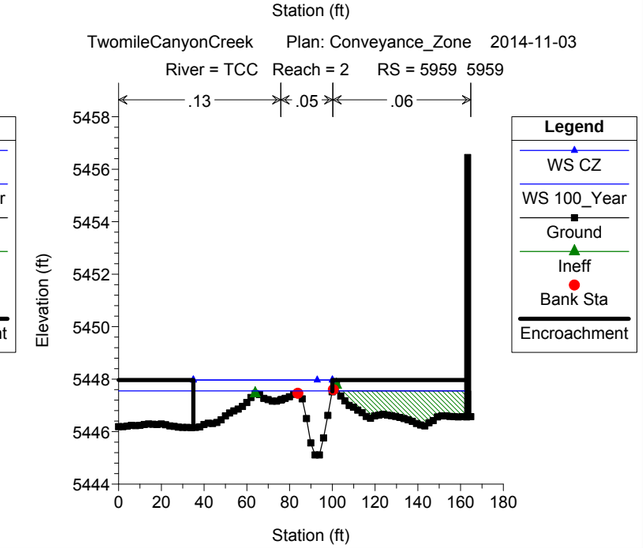
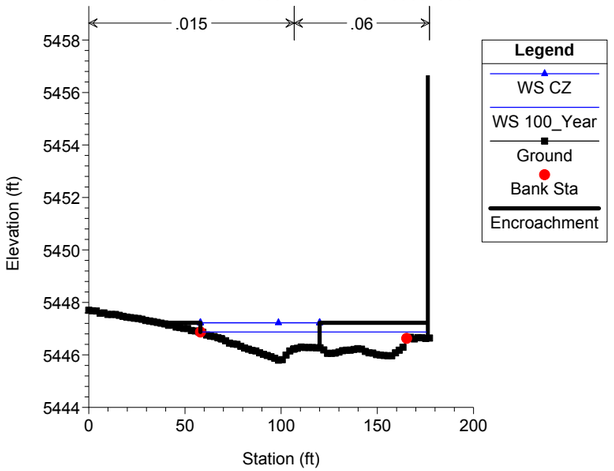
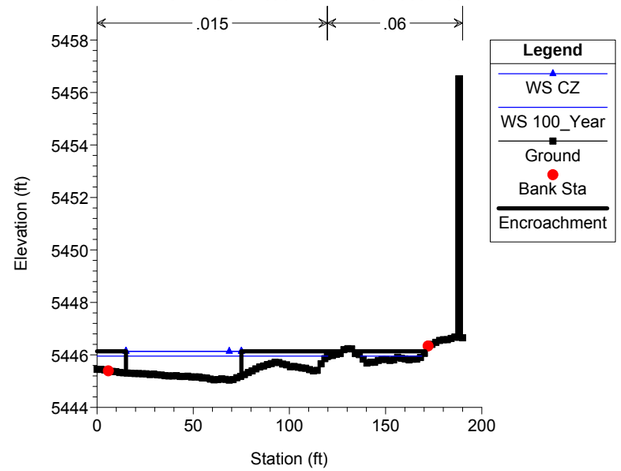
.05
.06
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 5959 5959
.13
.05
.06
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)

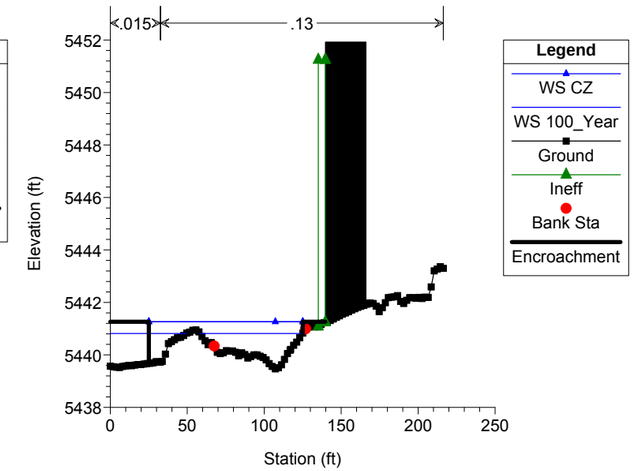
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 5900 5900



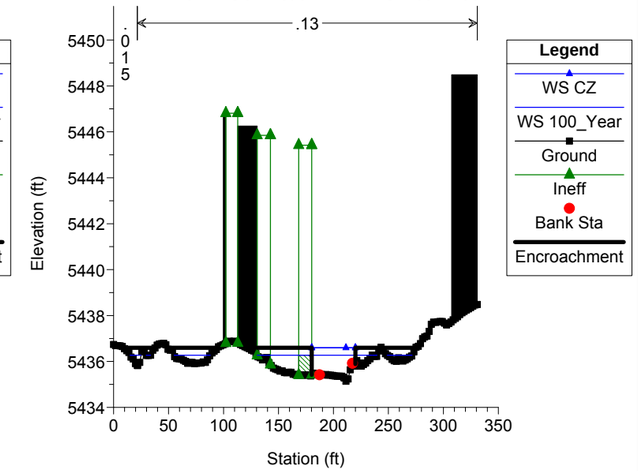
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 5861 5861



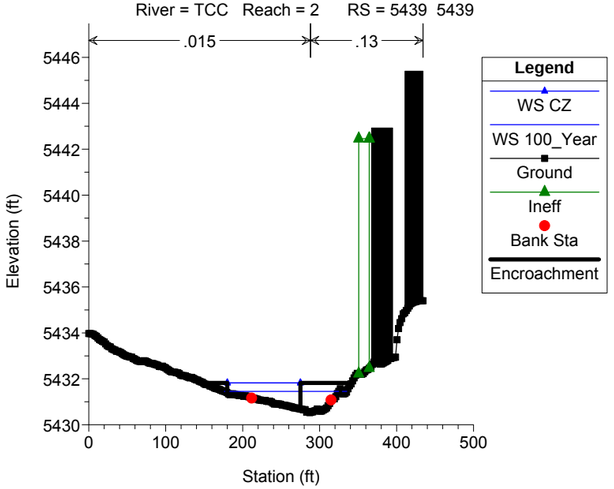
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 5763 5763



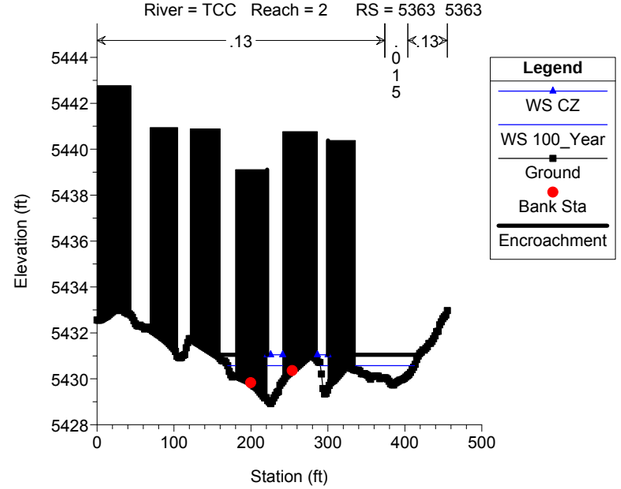
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 5624 5624



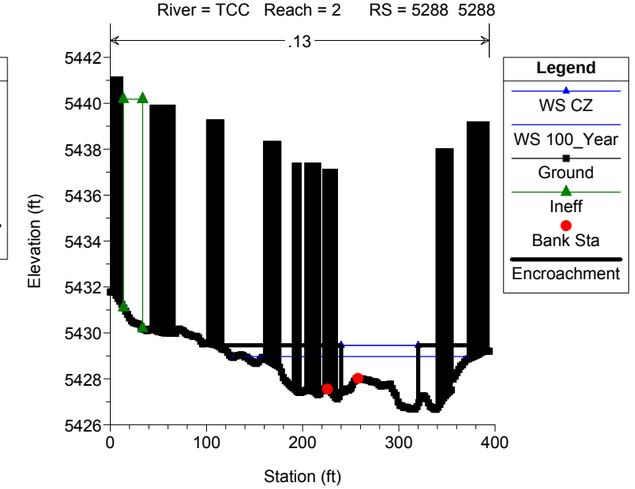
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 5439 5439



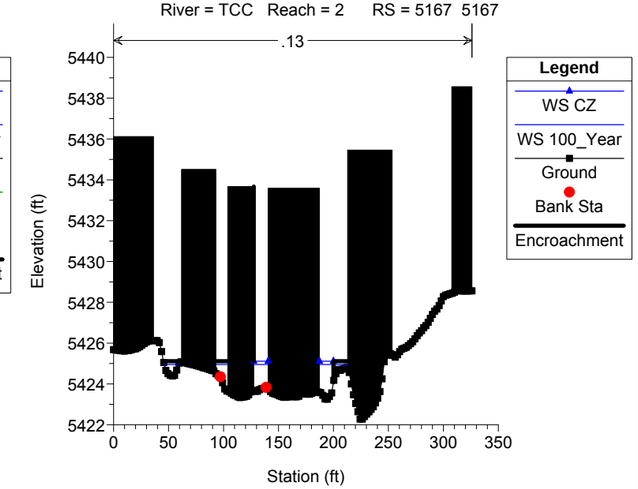
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 5363 5363



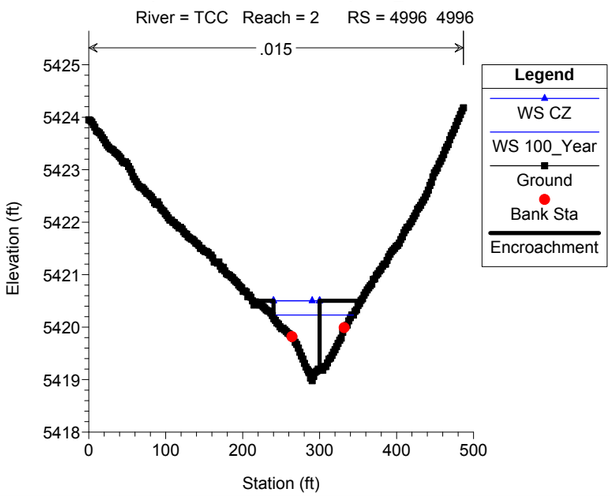
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 5288 5288



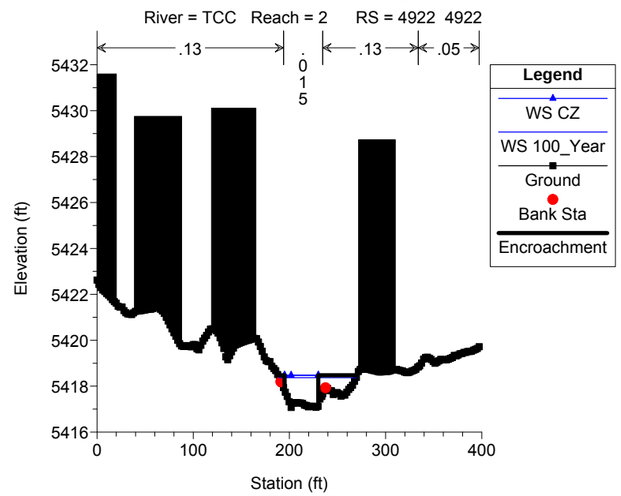
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 5167 5167



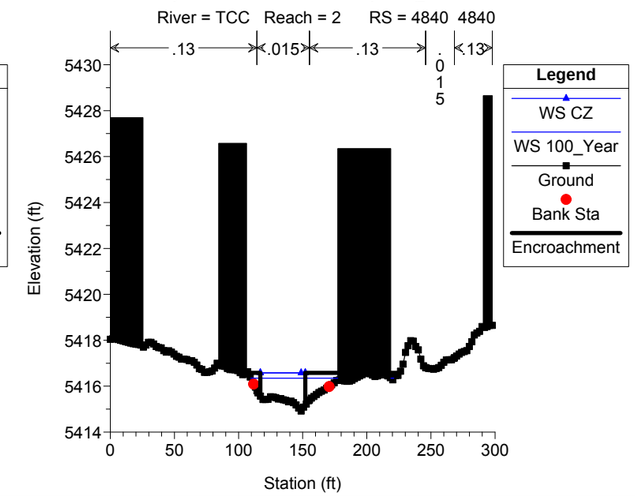
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 4996 4996



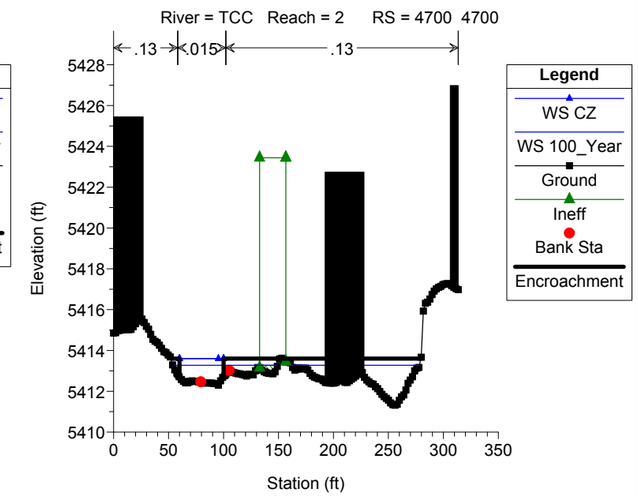
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 4922 4922

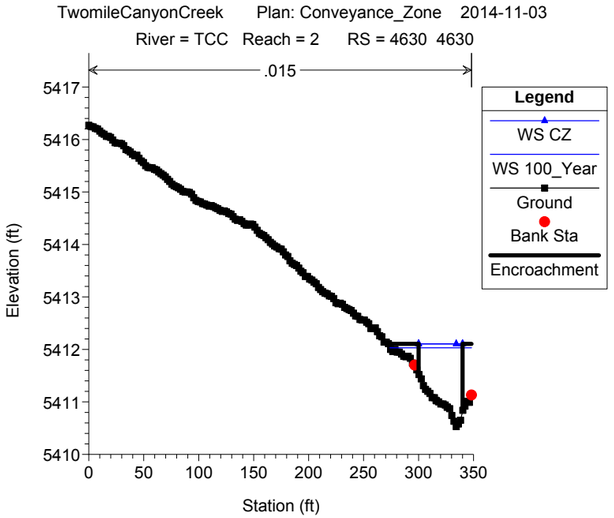


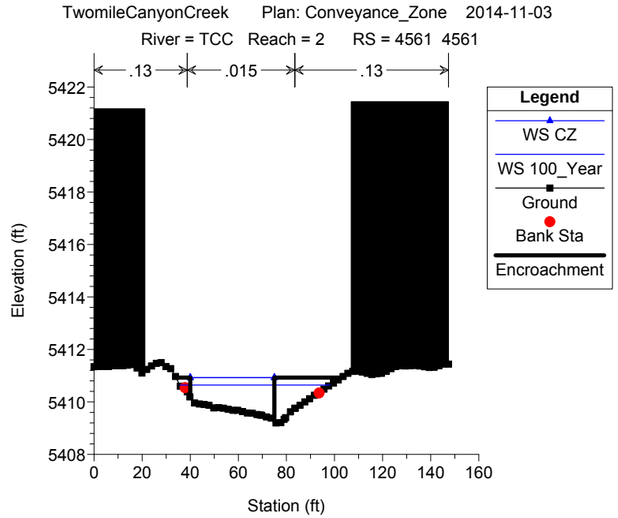
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 4840 4840

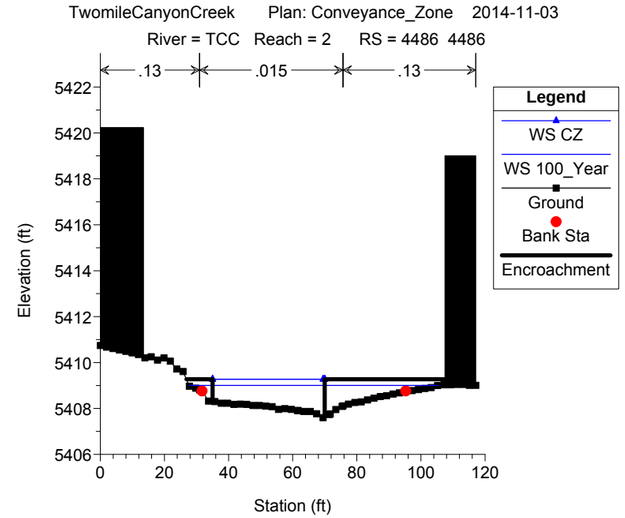


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 4700 4700




TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 4630 4630
.015
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 4561 4561
.13
.015
.13
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 4486 4486
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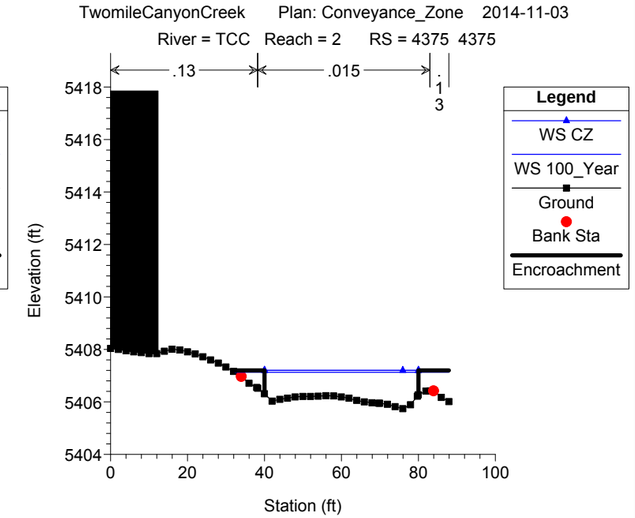
.015
.13
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 4375 4375
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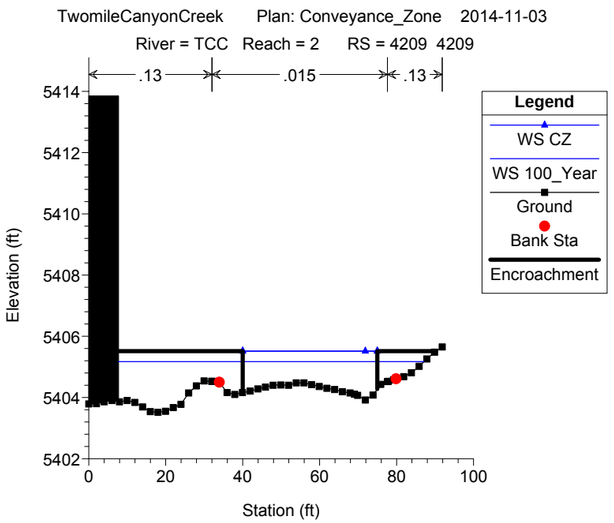
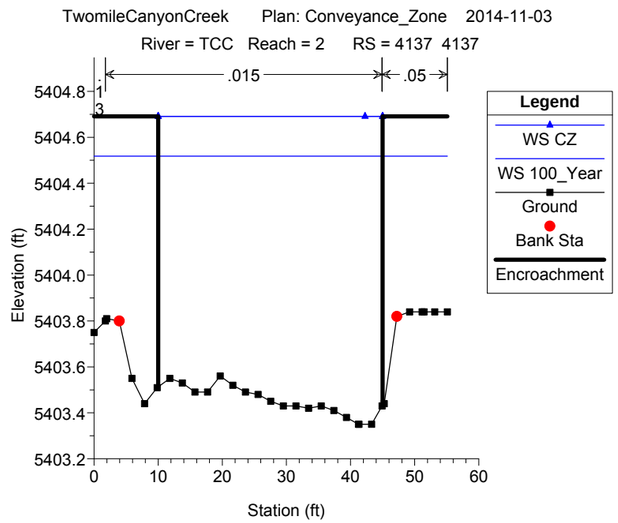
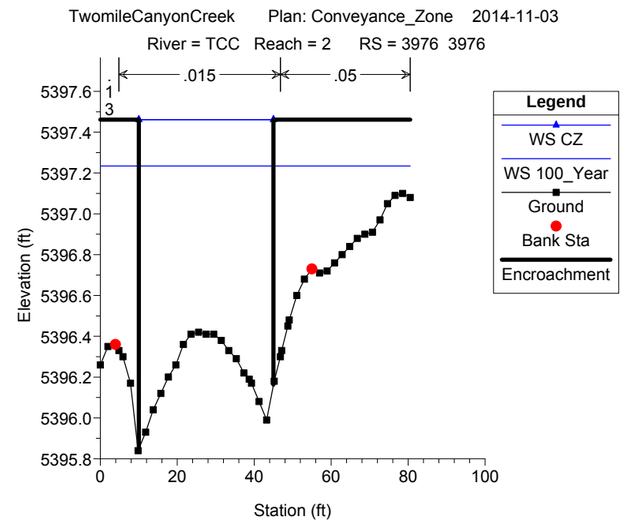
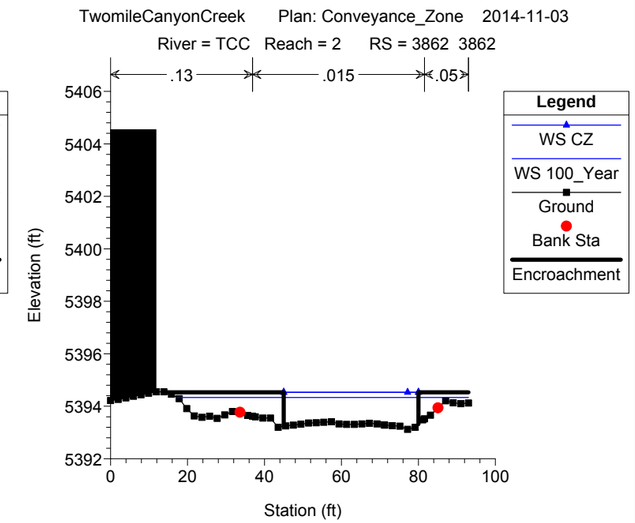
.015
.13
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 4209 4209
.13
.015
.13
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 4137 4137
.015
.05
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 3976 3976
.015
.05
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 3862 3862
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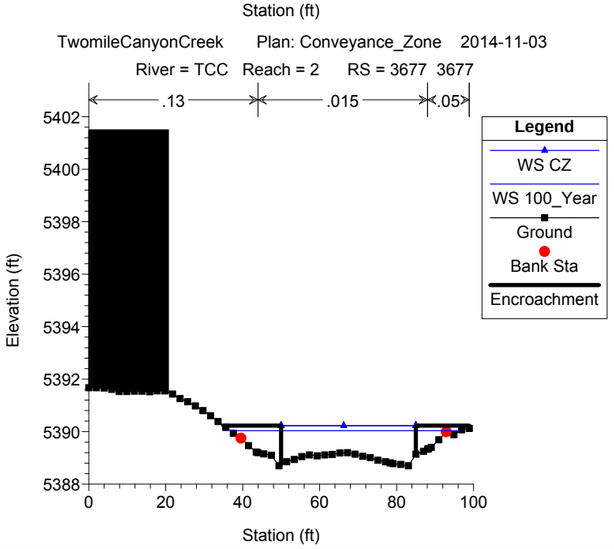
.015
.05
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 3677 3677
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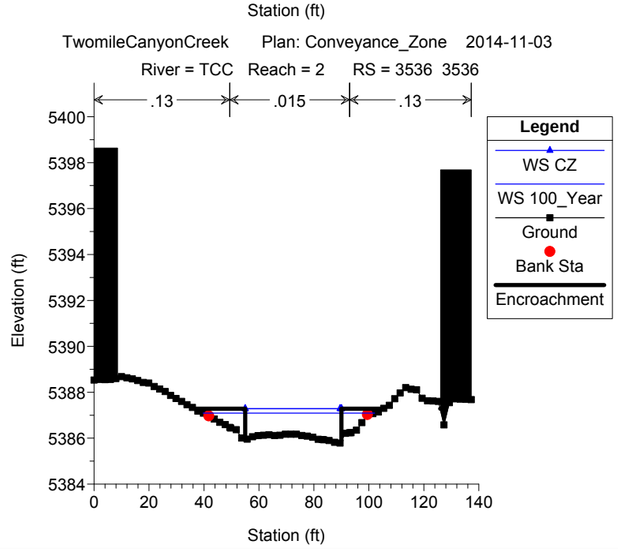
.015
.05
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 3536 3536
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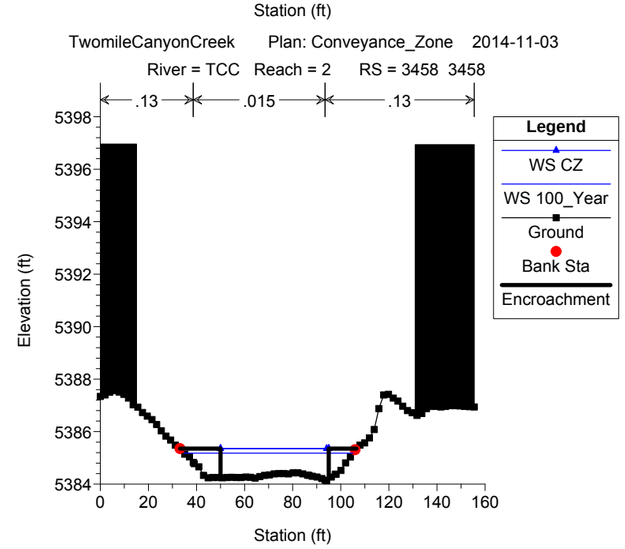
.015
.13
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 3458 3458
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.015
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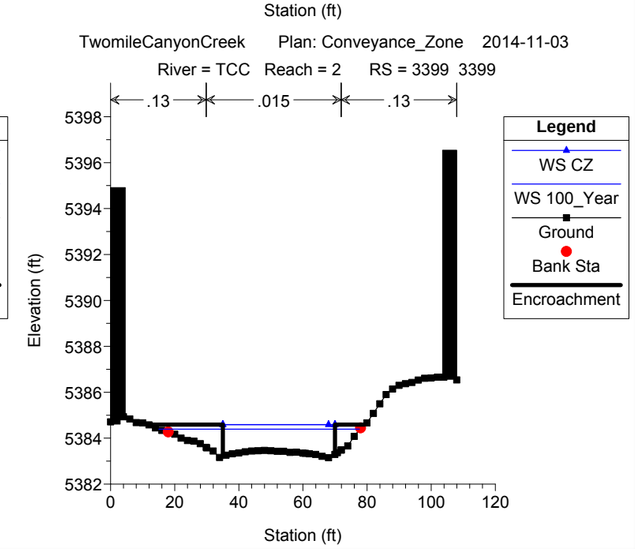
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 3399 3399
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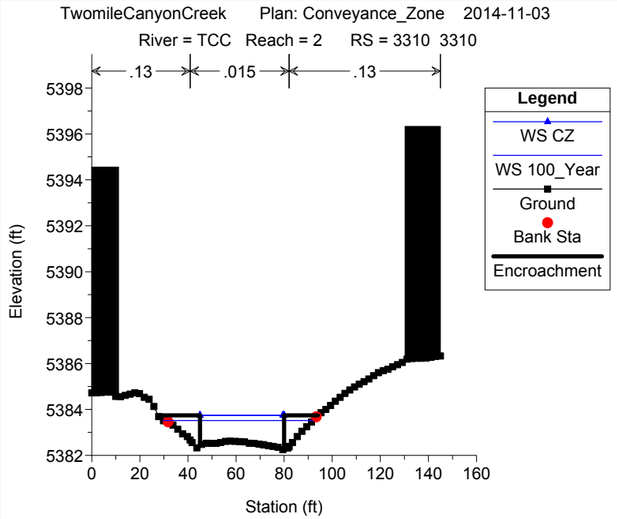
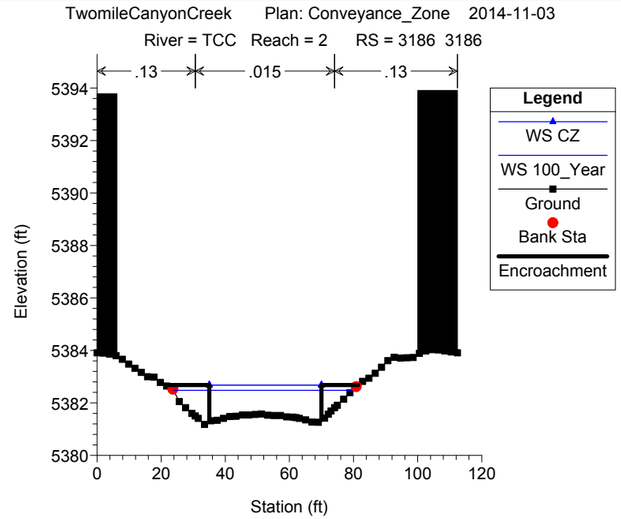
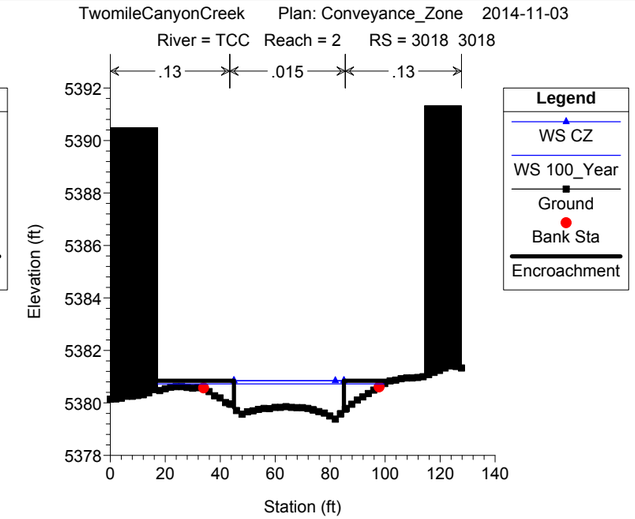
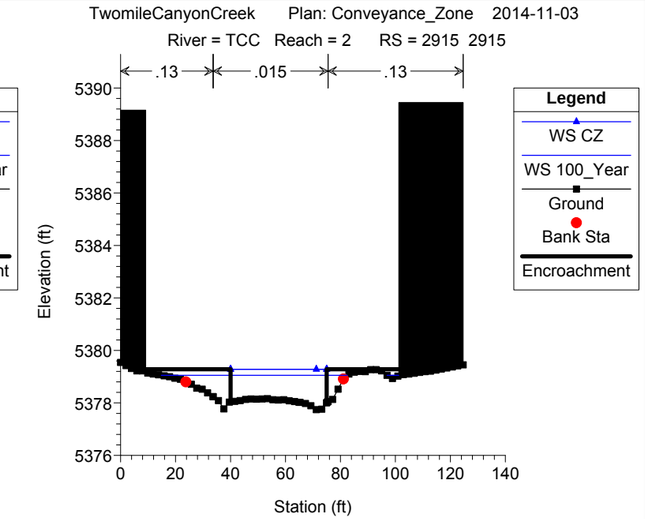
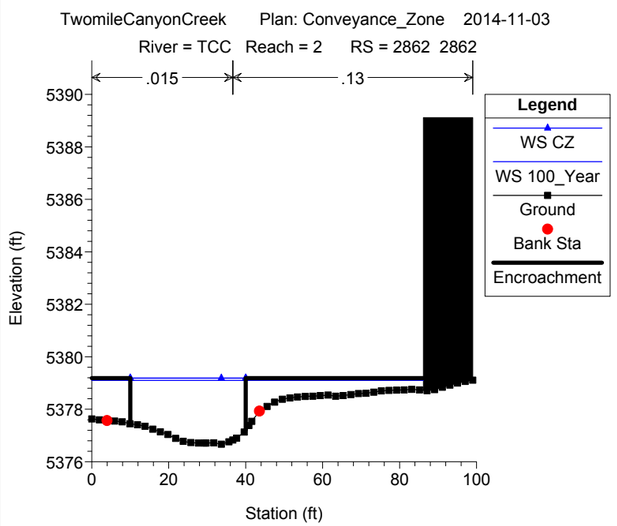
.015
.13
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)

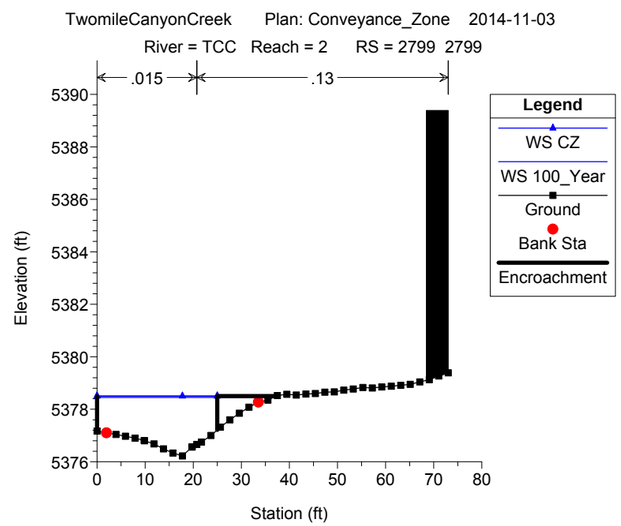

TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 3310 3310
.13 .015 .13
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)

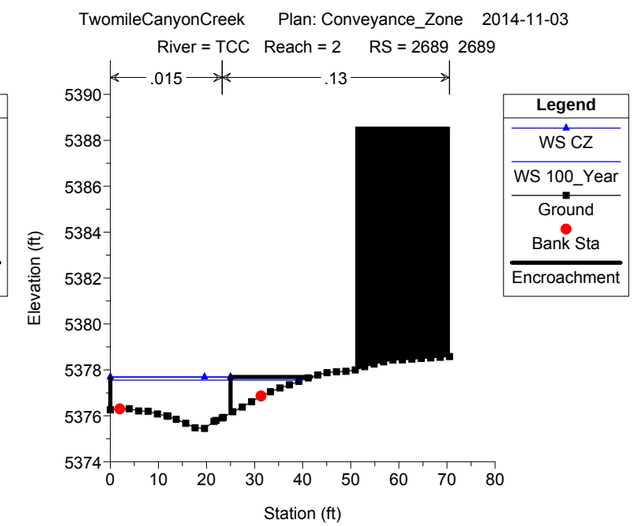

TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 3186 3186
.13 .015 .13
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)

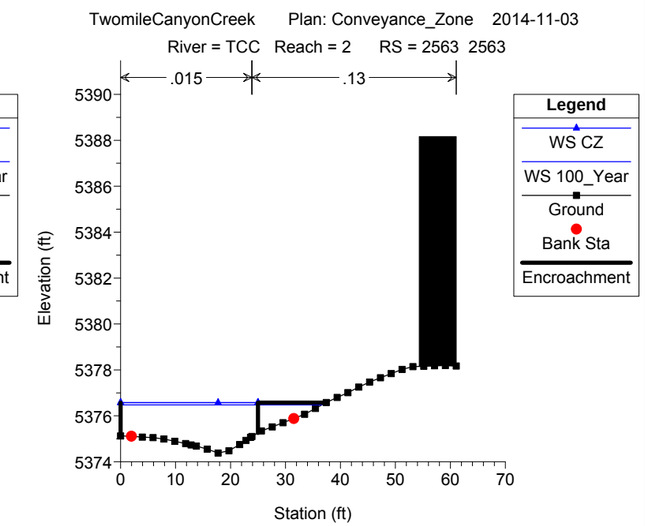

TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 3018 3018
.13 .015 .13
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)

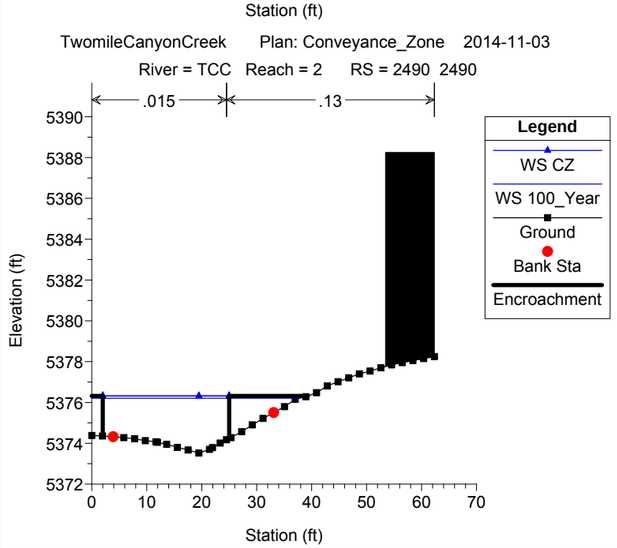

TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 2915 2915
.13 .015 .13
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)

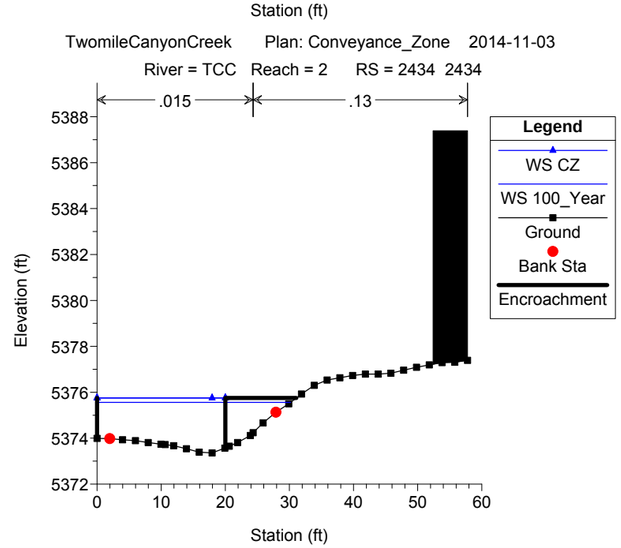

TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 2862 2862
.015 .13
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)

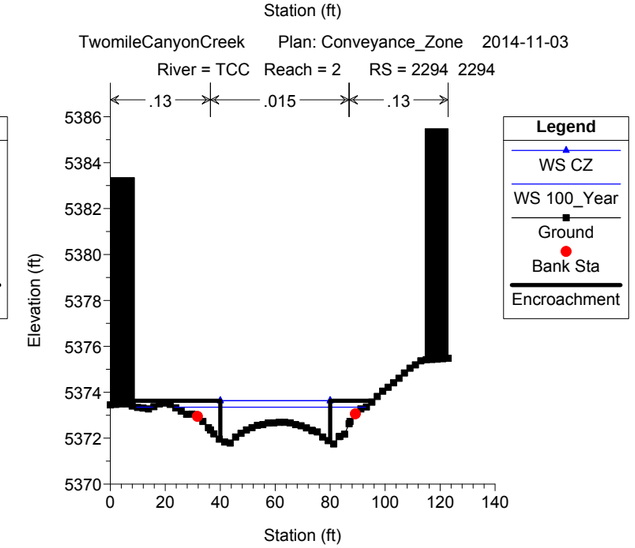

TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 2799 2799
.015 .13
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)

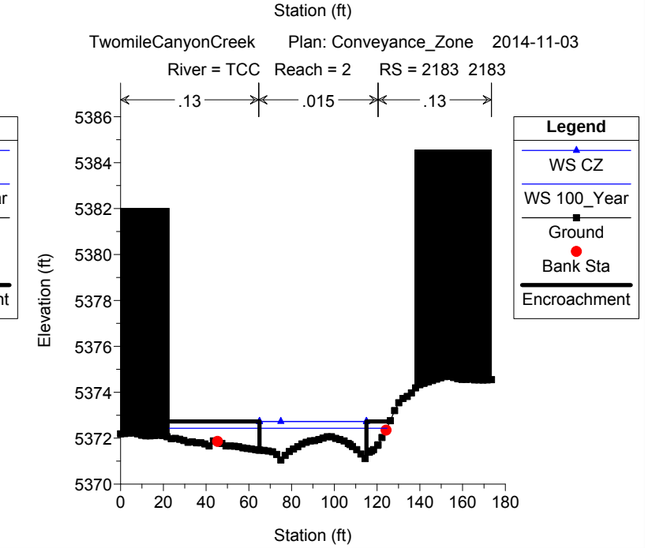

TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 2689 2689
.015 .13
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)

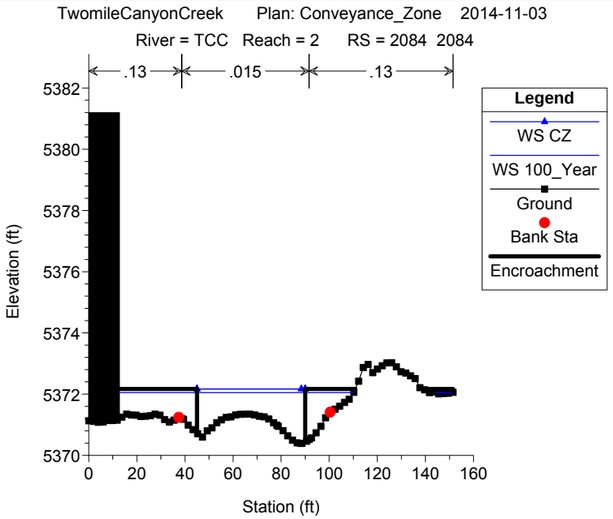

TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 2563 2563
.015 .13
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 2490 2490
.015 .13
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 2434 2434
.015 .13
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 2294 2294
.13 .015 .13
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 2183 2183
.13 .015 .13
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 2084 2084
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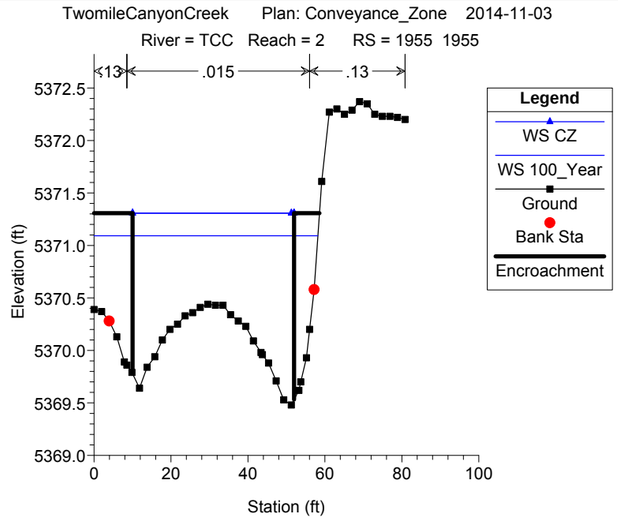
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 1955 1955
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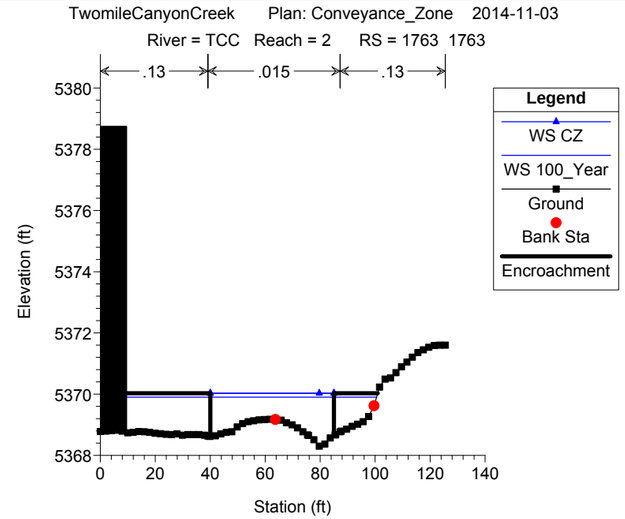
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 1763 1763
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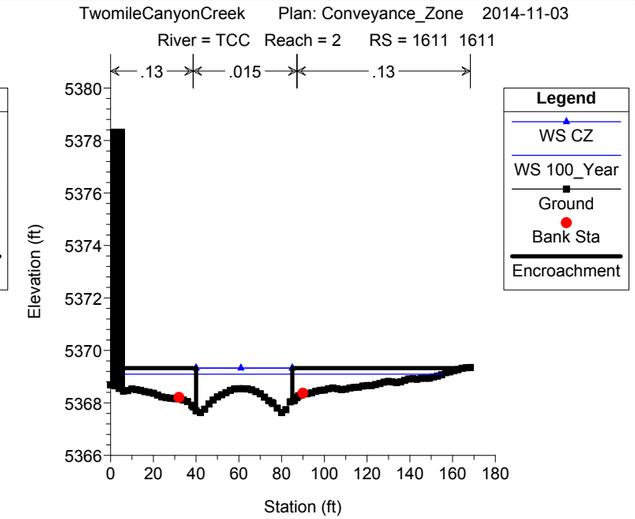
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 1611 1611
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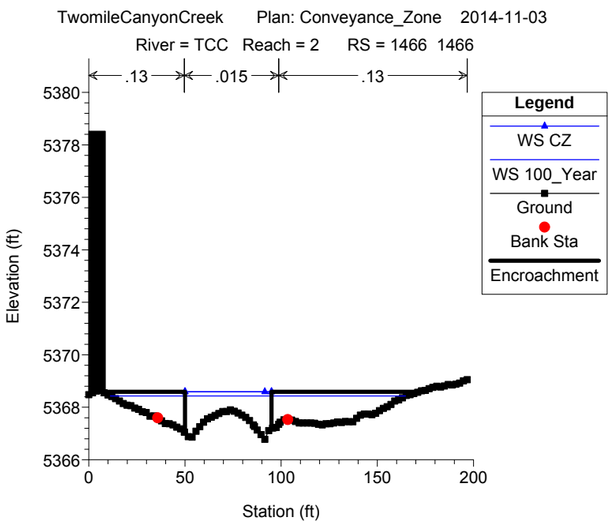
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 1466 1466
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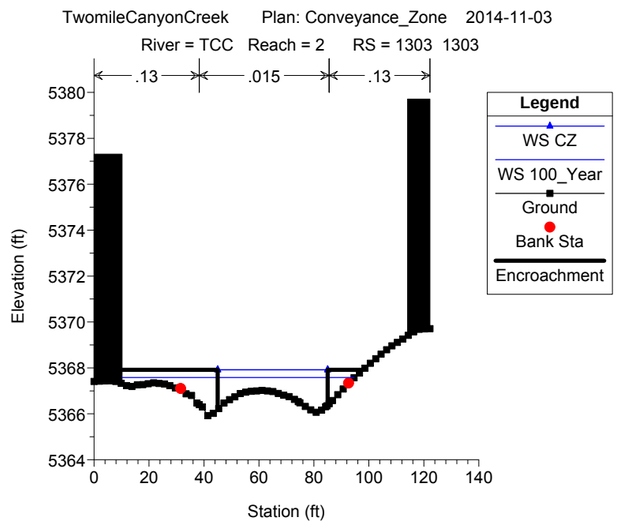
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 1303 1303
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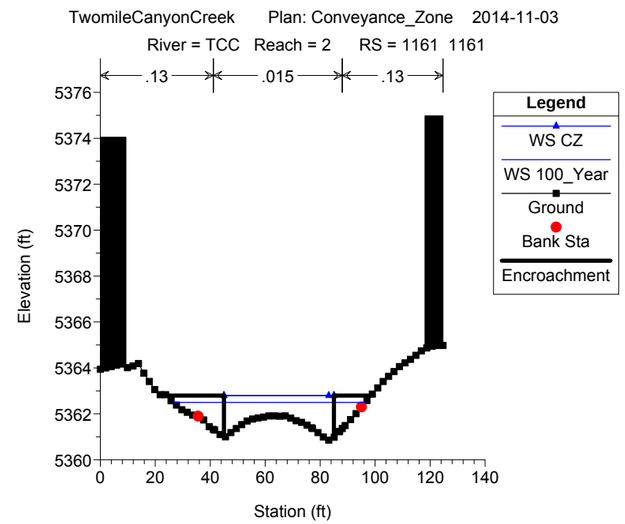
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 1161 1161
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Legend
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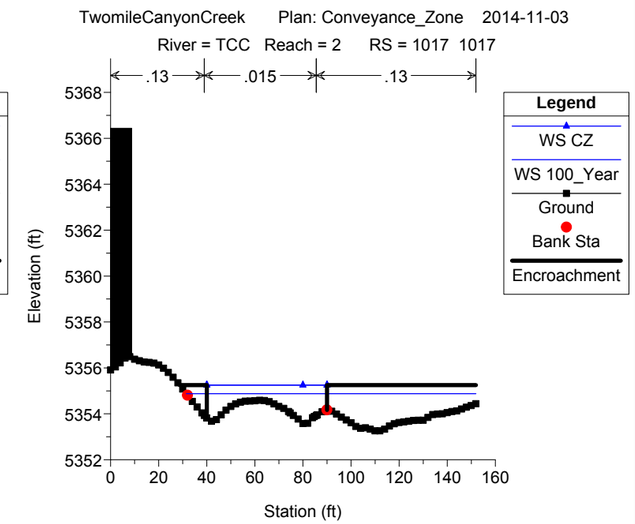
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 1017 1017
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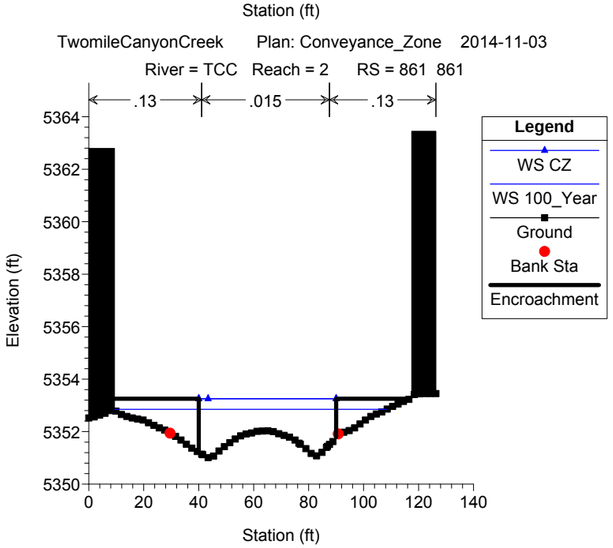
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)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River = TCC Reach = 2 RS = 861 861
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Legend
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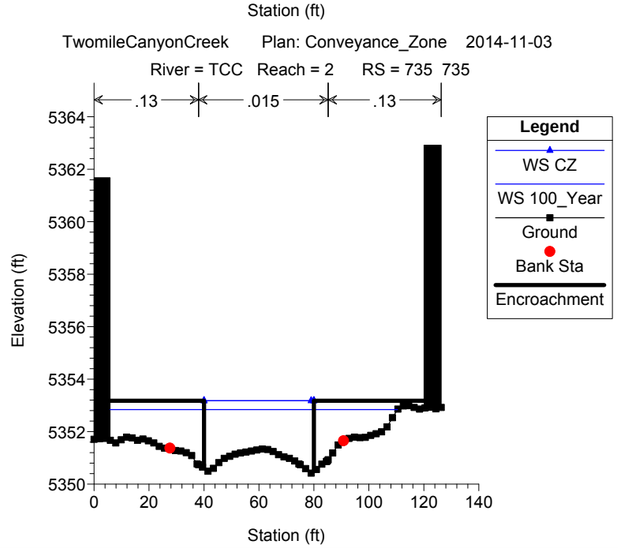
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 2 RS = 735 735
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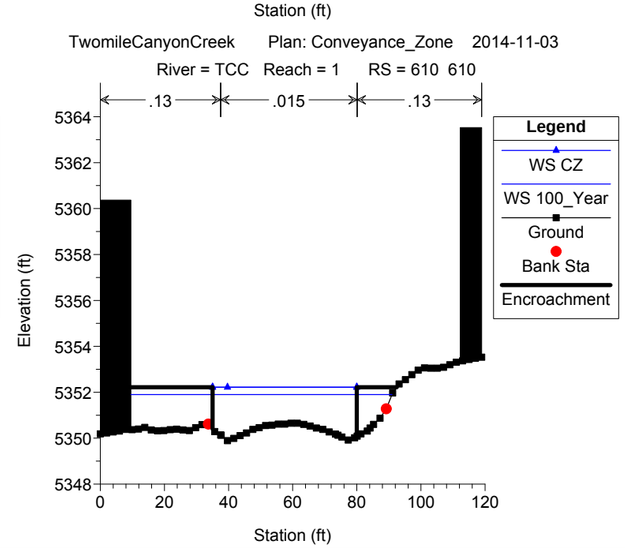
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 1 RS = 610 610
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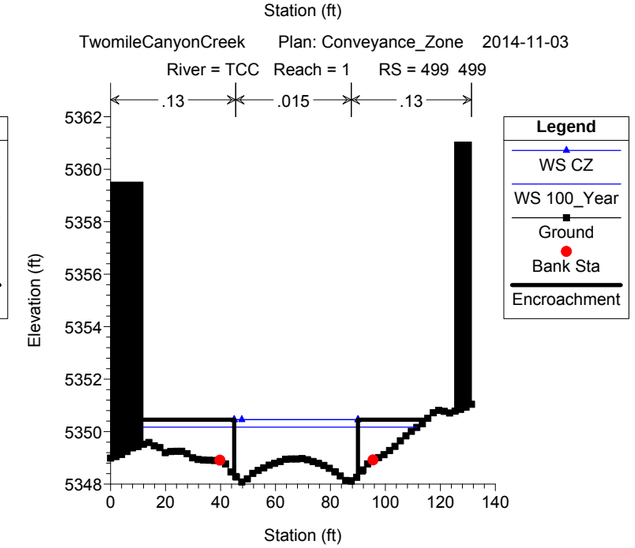
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 1 RS = 499 499
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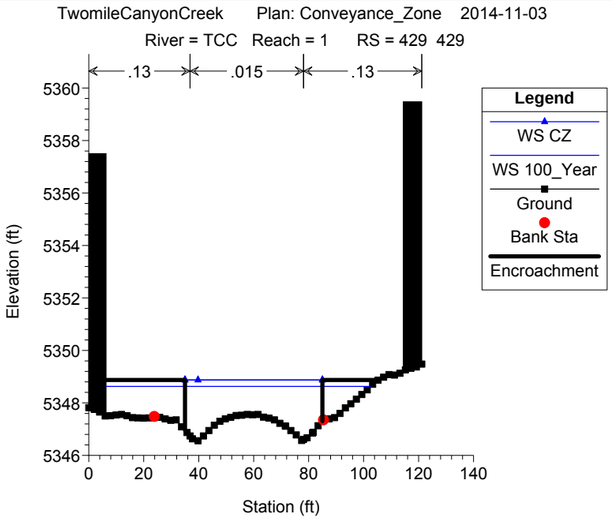
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)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River = TCC Reach = 1 RS = 429 429
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Legend
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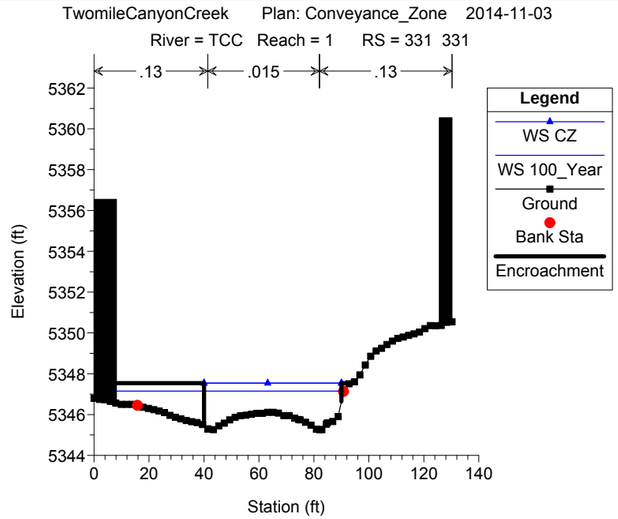
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC Reach = 1 RS = 331 331
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Legend
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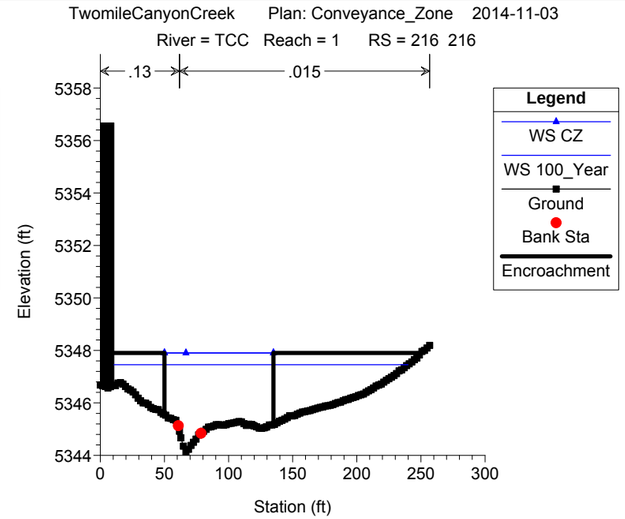
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)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River = TCC Reach = 1 RS = 216 216
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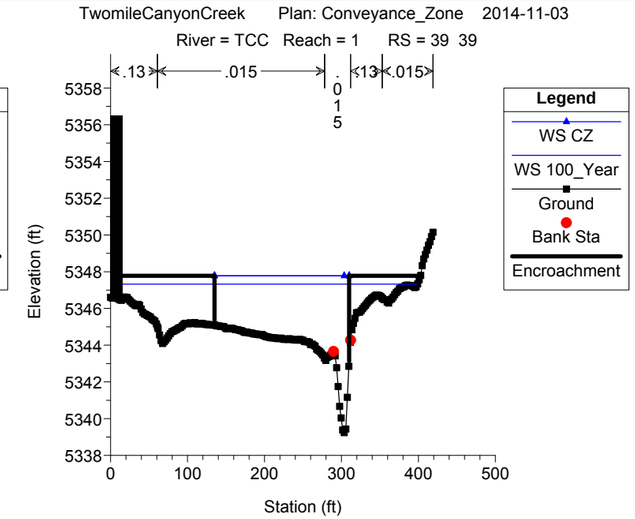
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)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River = TCC Reach = 1 RS = 39 39
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.015
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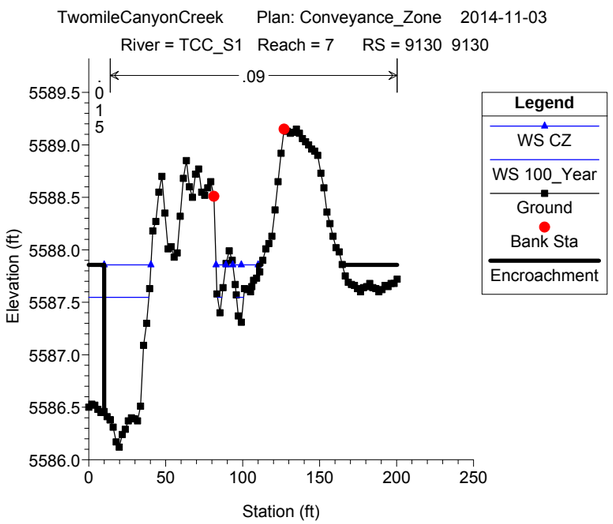
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 7 RS = 9130 9130
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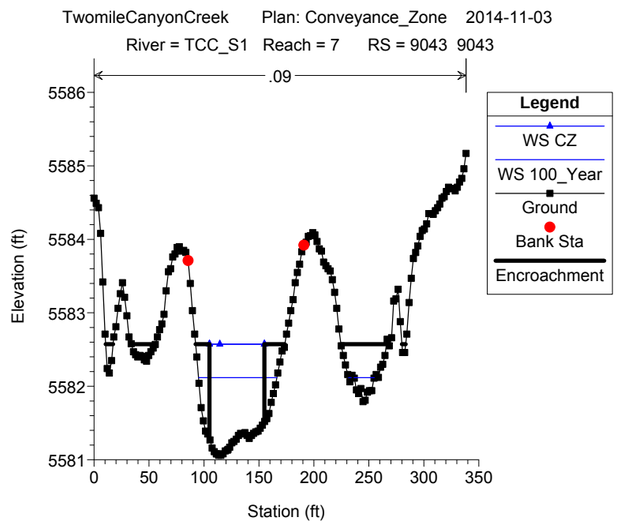
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 7 RS = 9043 9043
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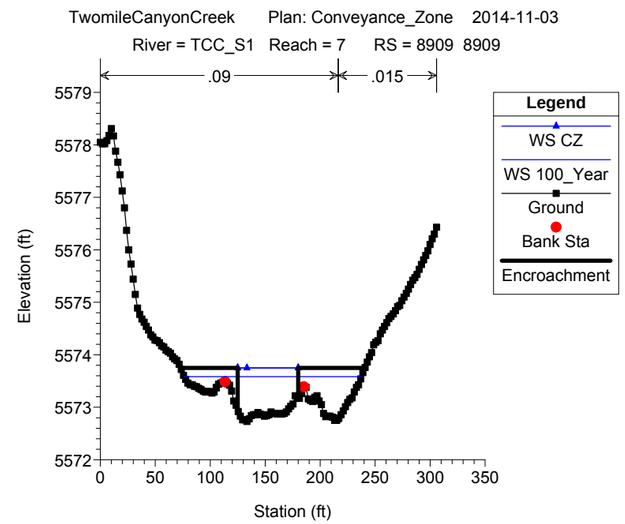
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 7 RS = 8909 8909
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Legend
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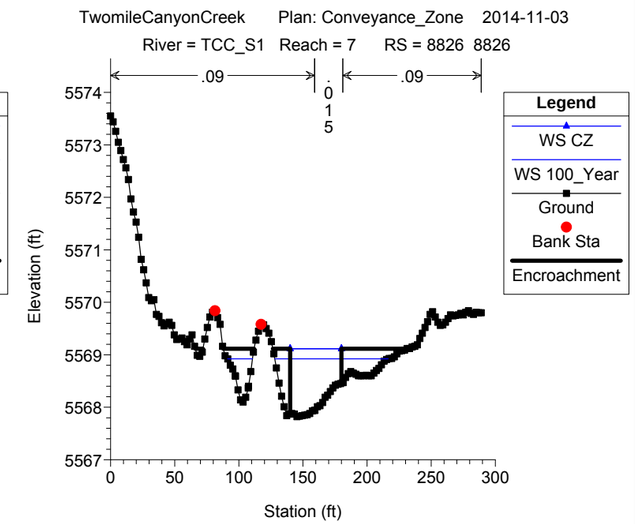
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 7 RS = 8826 8826
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.09
Legend
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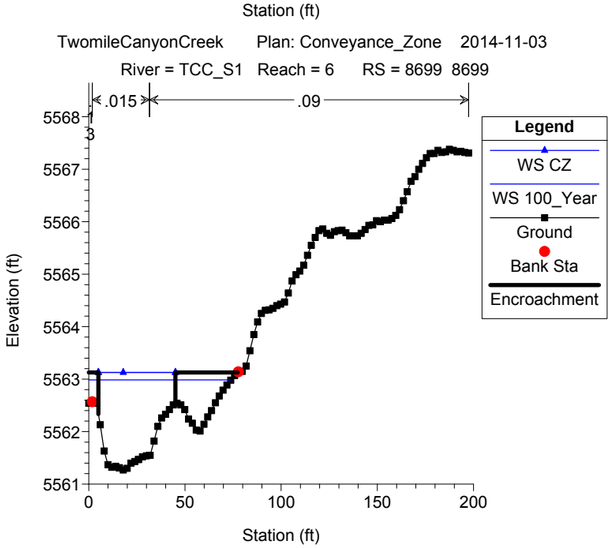
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 6 RS = 8699 8699
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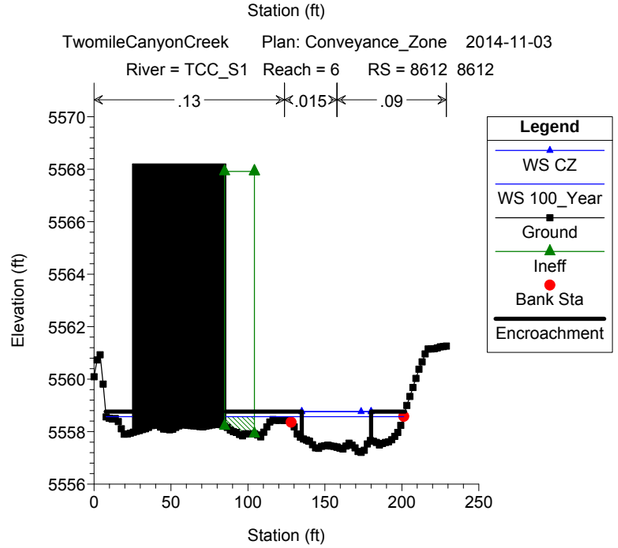
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 6 RS = 8612 8612
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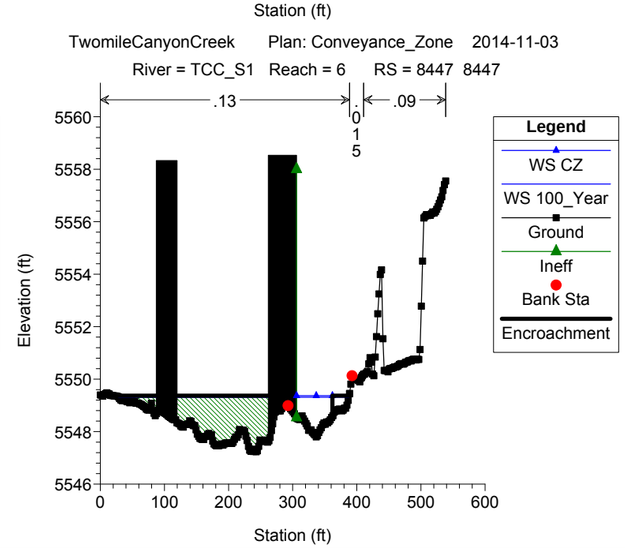
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 6 RS = 8447 8447
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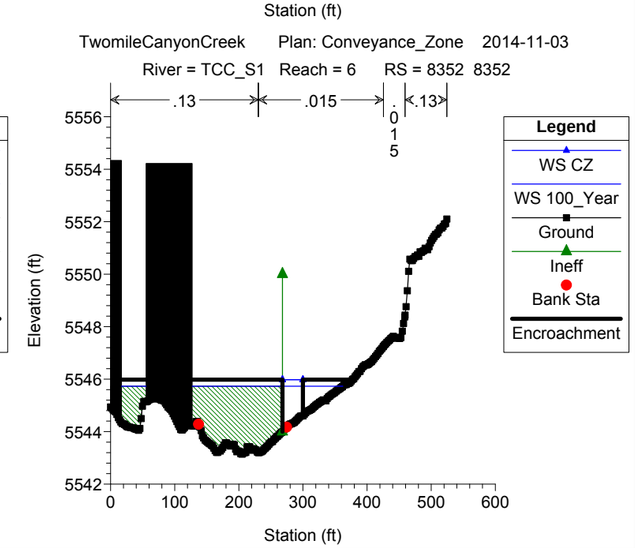
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 6 RS = 8352 8352
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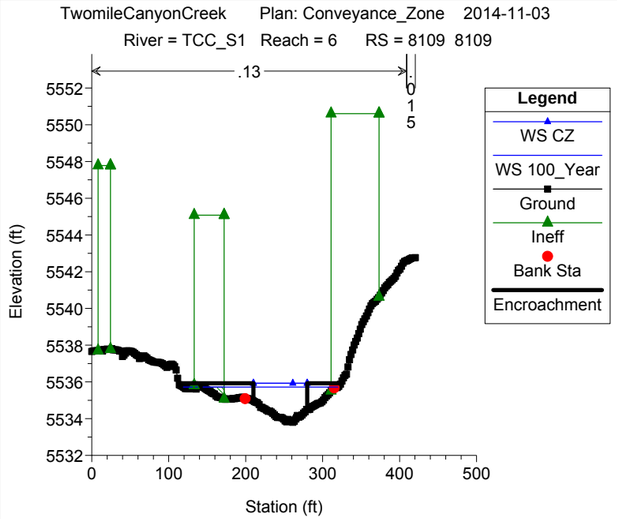
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 6 RS = 8109 8109
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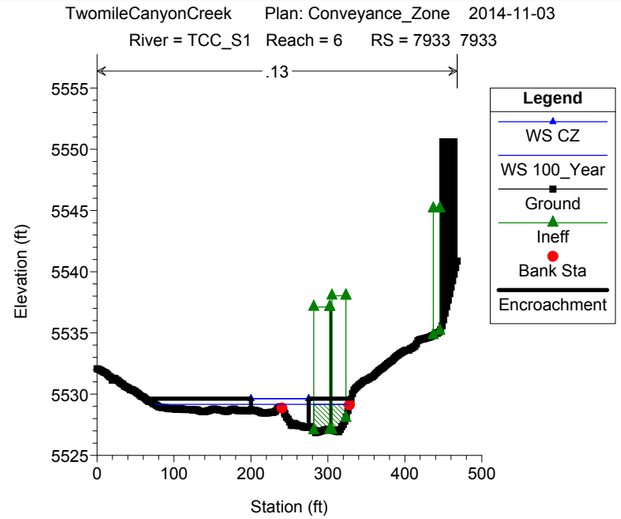
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 6 RS = 7933 7933
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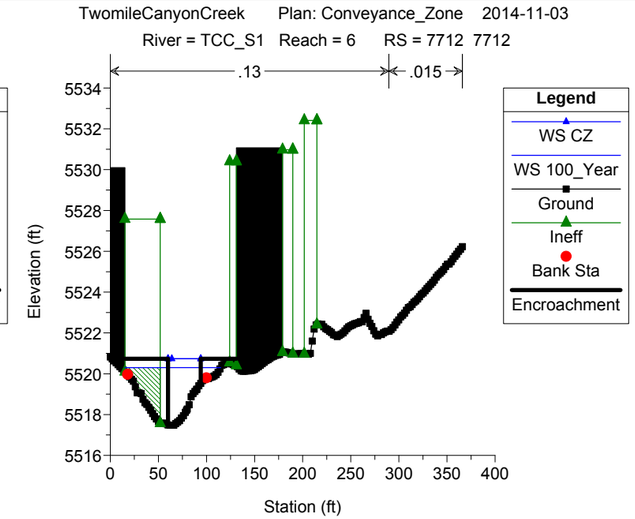
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 6 RS = 7712 7712
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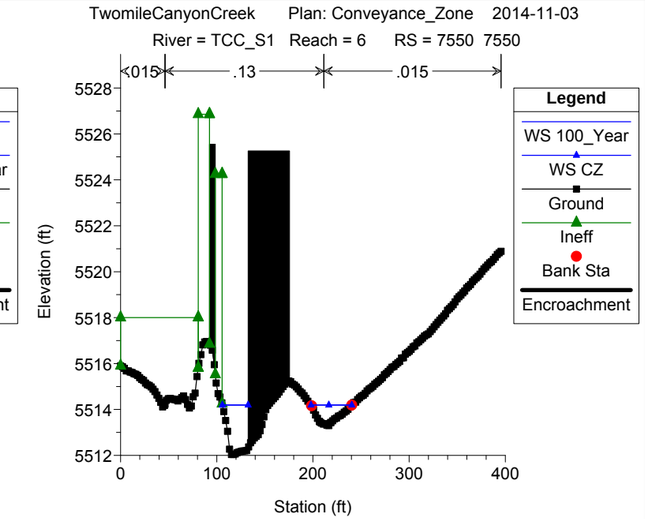
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 6 RS = 7550 7550
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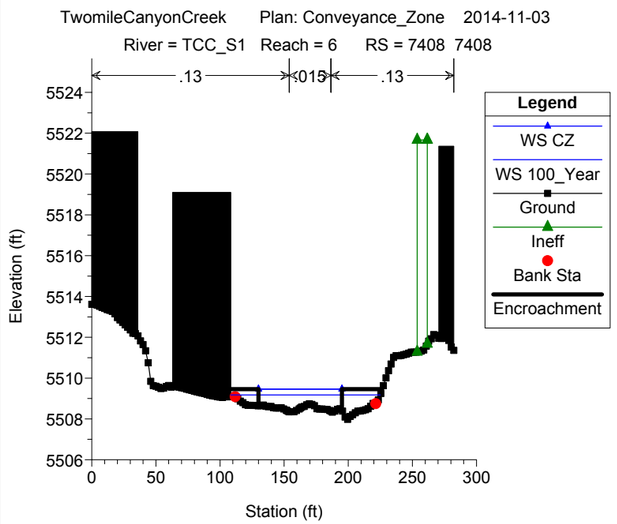
Legend
WS 100_Year
WS CZ
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 6 RS = 7408 7408
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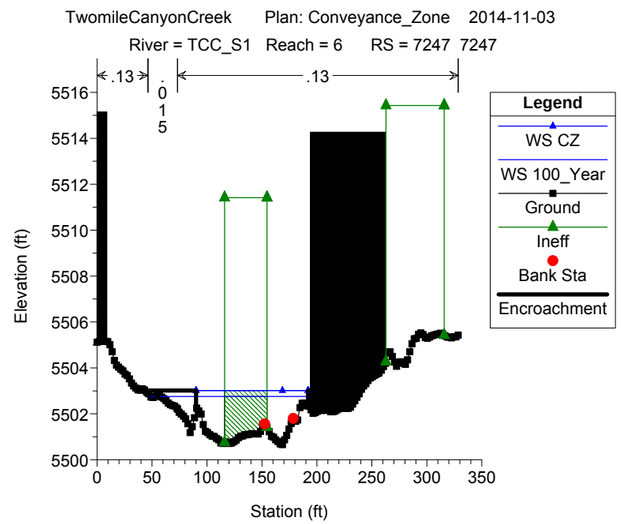
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 6 RS = 7247 7247
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Legend
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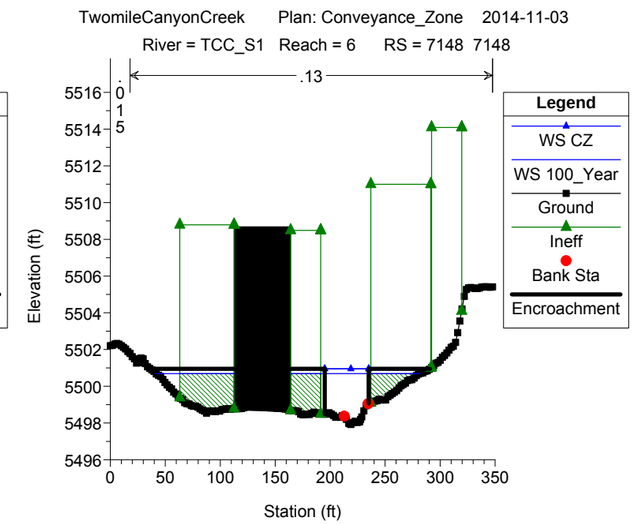
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 6 RS = 7148 7148
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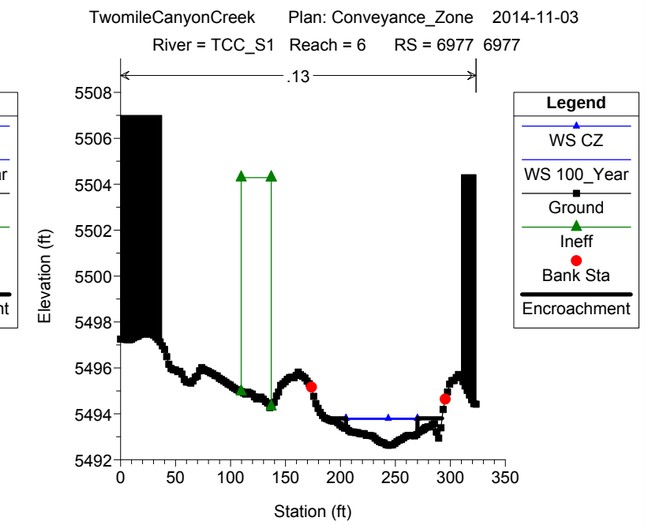
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 6 RS = 6977 6977
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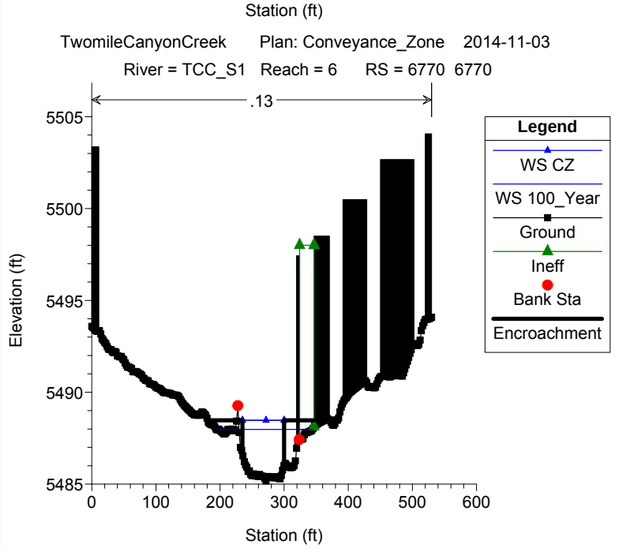
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 6 RS = 6770 6770
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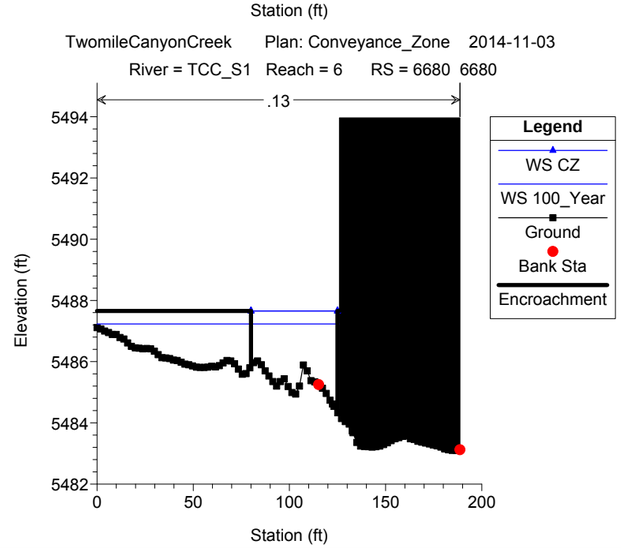
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 6 RS = 6680 6680
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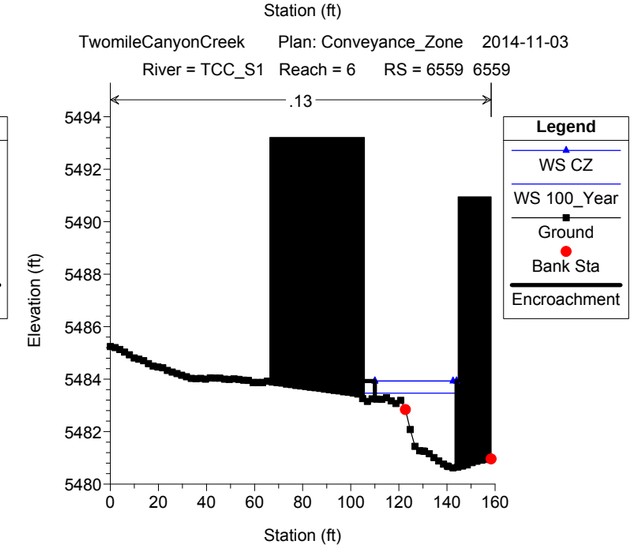
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 6 RS = 6559 6559
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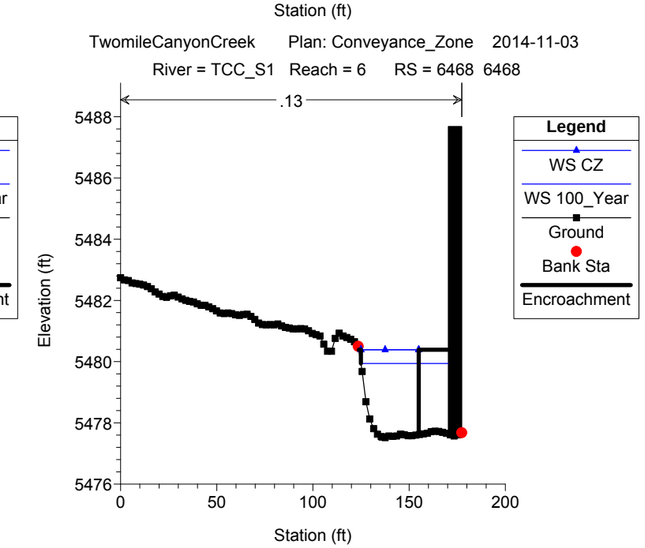
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 6 RS = 6468 6468
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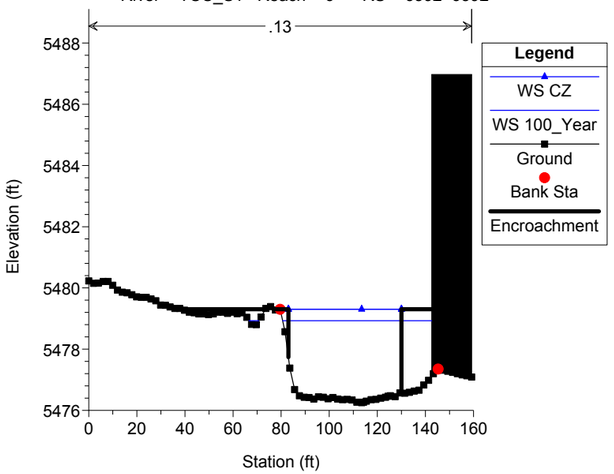
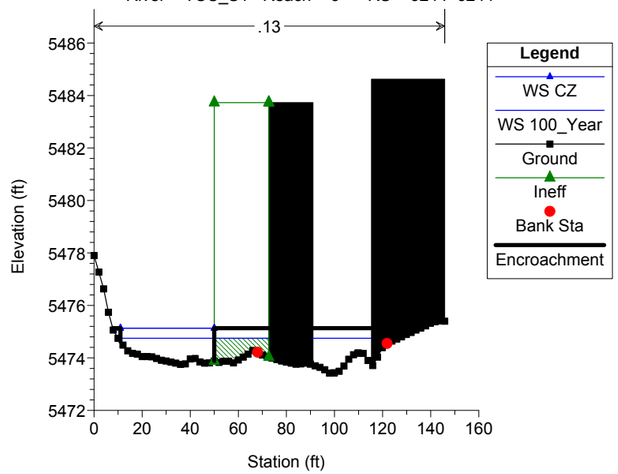
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)

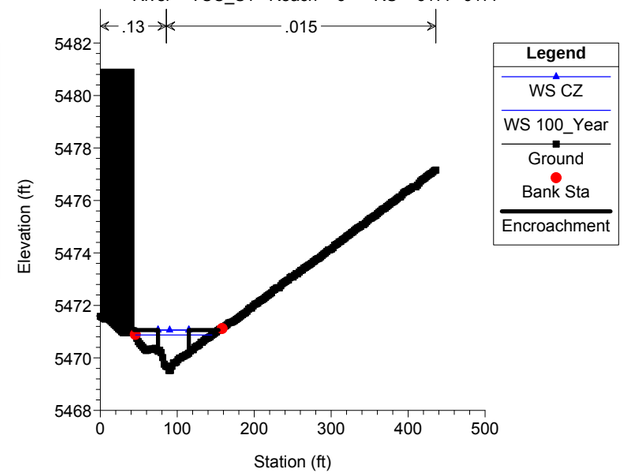
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 6 RS = 6392 6392



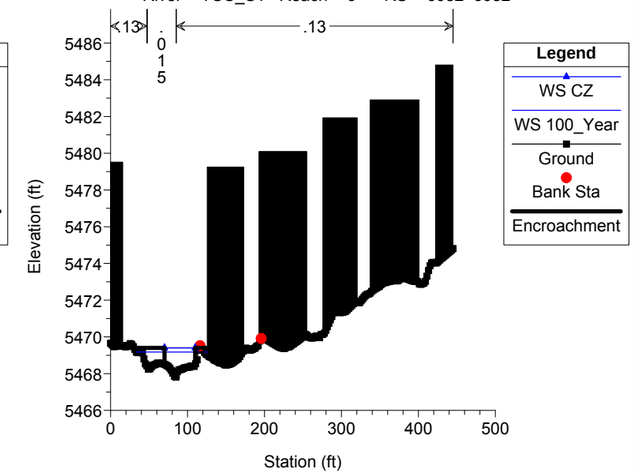
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 6 RS = 6244 6244



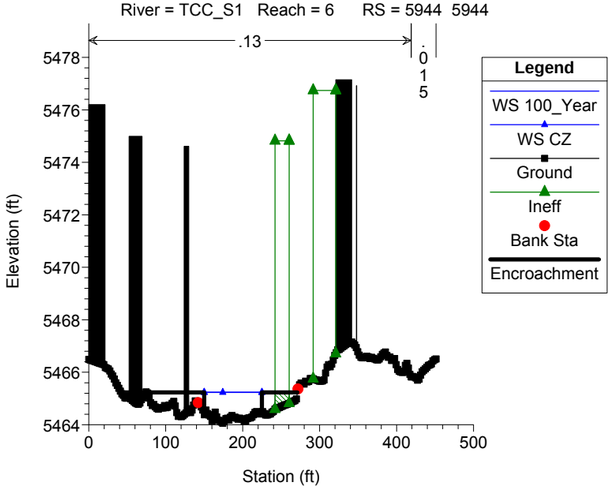
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 6 RS = 6177 6177



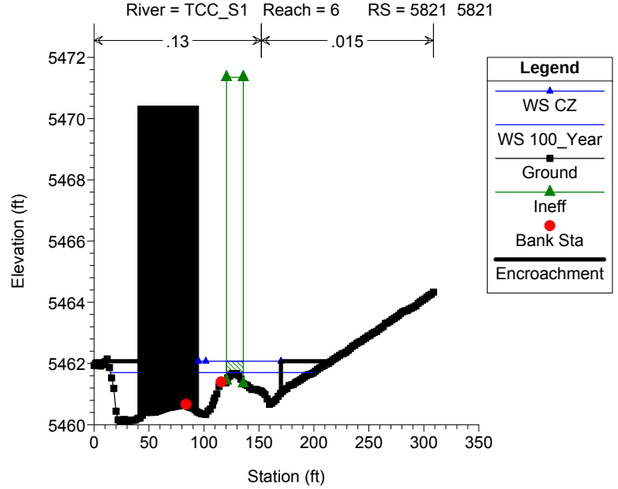
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 6 RS = 6082 6082



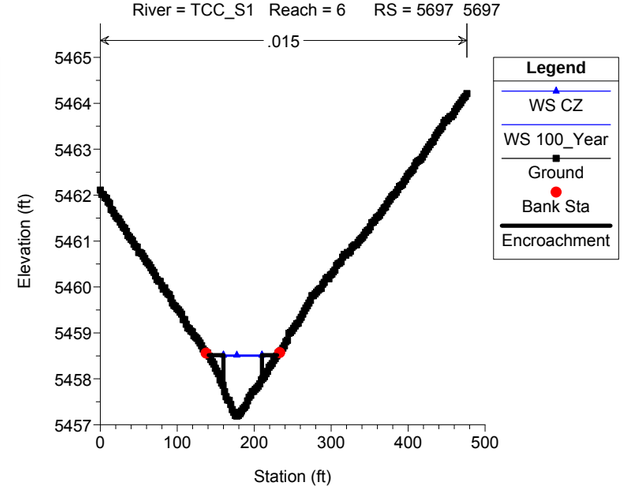
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 6 RS = 5944 5944



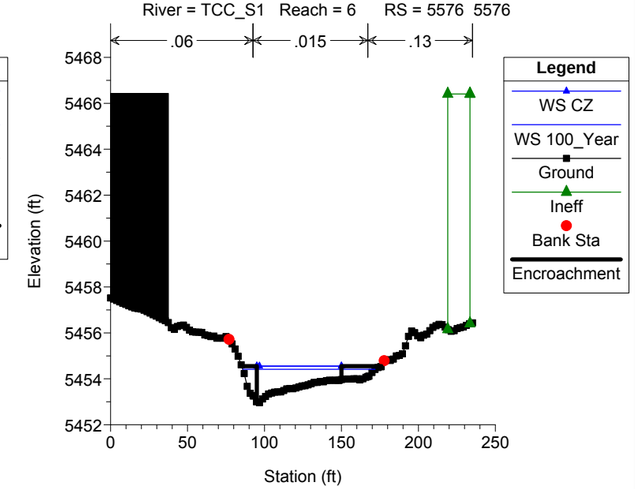
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 6 RS = 5821 5821



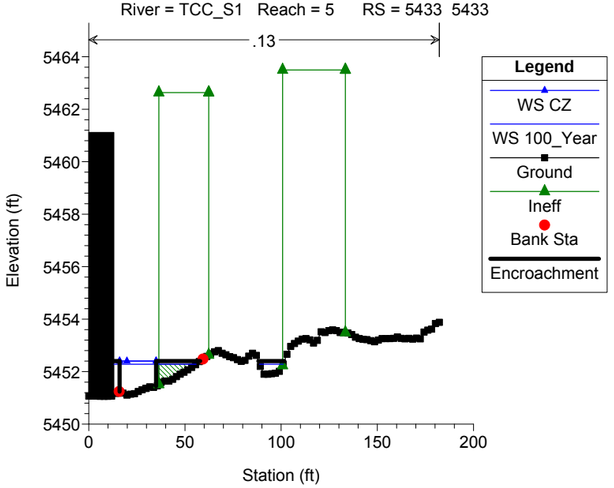
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 6 RS = 5697 5697



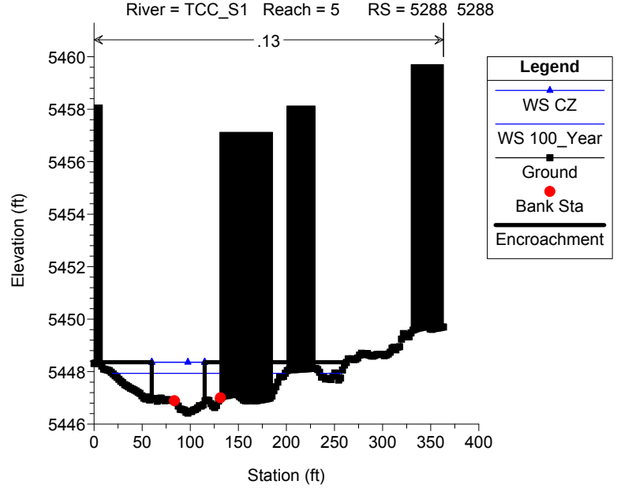
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 6 RS = 5576 5576



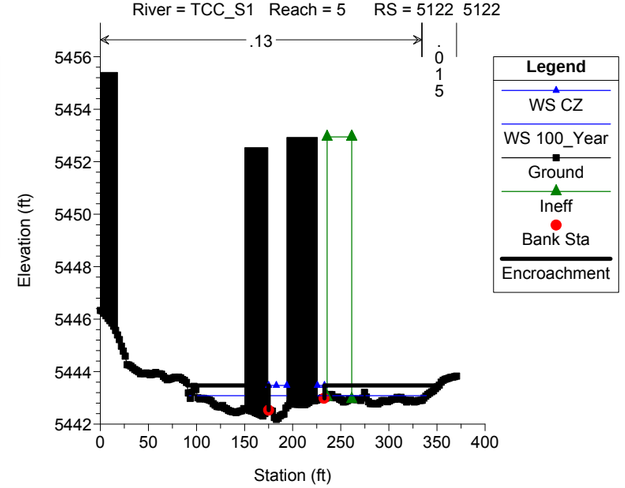
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 5 RS = 5433 5433



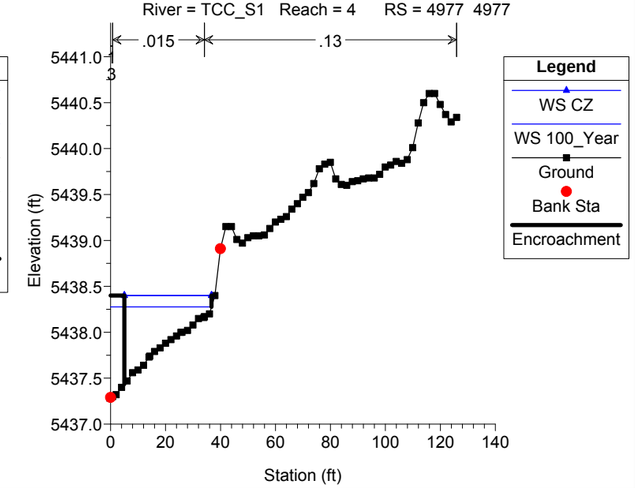
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 5 RS = 5288 5288



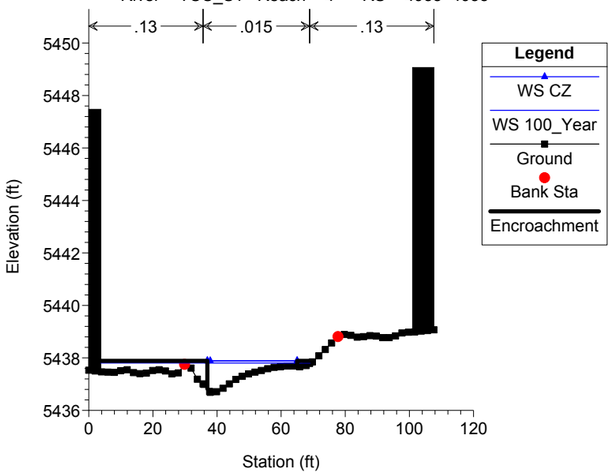
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 5 RS = 5122 5122



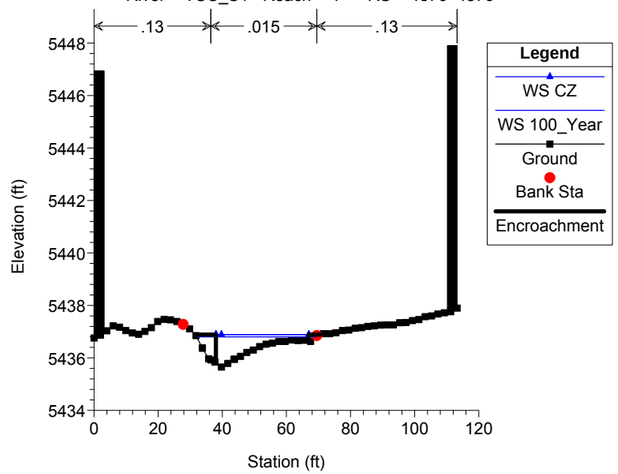
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 4 RS = 4977 4977



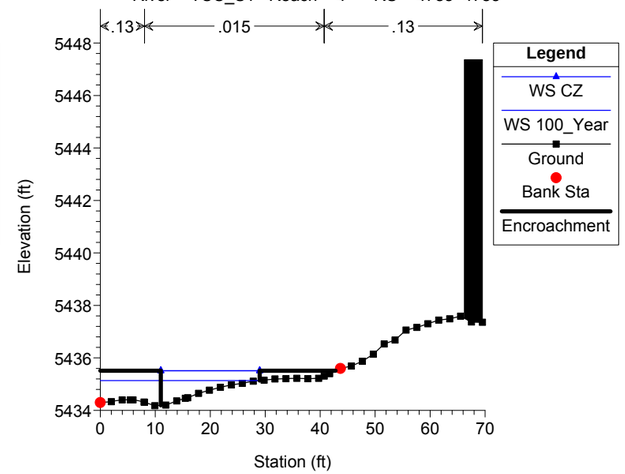
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 4 RS = 4935 4935



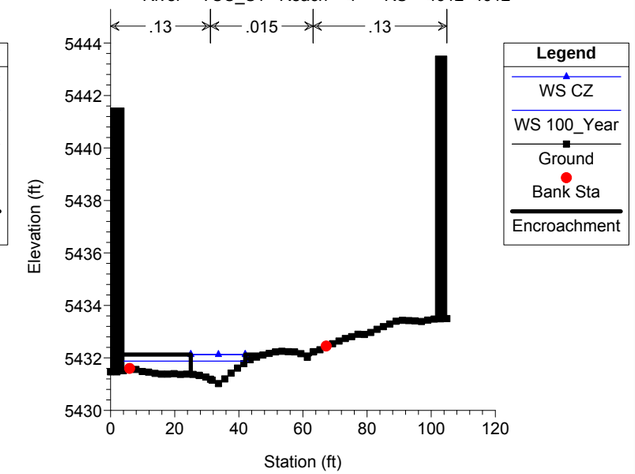
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 4 RS = 4876 4876



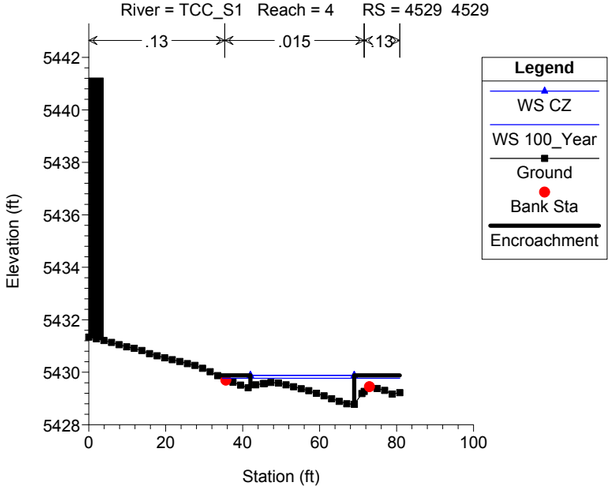
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 4 RS = 4785 4785



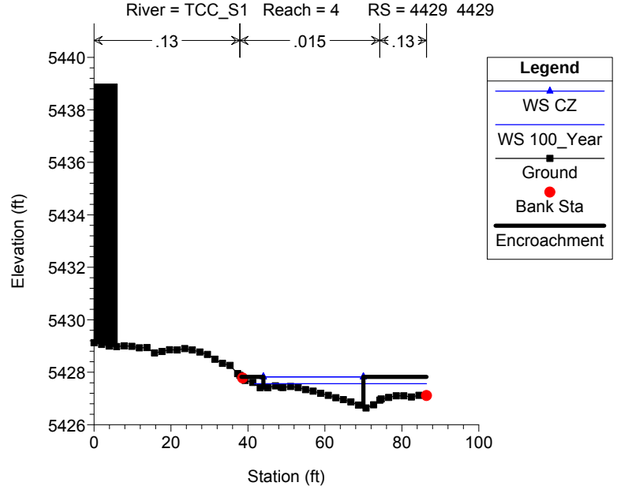
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 4 RS = 4612 4612



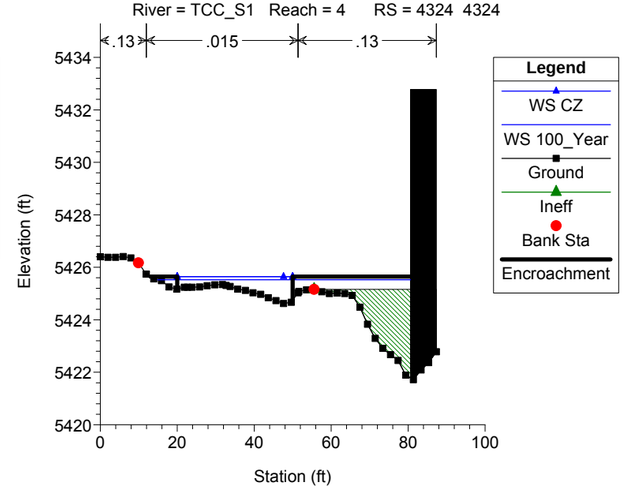
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 4 RS = 4529 4529



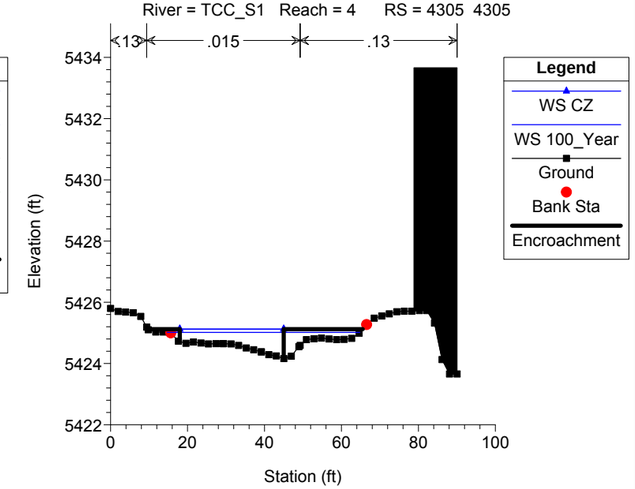
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 4 RS = 4429 4429



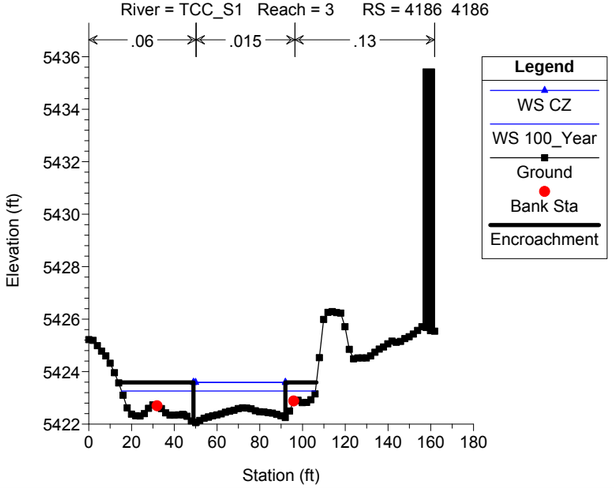
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 4 RS = 4324 4324



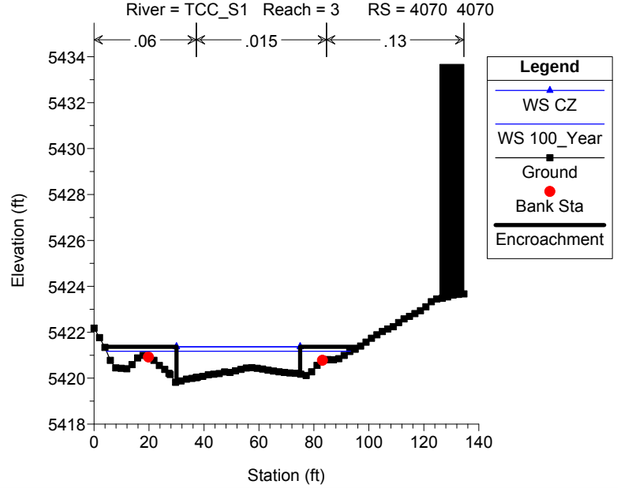
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 4 RS = 4305 4305



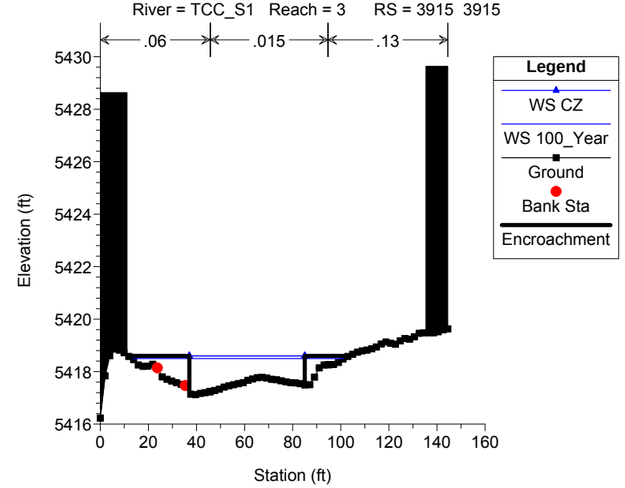
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 3 RS = 4186 4186



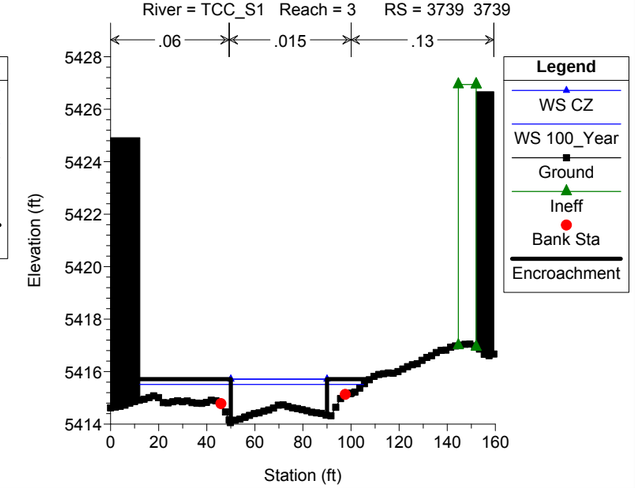
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 3 RS = 4070 4070

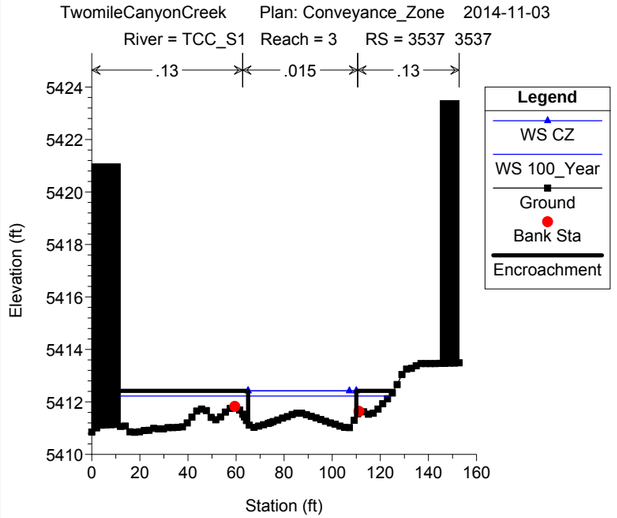


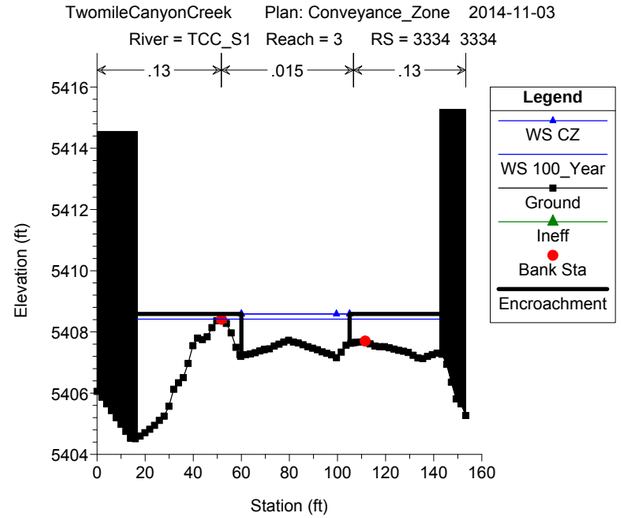
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 3 RS = 3915 3915



TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 3 RS = 3739 3739




TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 3 RS = 3537 3537
.13 .015 .13
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 3 RS = 3334 3334
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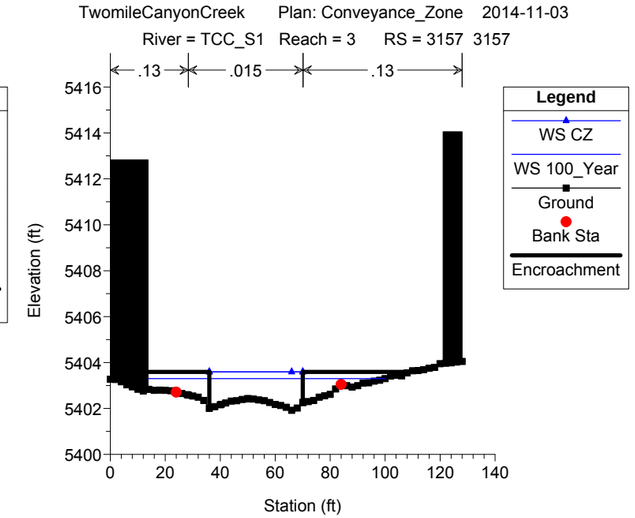
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 3 RS = 3157 3157
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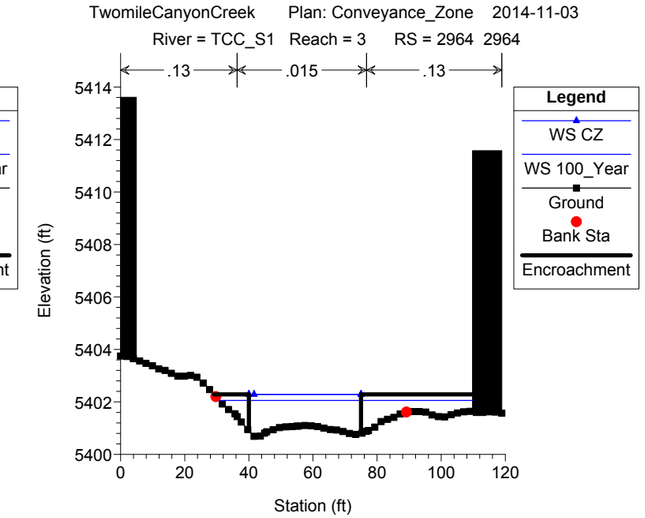
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 3 RS = 2964 2964
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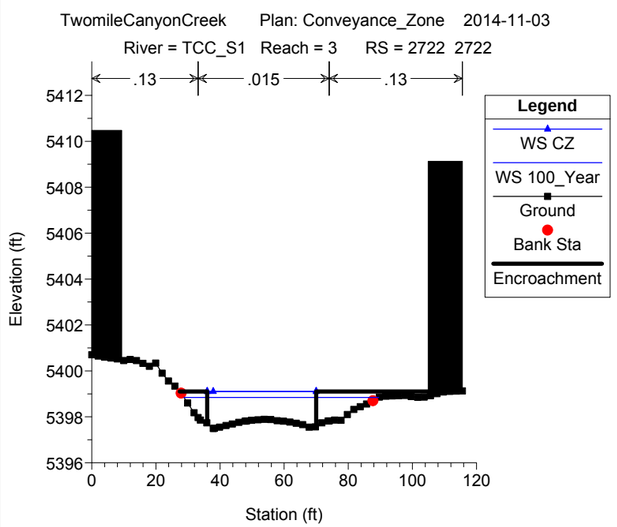
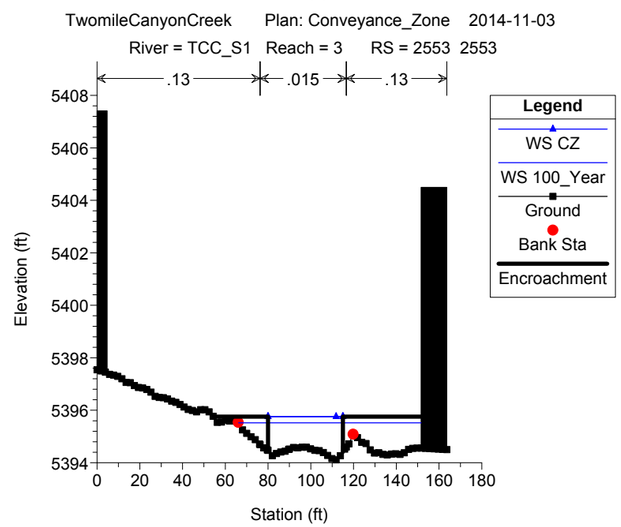
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 3 RS = 2722 2722
.13 .015 .13
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 3 RS = 2553 2553
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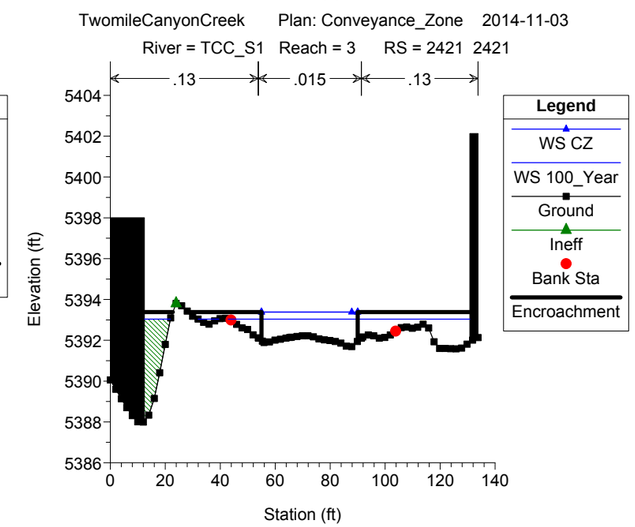
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 3 RS = 2421 2421
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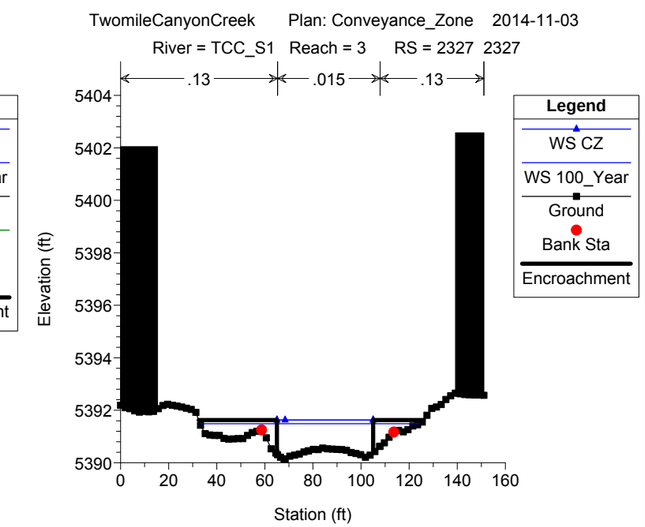
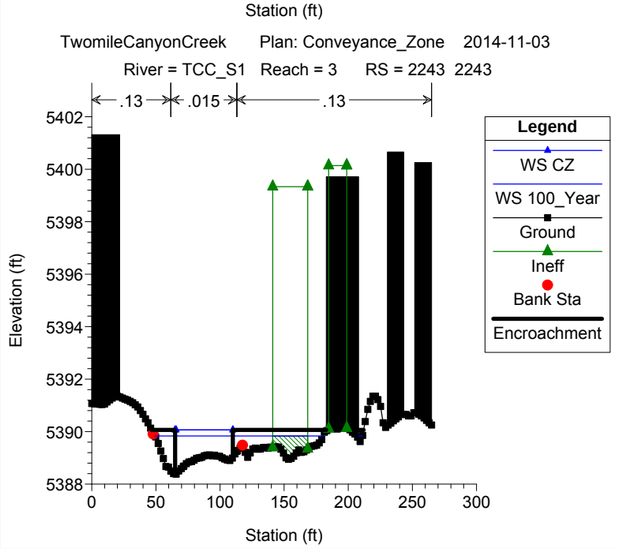
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 3 RS = 2327 2327
.13 .015 .13
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 3 RS = 2243 2243
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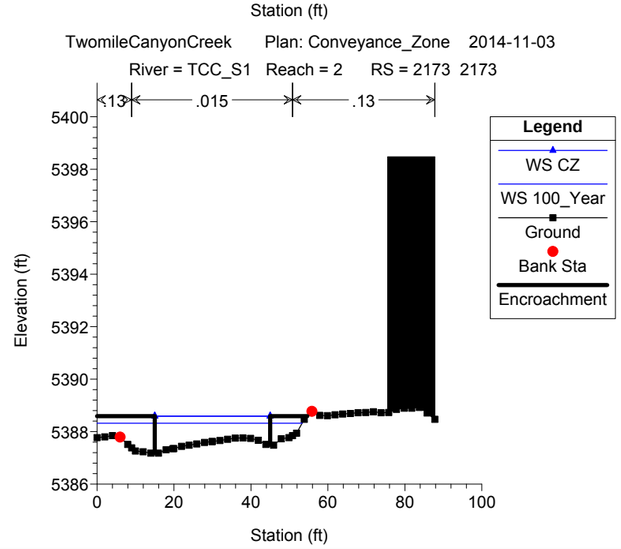
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 2 RS = 2173 2173
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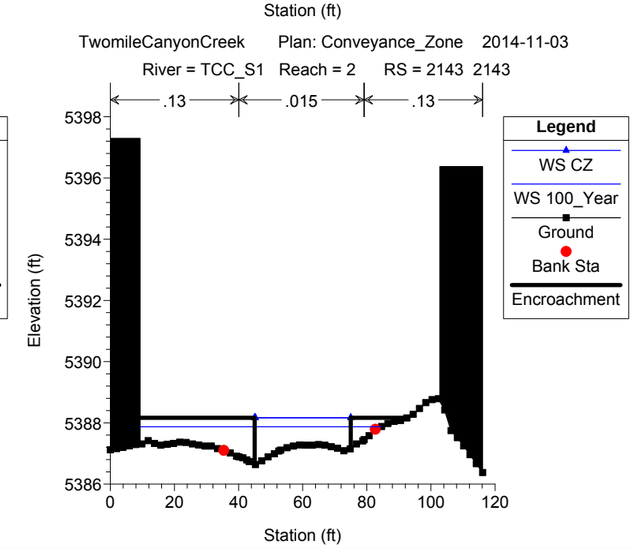
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 2 RS = 2143 2143
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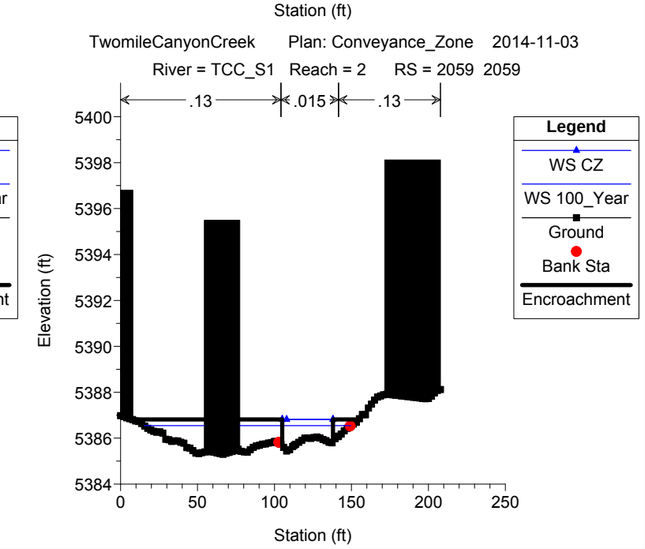
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 2 RS = 2059 2059
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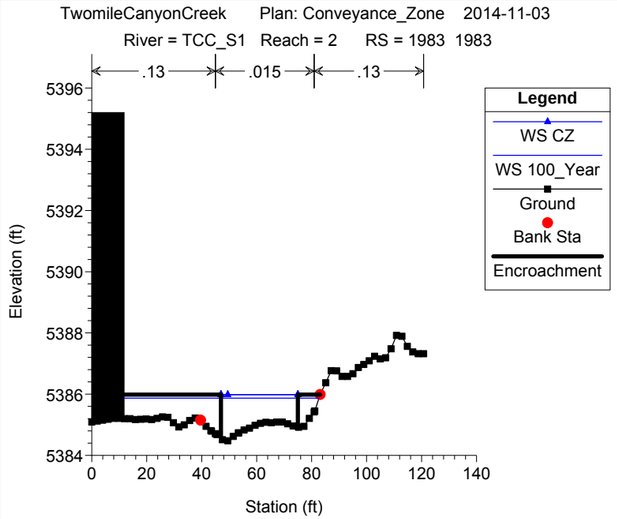
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 2 RS = 1983 1983
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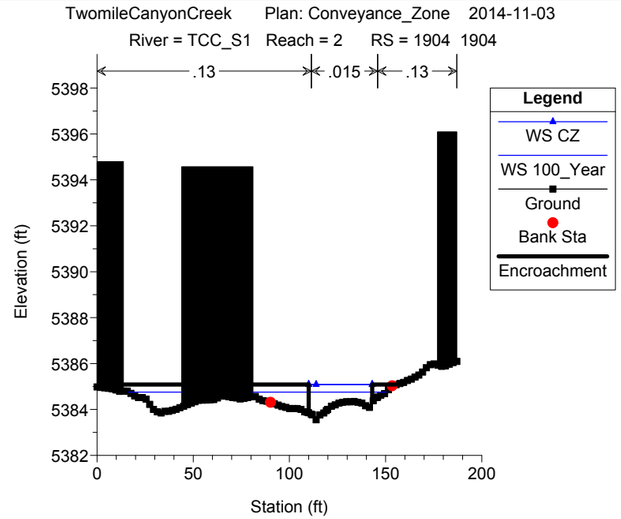
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 2 RS = 1904 1904
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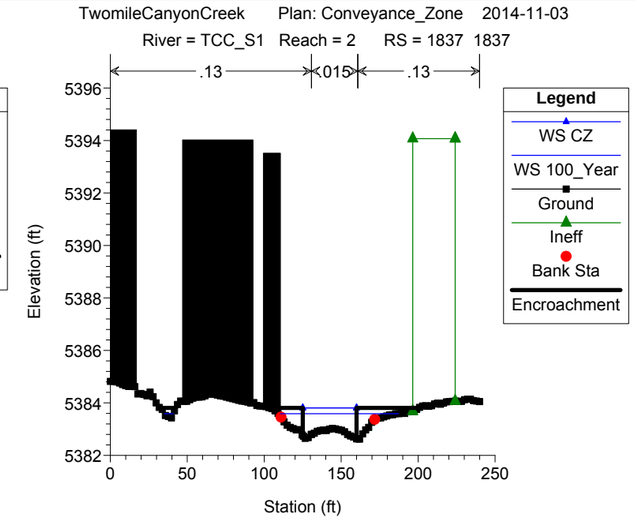
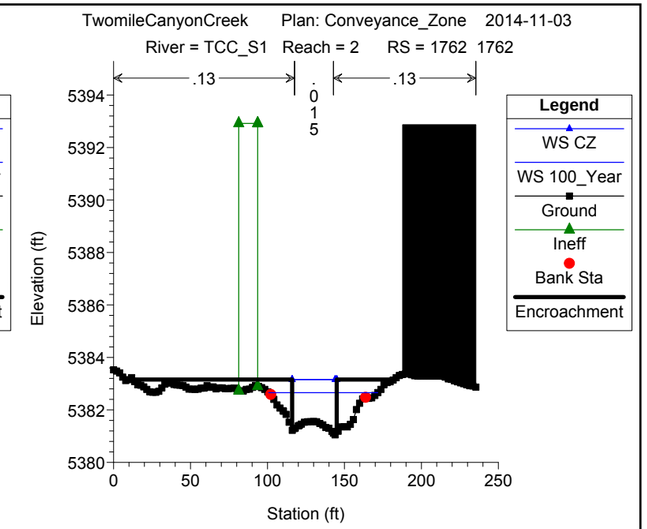
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 2 RS = 1837 1837
.13 .015 .13
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 2 RS = 1762 1762
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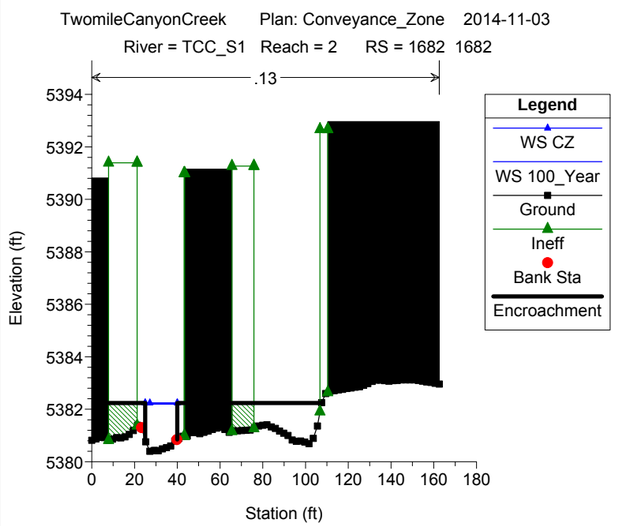
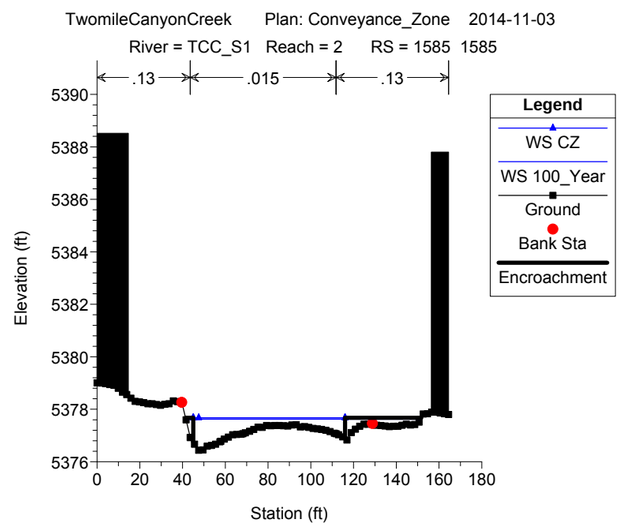
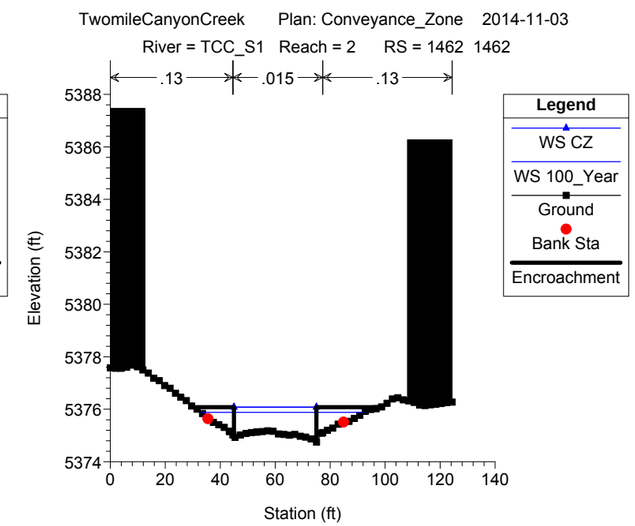
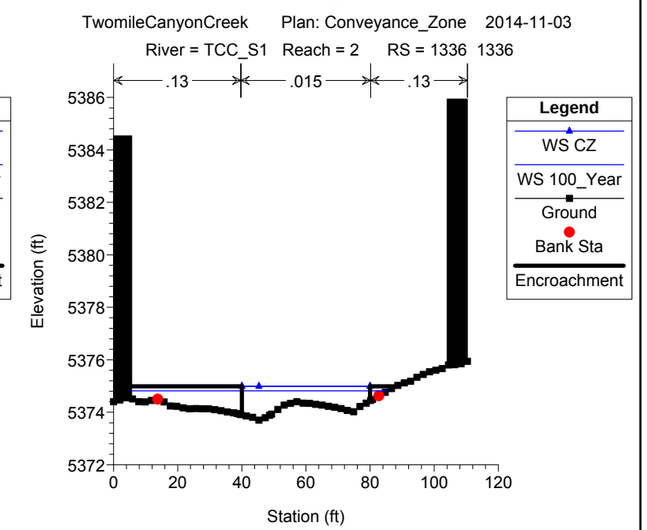
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 2 RS = 1682 1682
.13
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 2 RS = 1585 1585
.13 .015 .13
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 2 RS = 1462 1462
.13 .015 .13
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 2 RS = 1336 1336
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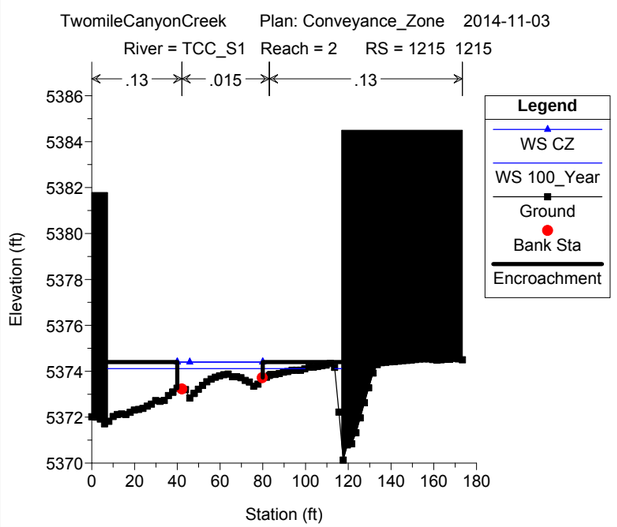
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 2 RS = 1215 1215
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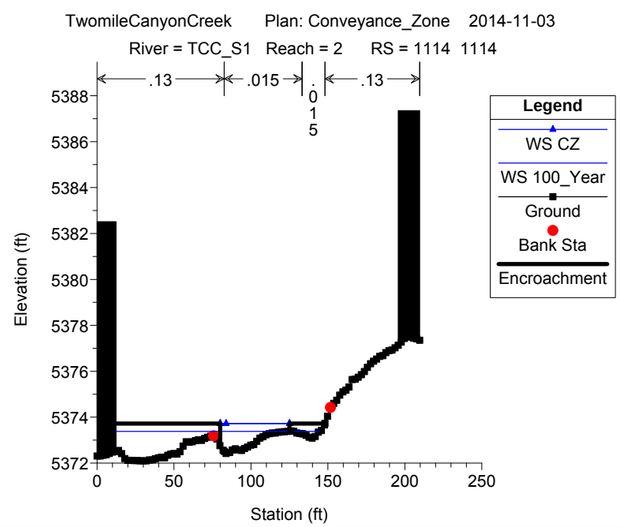
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 2 RS = 1114 1114
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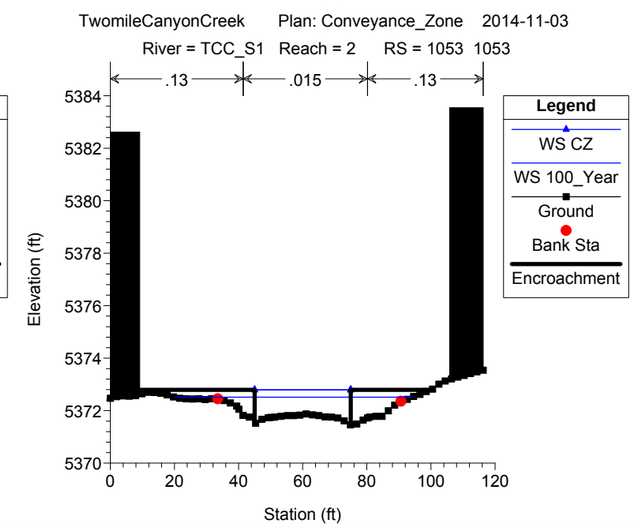
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 2 RS = 1053 1053
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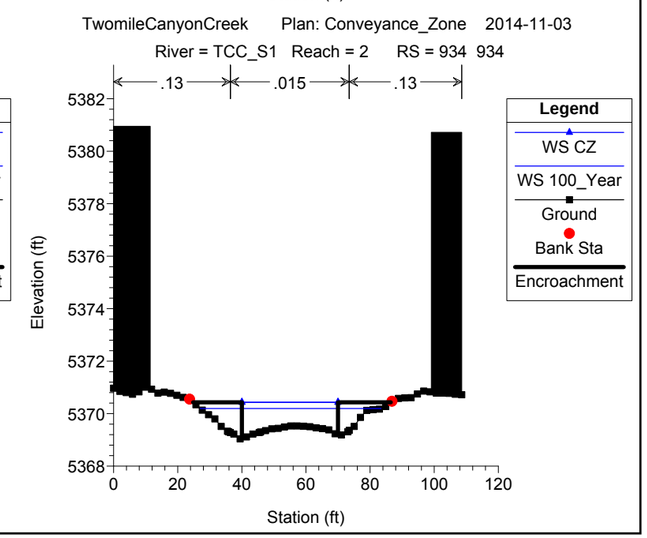
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 2 RS = 934 934
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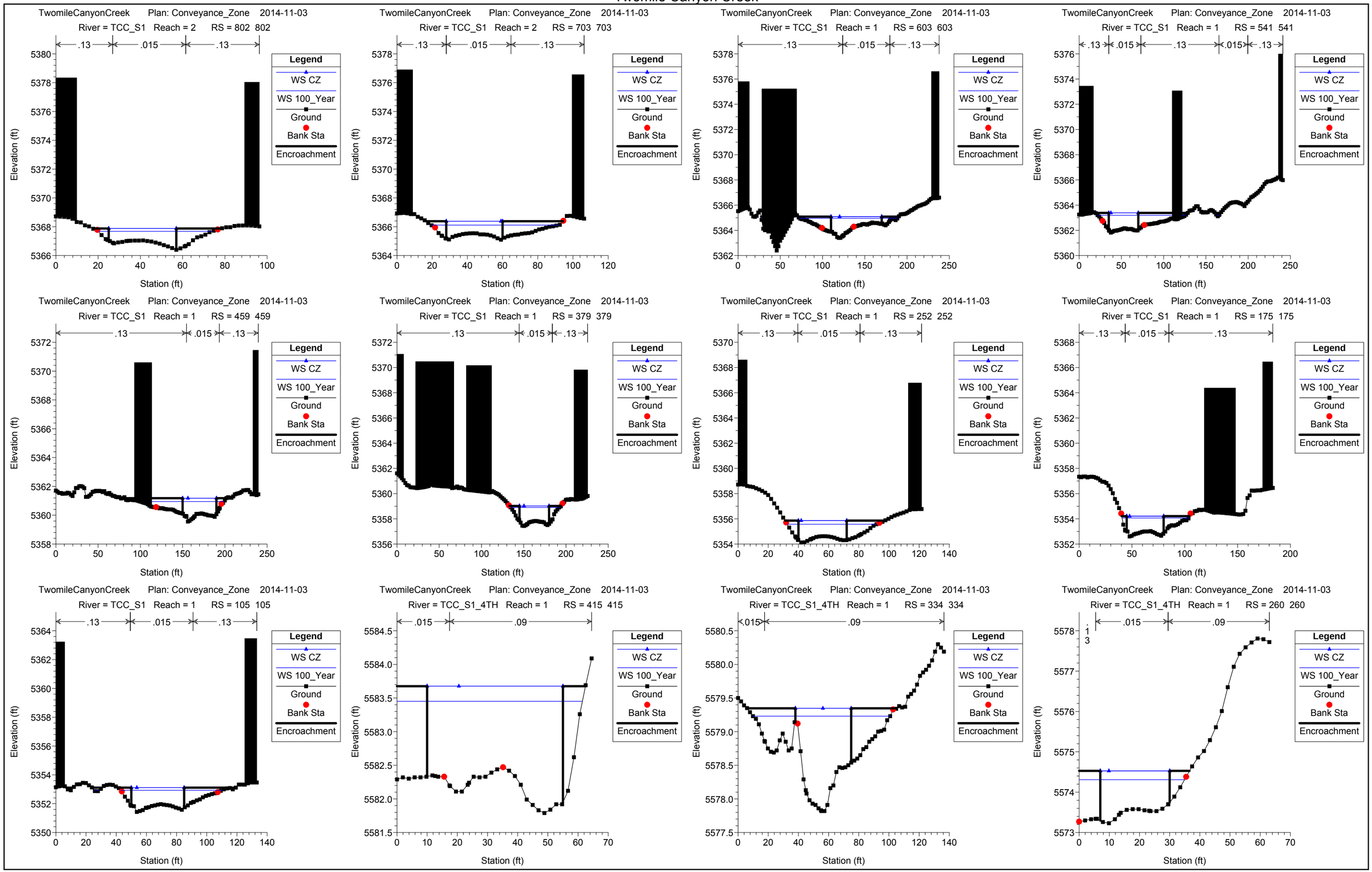
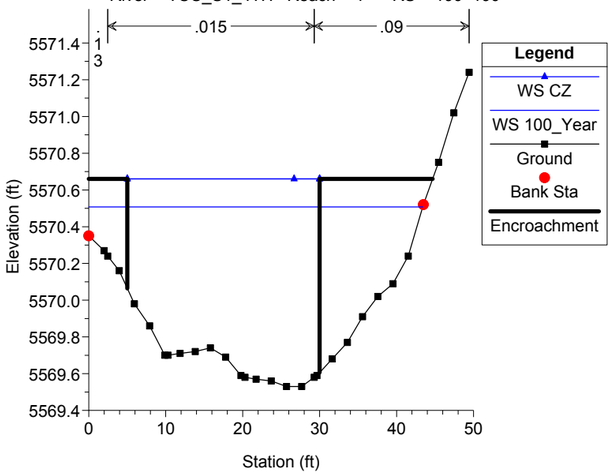
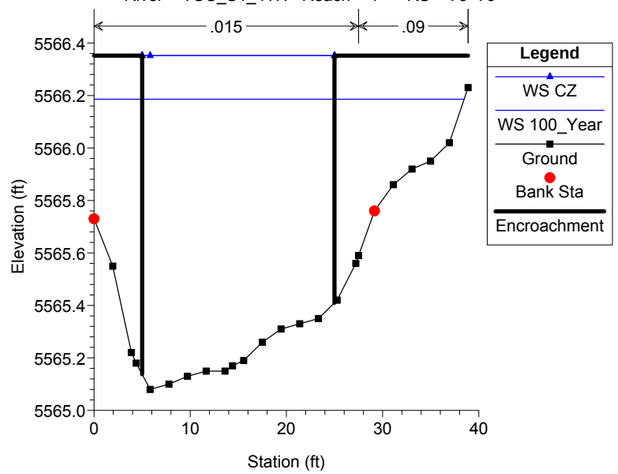
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1 Reach = 2 RS = 802 802
River = TCC_S1 Reach = 2 RS = 703 703
River = TCC_S1 Reach = 1 RS = 603 603
River = TCC_S1 Reach = 1 RS = 541 541
River = TCC_S1 Reach = 1 RS = 459 459
River = TCC_S1 Reach = 1 RS = 379 379
River = TCC_S1 Reach = 1 RS = 252 252
River = TCC_S1 Reach = 1 RS = 175 175
River = TCC_S1 Reach = 1 RS = 105 105
River = TCC_S1_4TH Reach = 1 RS = 415 415
River = TCC_S1_4TH Reach = 1 RS = 334 334
River = TCC_S1_4TH Reach = 1 RS = 260 260
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)

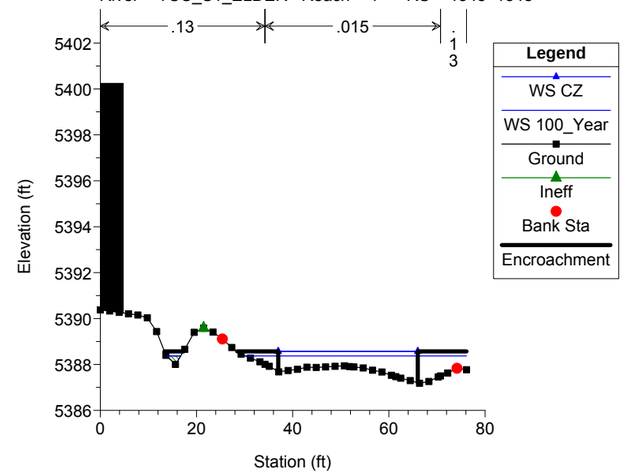
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1_4TH Reach = 1 RS = 190 190



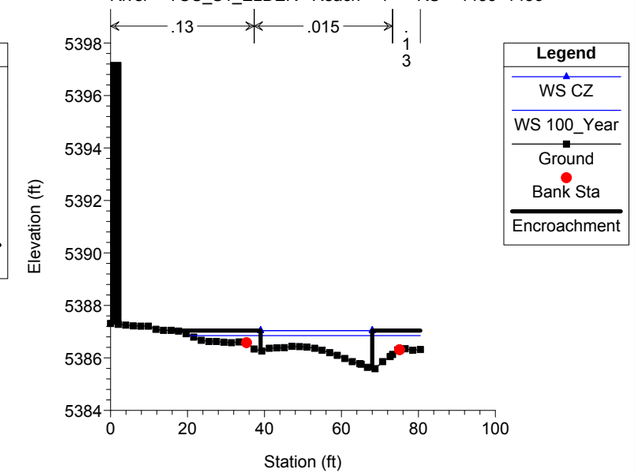
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1_4TH Reach = 1 RS = 79 79



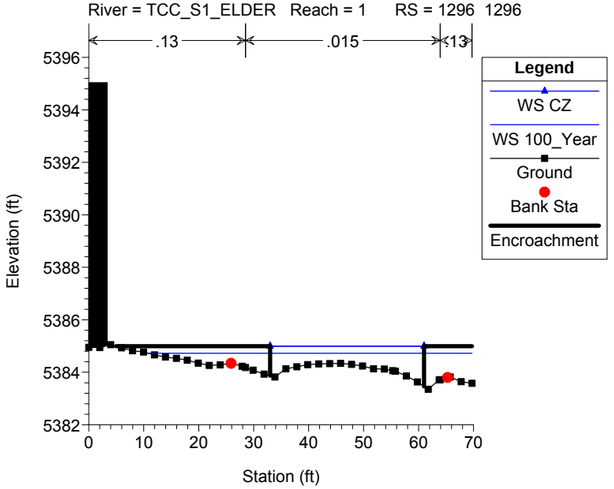
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1_ELDER Reach = 1 RS = 1548 1548



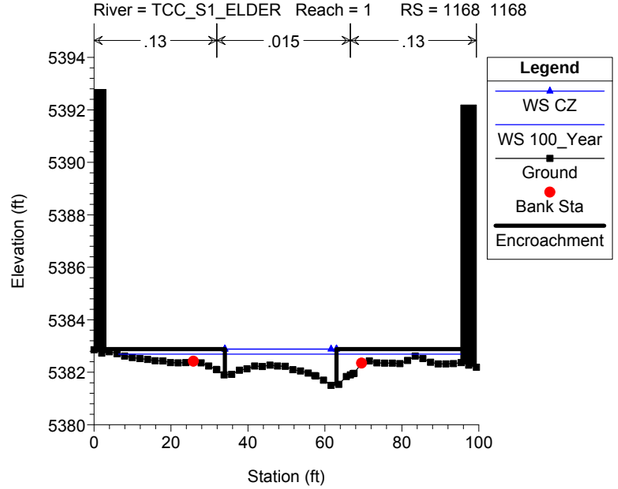
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1_ELDER Reach = 1 RS = 1436 1436



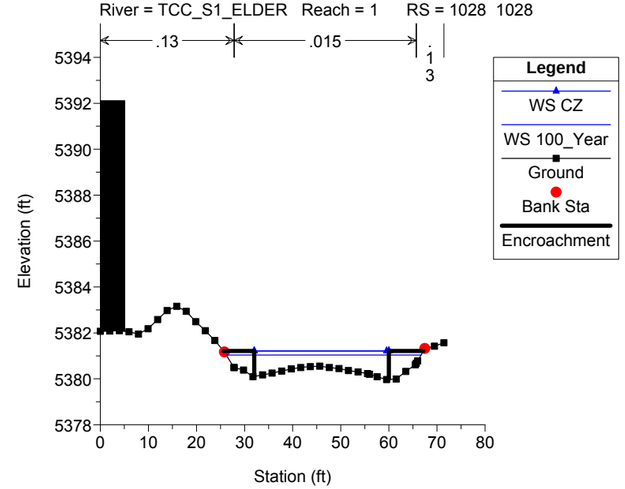
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1_ELDER Reach = 1 RS = 1296 1296



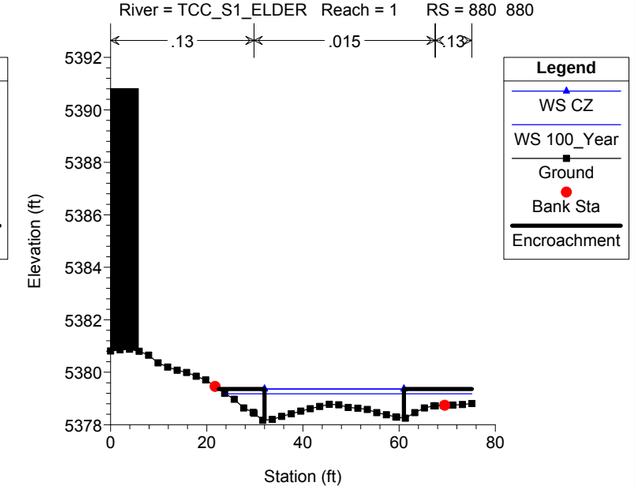
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1_ELDER Reach = 1 RS = 1168 1168



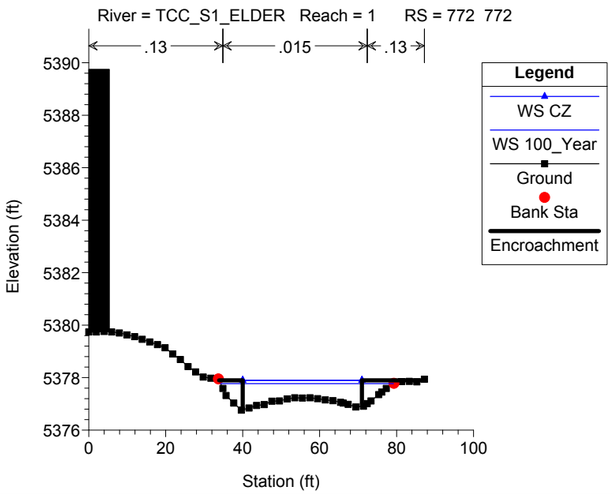
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1_ELDER Reach = 1 RS = 1028 1028



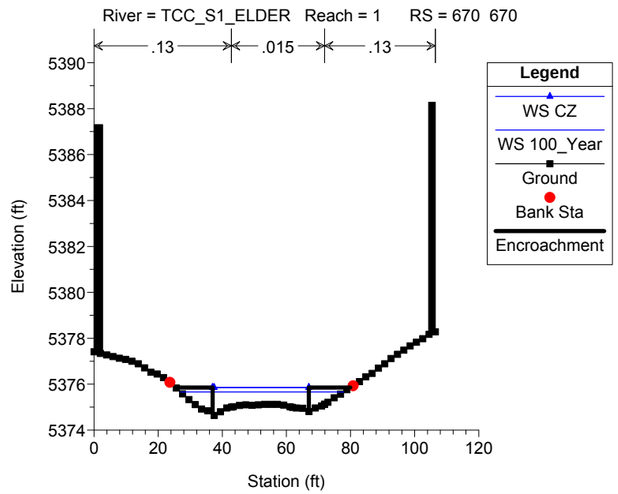
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1_ELDER Reach = 1 RS = 880 880



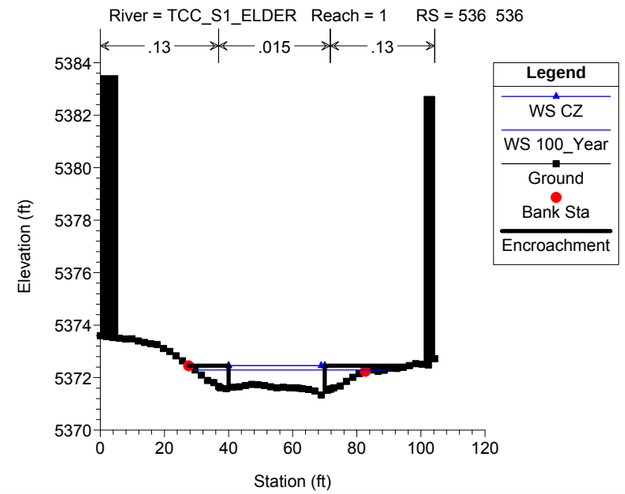
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1_ELDER Reach = 1 RS = 772 772



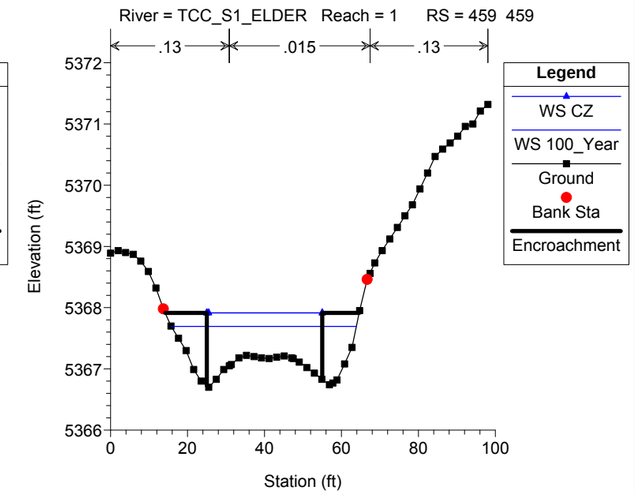
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1_ELDER Reach = 1 RS = 670 670



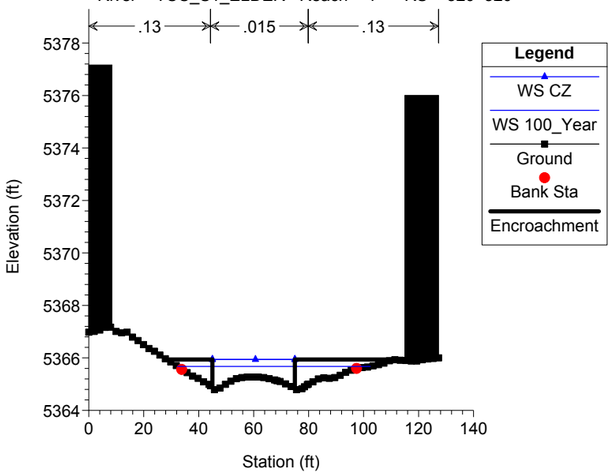
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1_ELDER Reach = 1 RS = 536 536



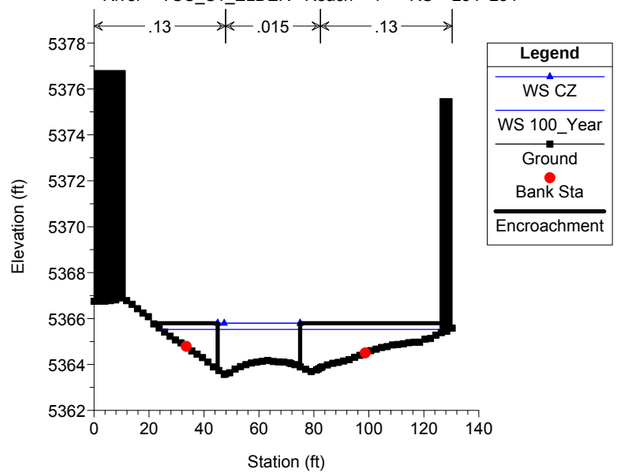
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1_ELDER Reach = 1 RS = 459 459



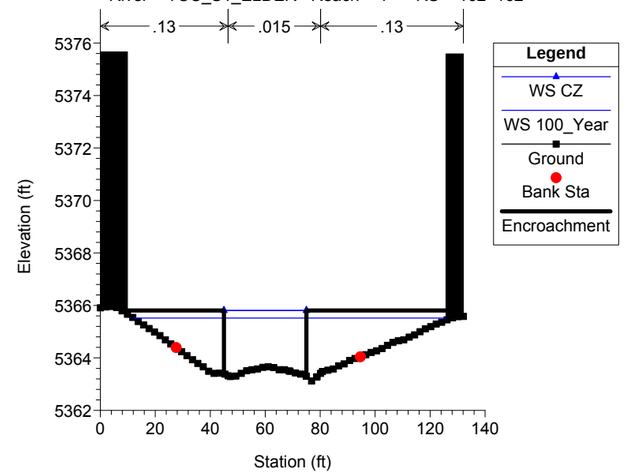
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1_ELDER Reach = 1 RS = 320 320



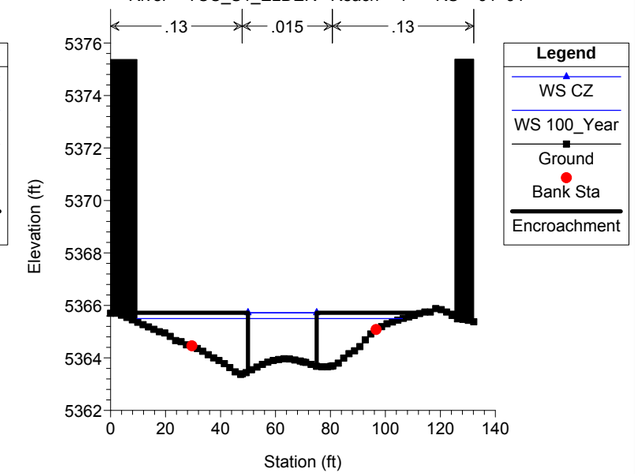
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1_ELDER Reach = 1 RS = 234 234



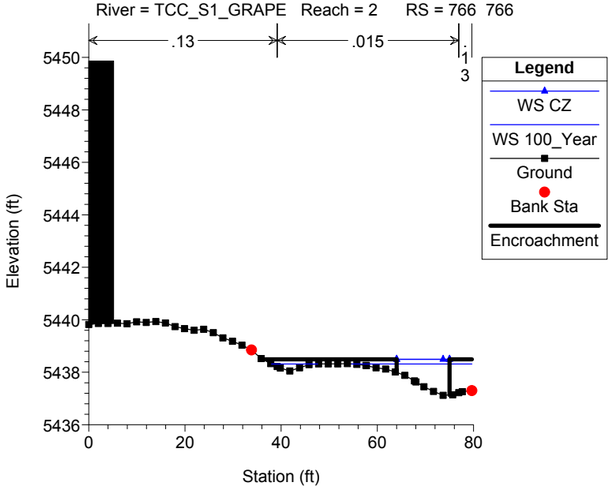
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1_ELDER Reach = 1 RS = 162 162



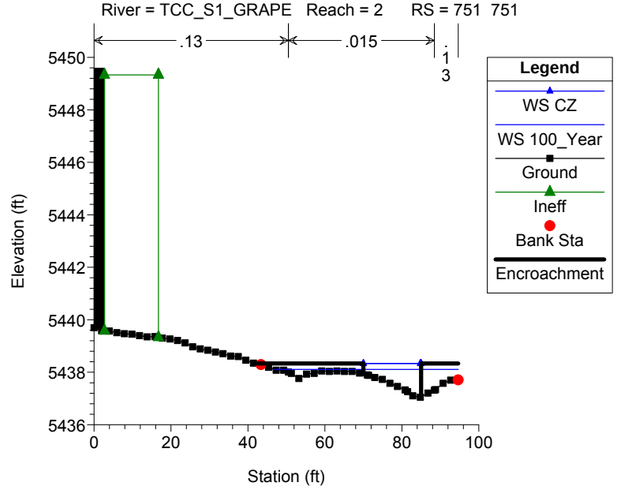
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1_ELDER Reach = 1 RS = 91 91



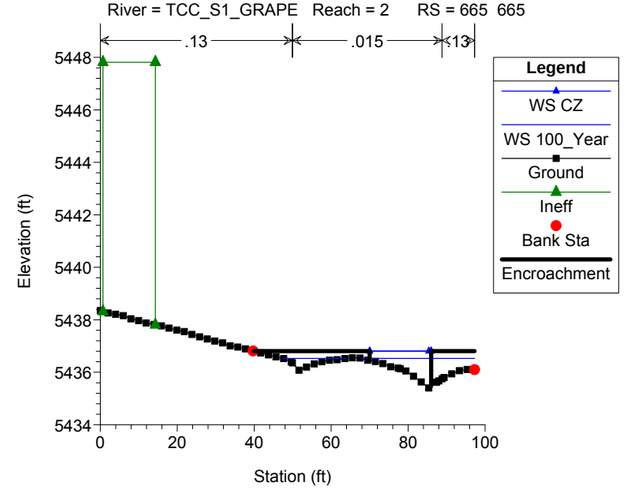
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1_GRAPE Reach = 2 RS = 766 766



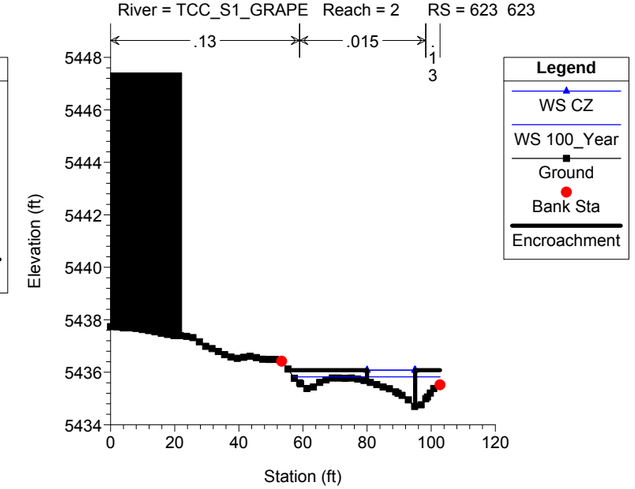
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1_GRAPE Reach = 2 RS = 751 751



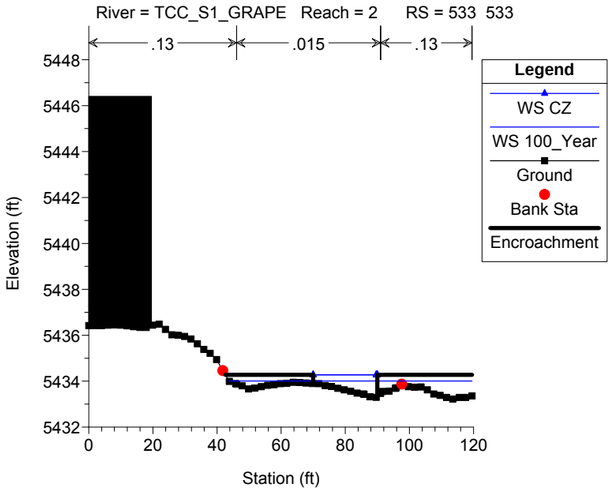
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1_GRAPE Reach = 2 RS = 665 665



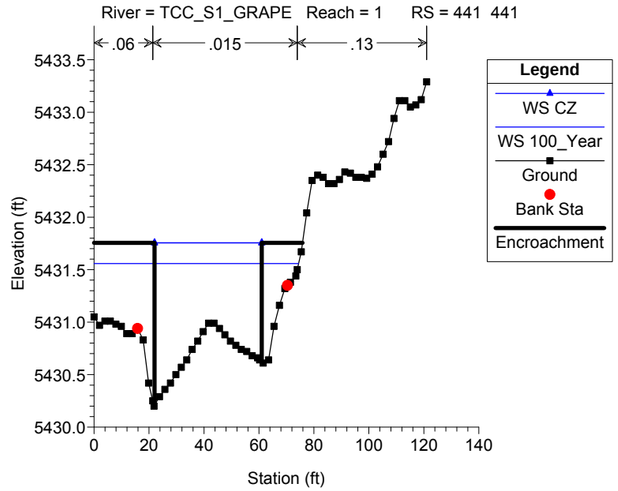
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1_GRAPE Reach = 2 RS = 623 623



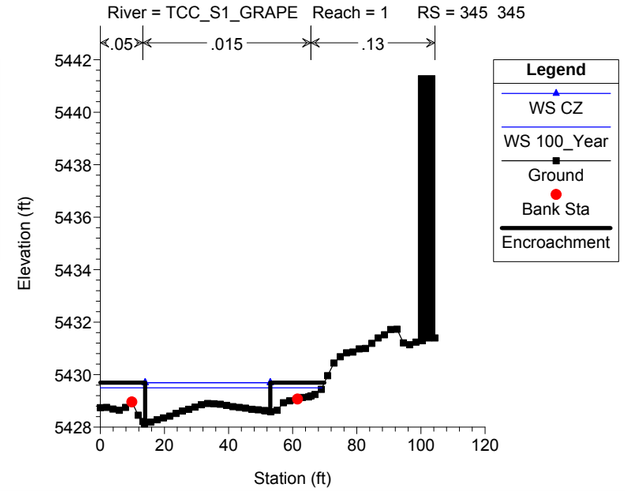
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1_GRAPE Reach = 2 RS = 533 533



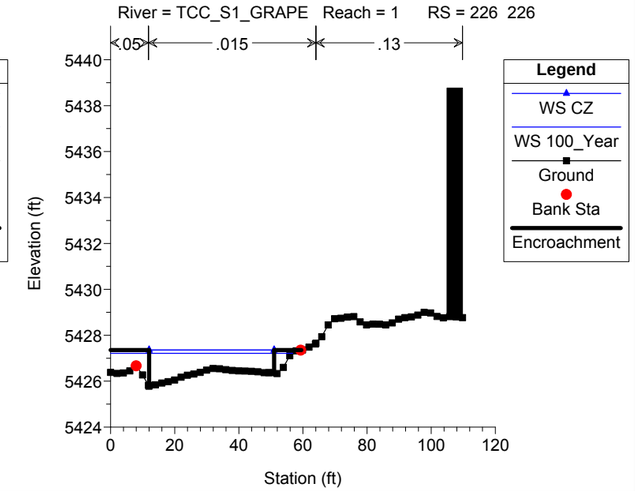
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1_GRAPE Reach = 1 RS = 441 441



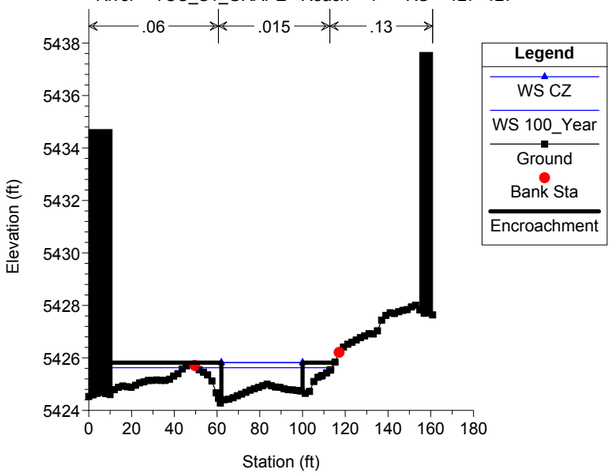
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1_GRAPE Reach = 1 RS = 345 345



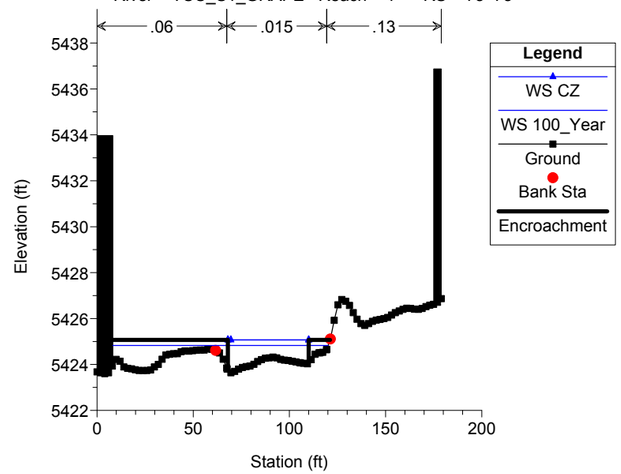
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1_GRAPE Reach = 1 RS = 226 226



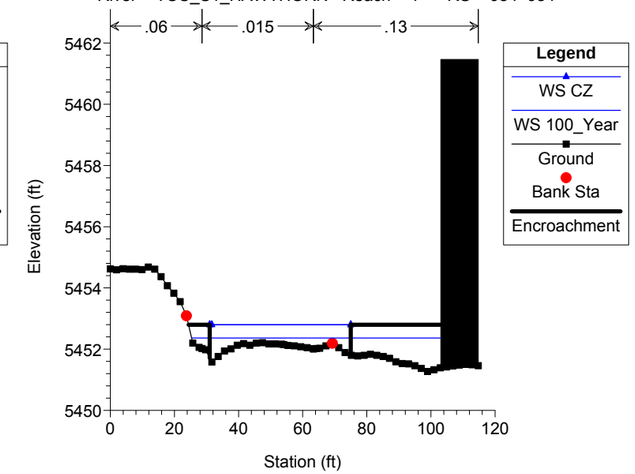
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1_GRAPE Reach = 1 RS = 127 127



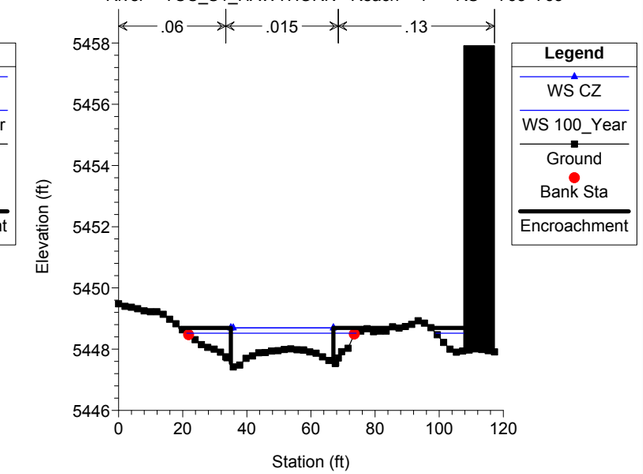
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1_GRAPE Reach = 1 RS = 75 75



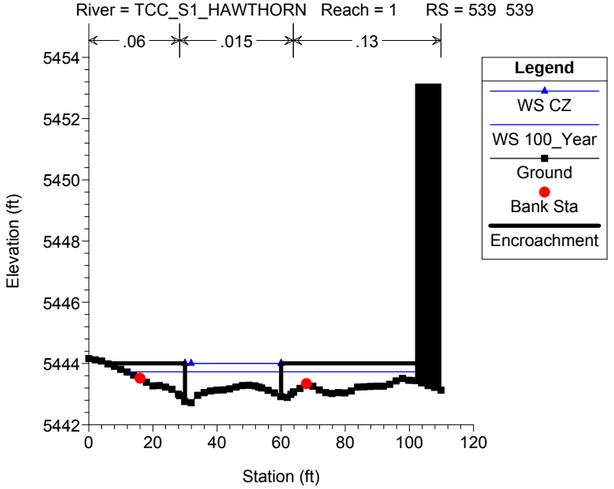
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1_HAWTHORN Reach = 1 RS = 984 984



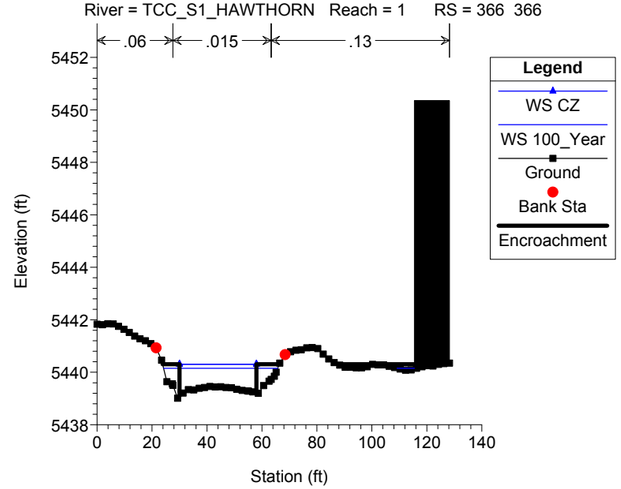
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1_HAWTHORN Reach = 1 RS = 763 763



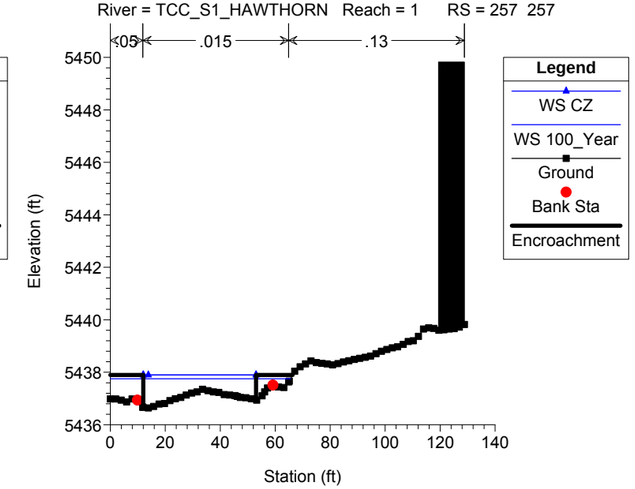
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1_HAWTHORN Reach = 1 RS = 539 539



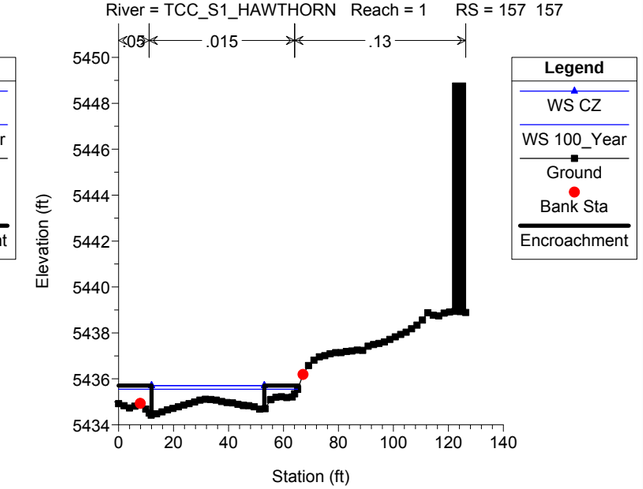
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1_HAWTHORN Reach = 1 RS = 366 366



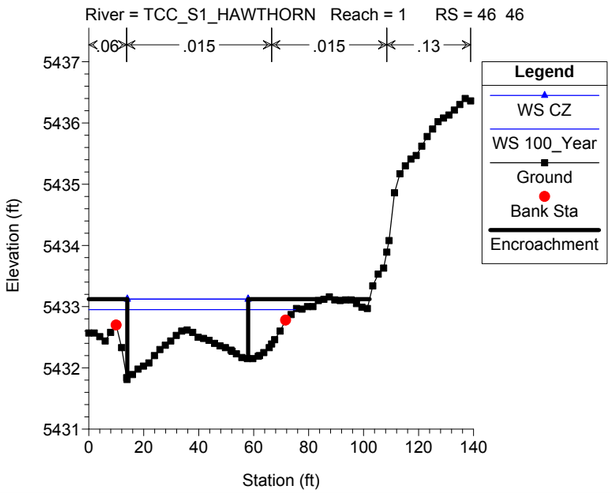
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1_HAWTHORN Reach = 1 RS = 257 257



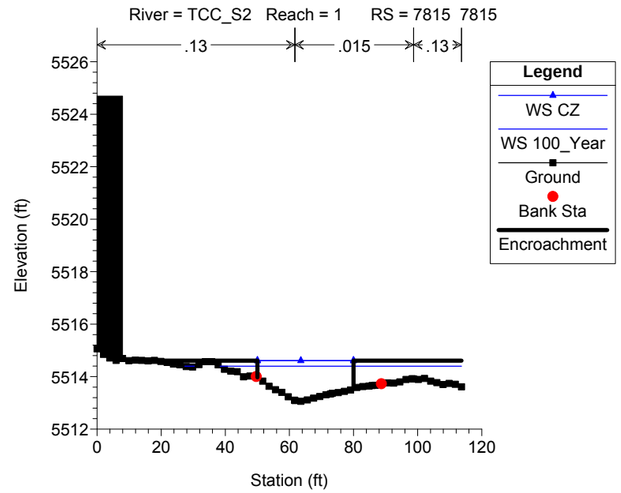
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1_HAWTHORN Reach = 1 RS = 157 157



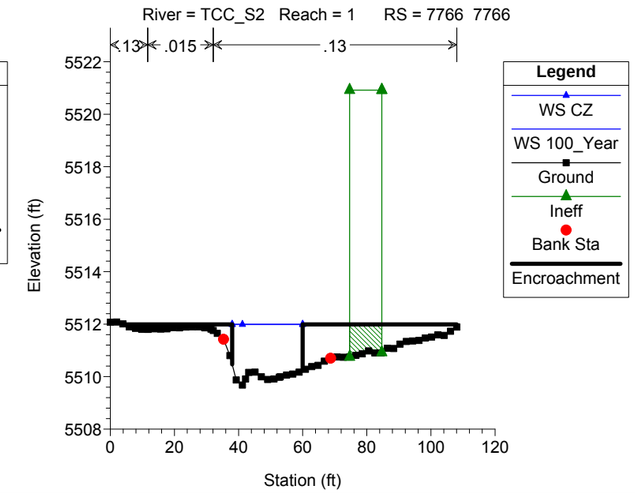
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S1_HAWTHORN Reach = 1 RS = 46 46



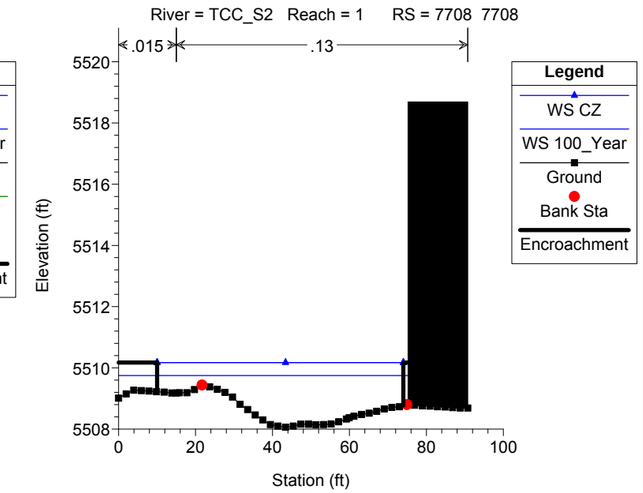
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S2 Reach = 1 RS = 7815 7815

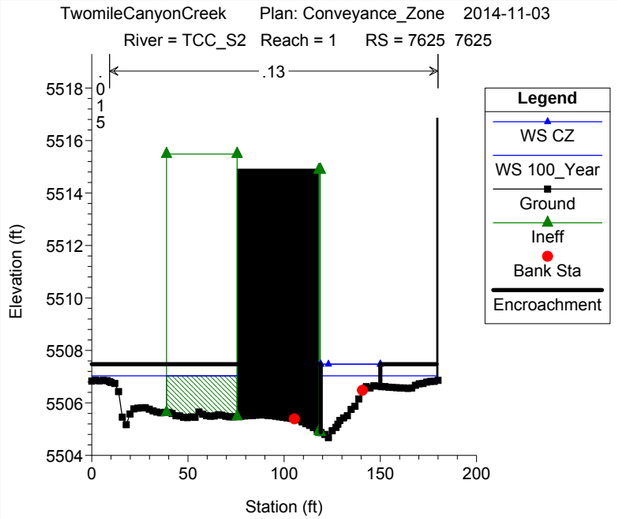


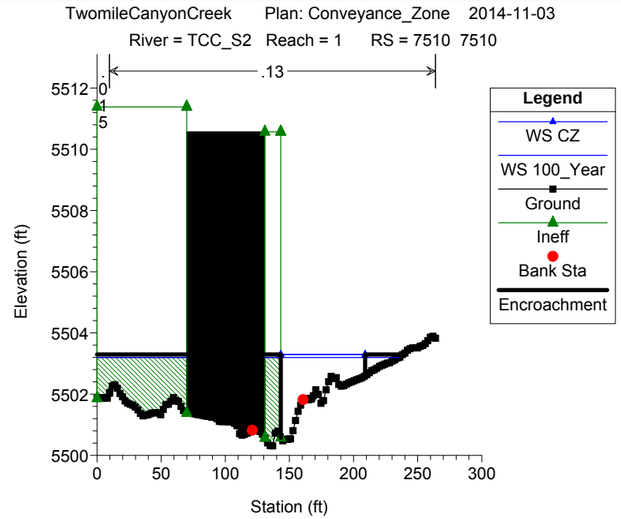
TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S2 Reach = 1 RS = 7766 7766

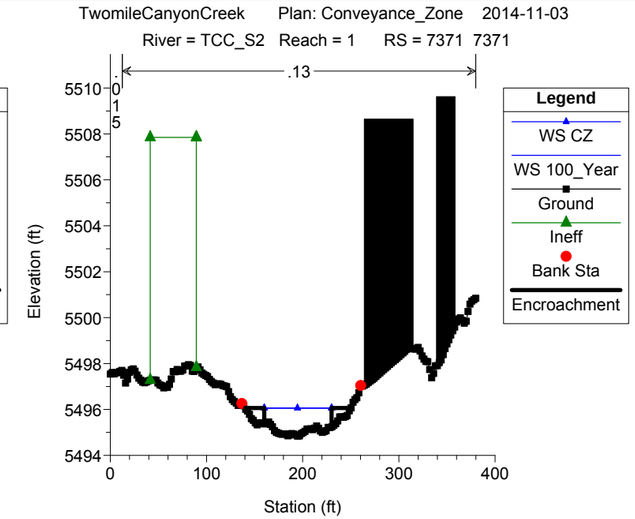


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S2 Reach = 1 RS = 7708 7708




TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S2 Reach = 1 RS = 7625 7625
.13
.015
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S2 Reach = 1 RS = 7510 7510
.13
.015
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S2 Reach = 1 RS = 7371 7371
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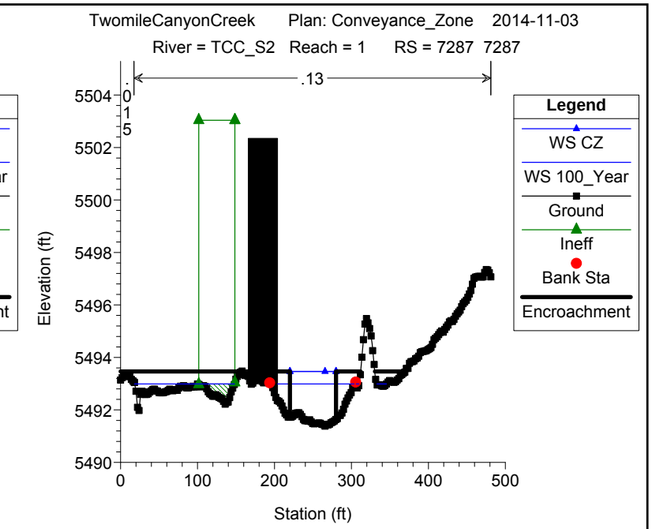
.015
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S2 Reach = 1 RS = 7287 7287
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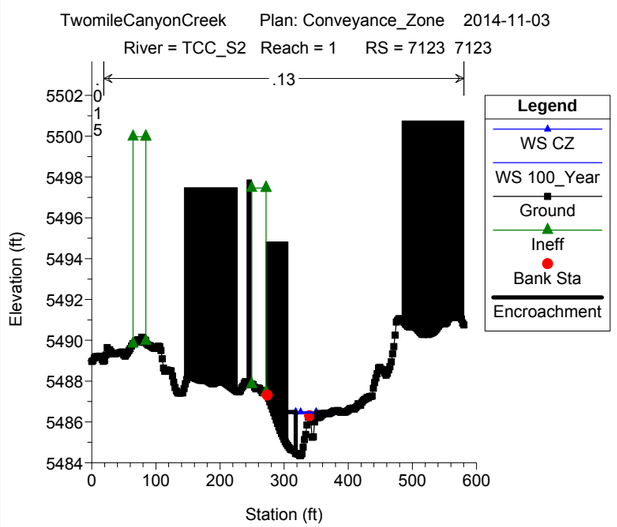
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S2 Reach = 1 RS = 7123 7123
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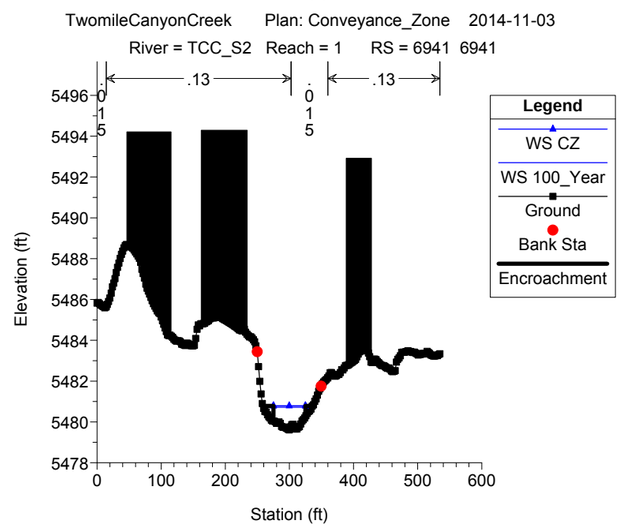
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S2 Reach = 1 RS = 6941 6941
.13
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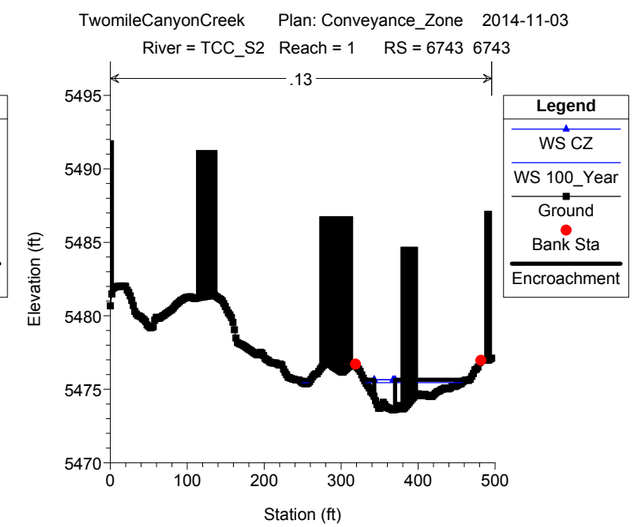
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S2 Reach = 1 RS = 6743 6743
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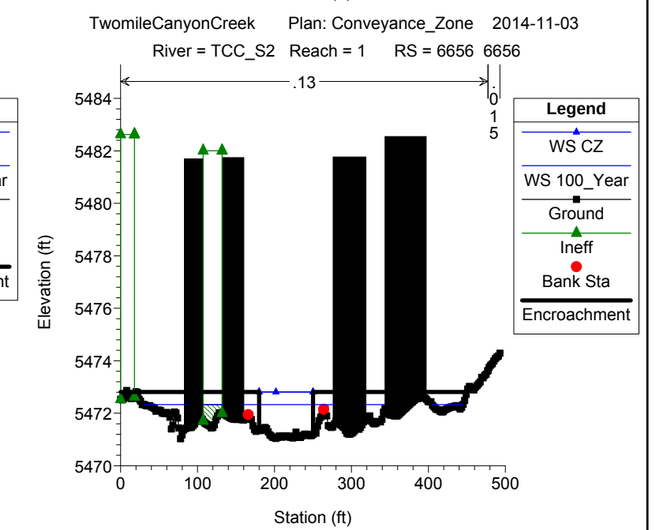
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S2 Reach = 1 RS = 6656 6656
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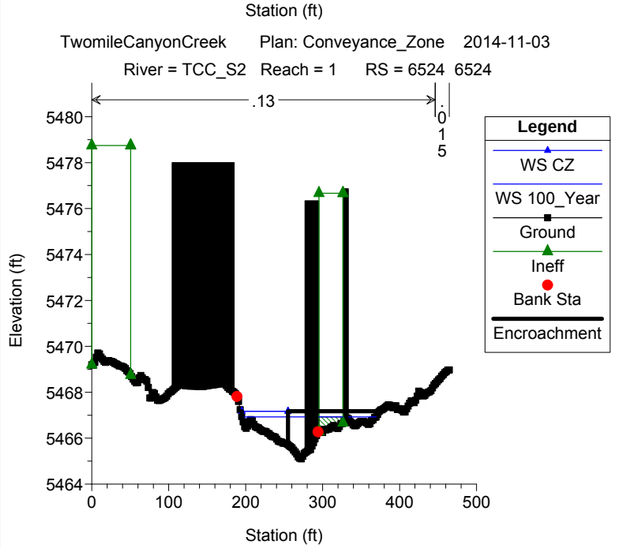
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S2 Reach = 1 RS = 6524 6524
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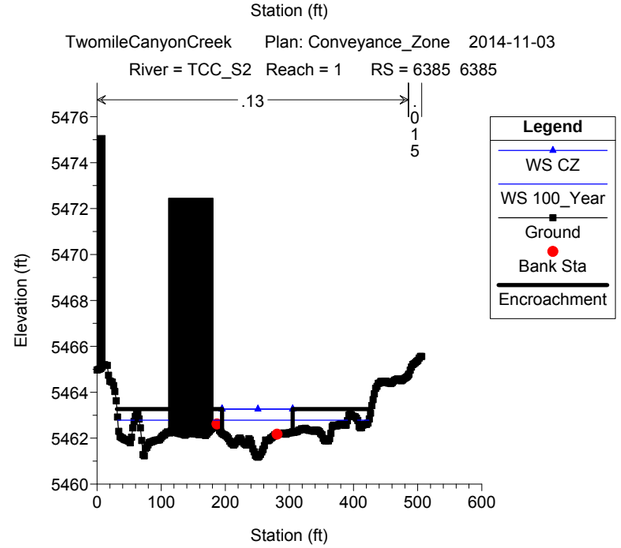
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S2 Reach = 1 RS = 6385 6385
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Legend
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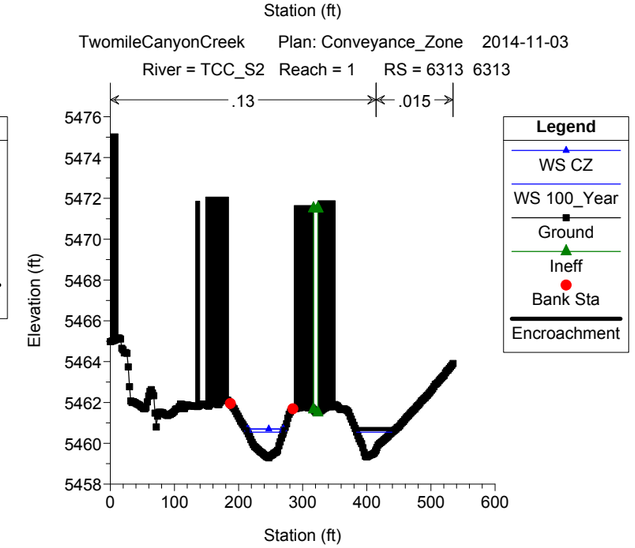
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S2 Reach = 1 RS = 6313 6313
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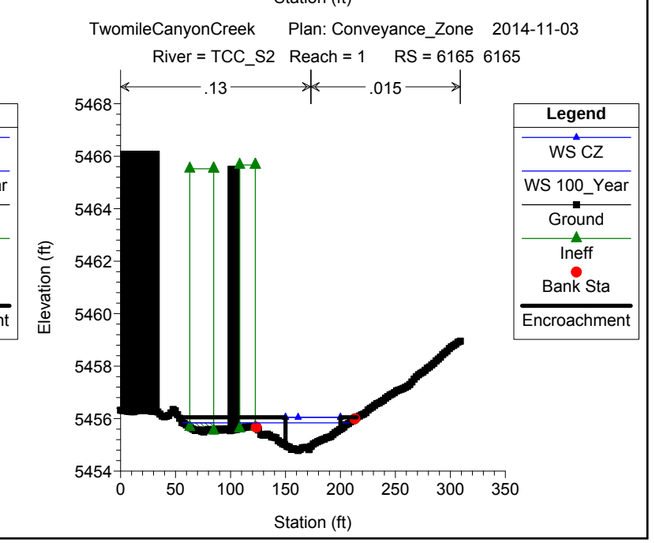
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S2 Reach = 1 RS = 6165 6165
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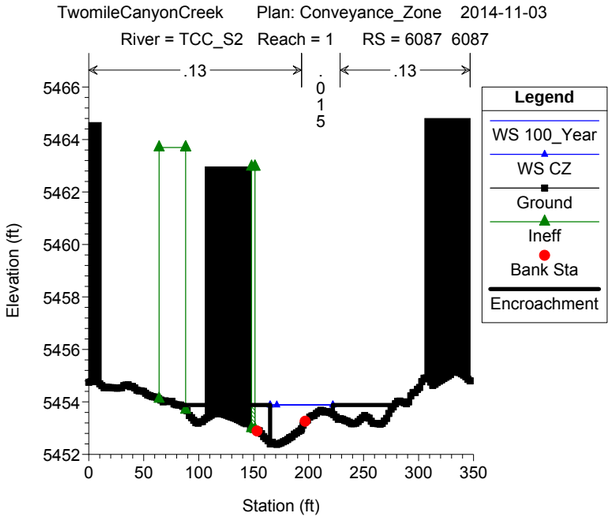
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S2 Reach = 1 RS = 6087 6087
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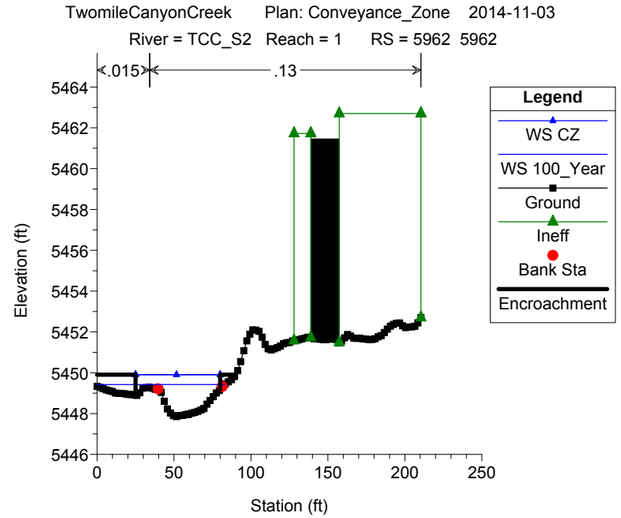
Legend
WS 100_Year
WS CZ
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S2 Reach = 1 RS = 5962 5962
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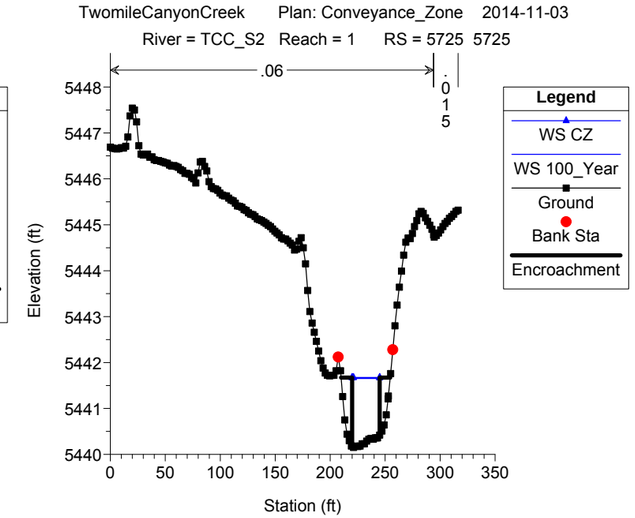
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S2 Reach = 1 RS = 5725 5725
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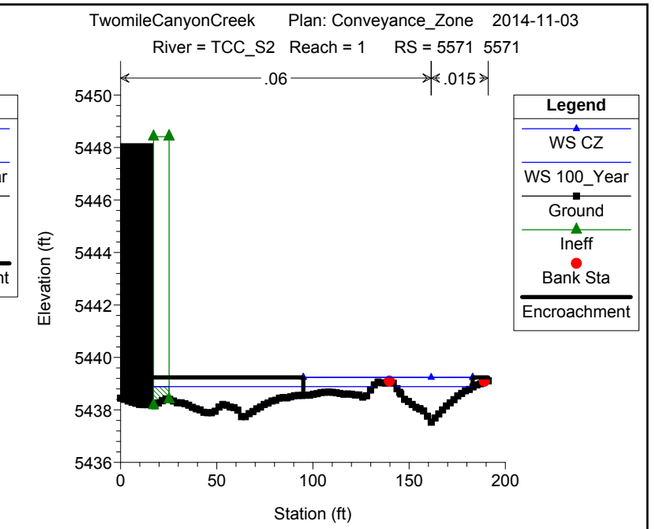
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S2 Reach = 1 RS = 5571 5571
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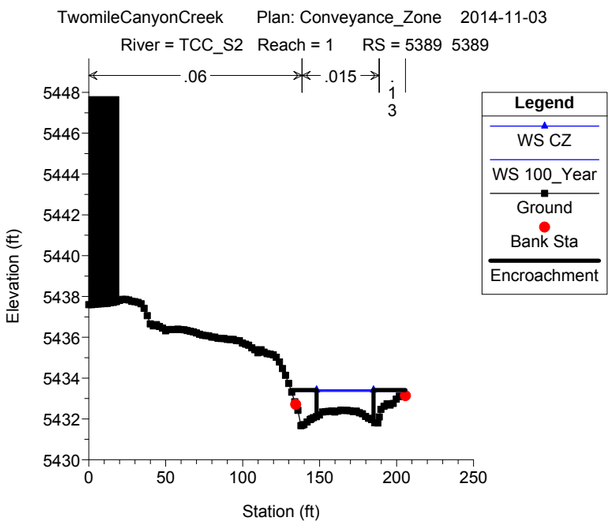
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S2 Reach = 1 RS = 5389 5389
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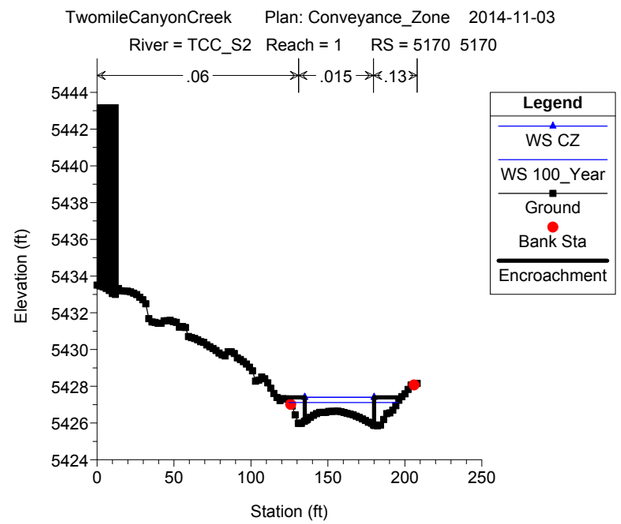
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S2 Reach = 1 RS = 5170 5170
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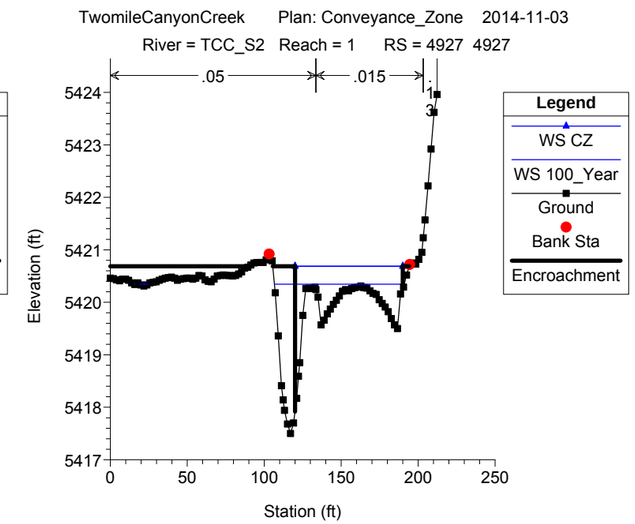
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S2 Reach = 1 RS = 4927 4927
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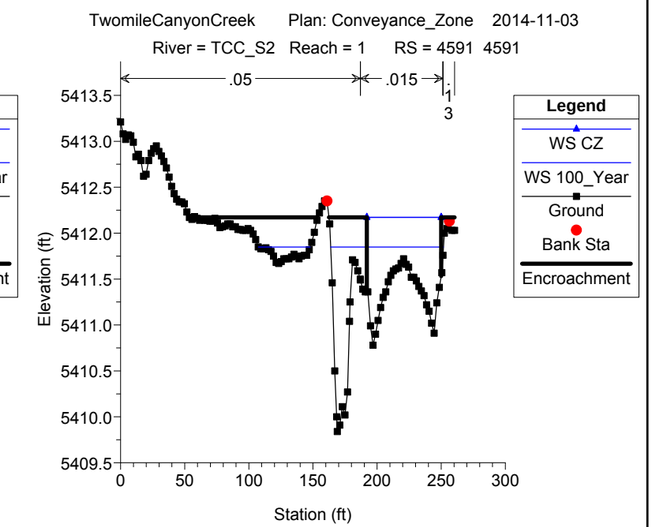
.015
.13
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S2 Reach = 1 RS = 4591 4591
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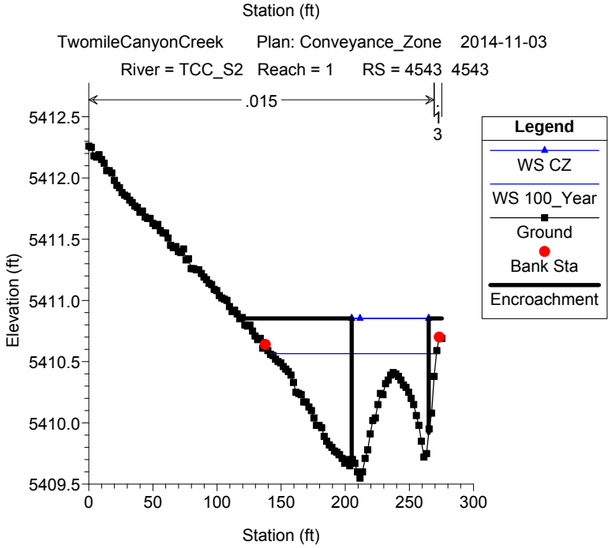
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S2 Reach = 1 RS = 4543 4543
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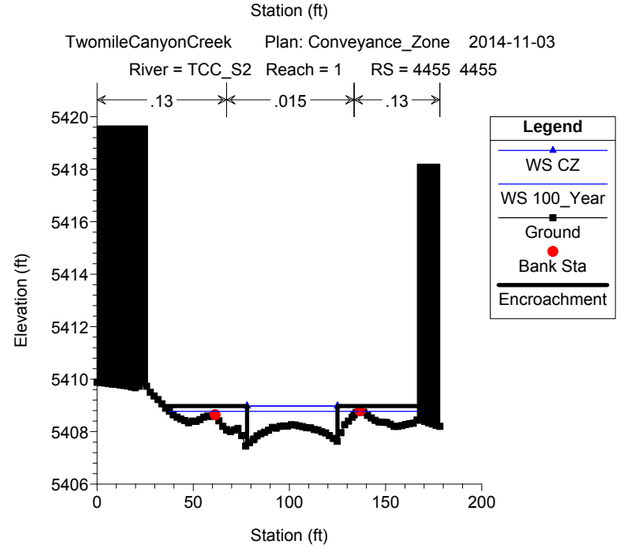
.13
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S2 Reach = 1 RS = 4455 4455
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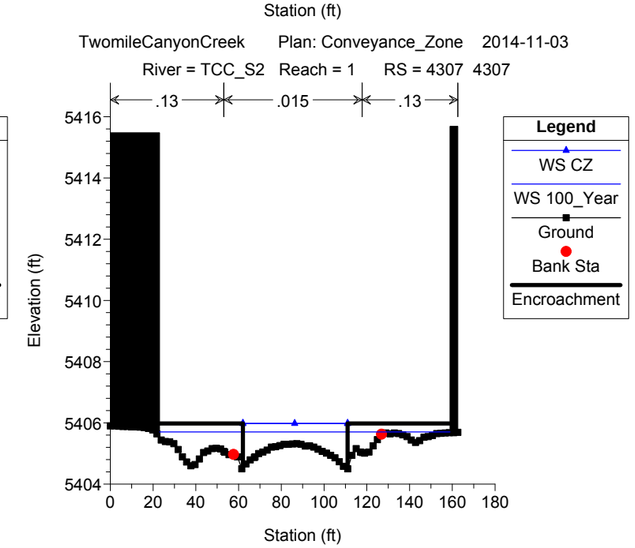
.015
.13
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S2 Reach = 1 RS = 4307 4307
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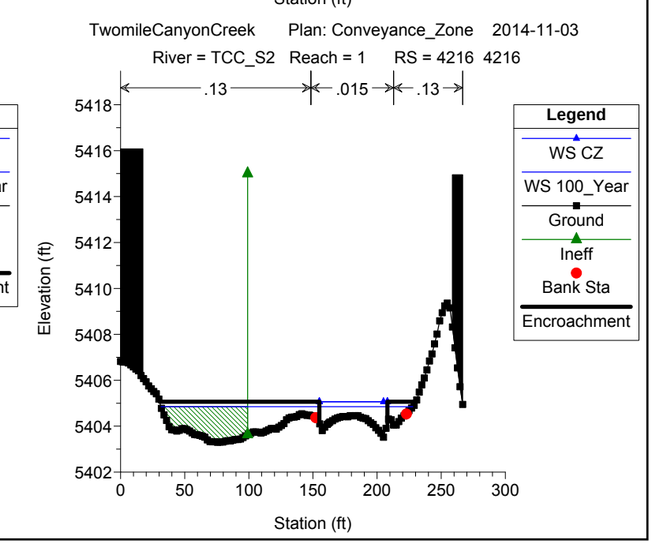
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S2 Reach = 1 RS = 4216 4216
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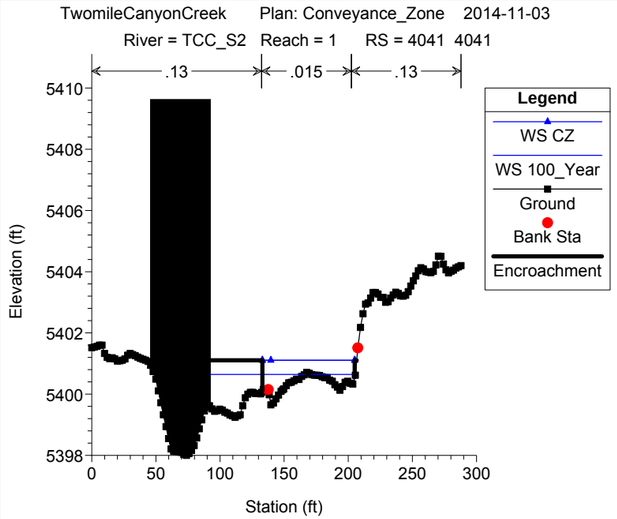
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S2 Reach = 1 RS = 4041 4041
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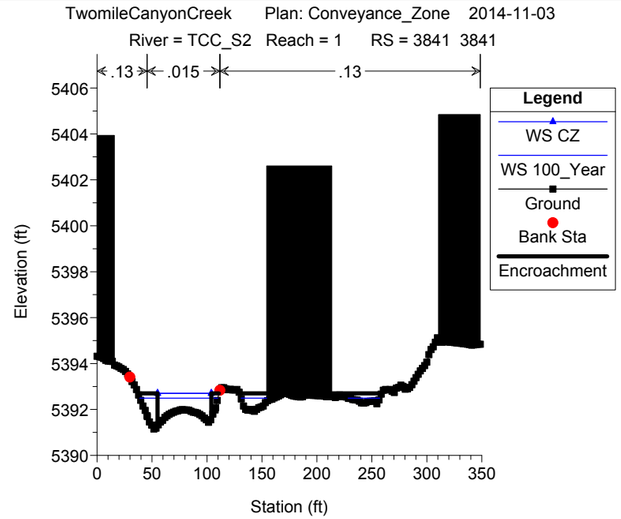
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S2 Reach = 1 RS = 3841 3841
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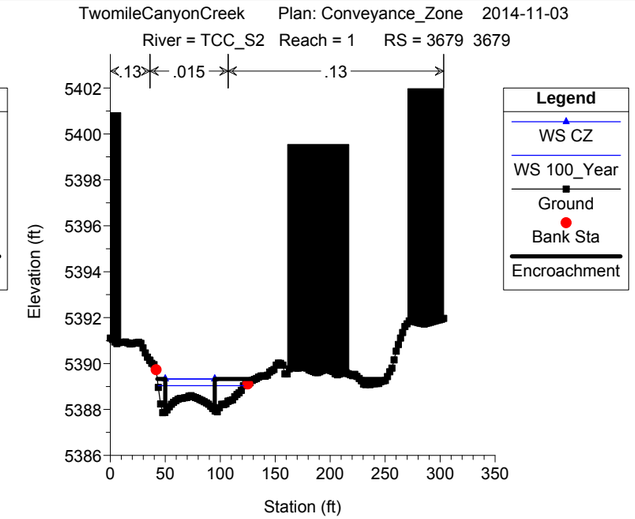
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S2 Reach = 1 RS = 3679 3679
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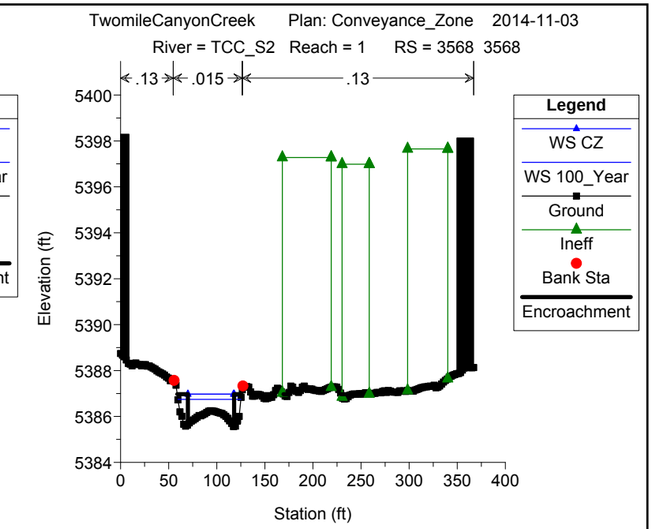
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S2 Reach = 1 RS = 3568 3568
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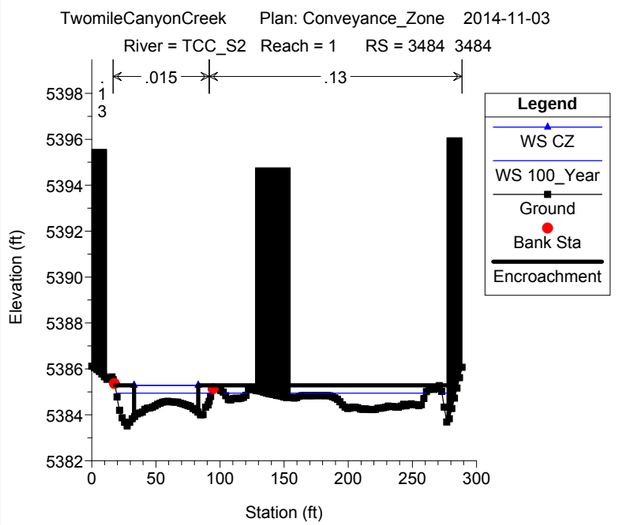
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S2 Reach = 1 RS = 3484 3484
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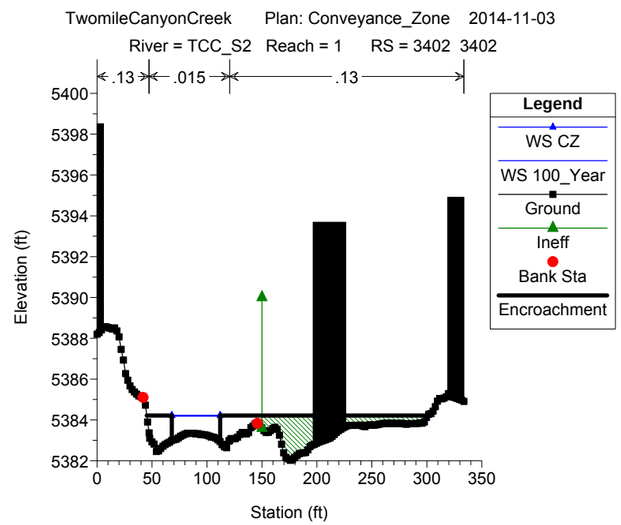
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S2 Reach = 1 RS = 3402 3402
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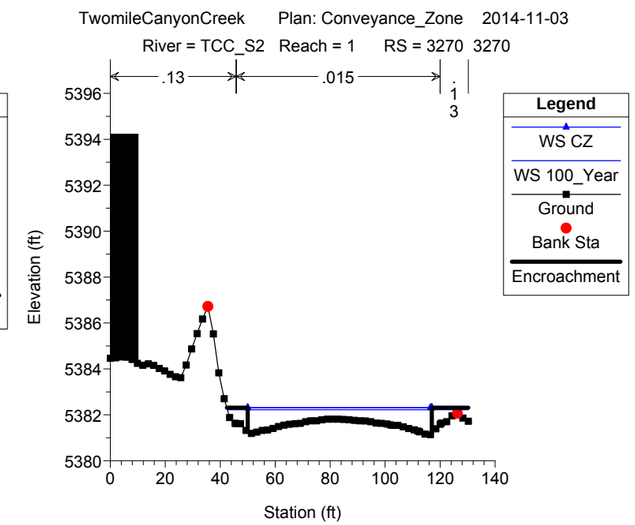
Legend
WS CZ
WS 100_Year
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S2 Reach = 1 RS = 3270 3270
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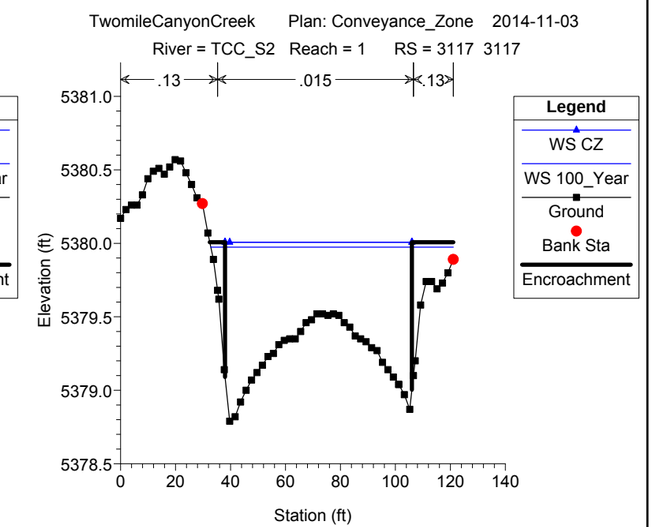
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S2 Reach = 1 RS = 3117 3117
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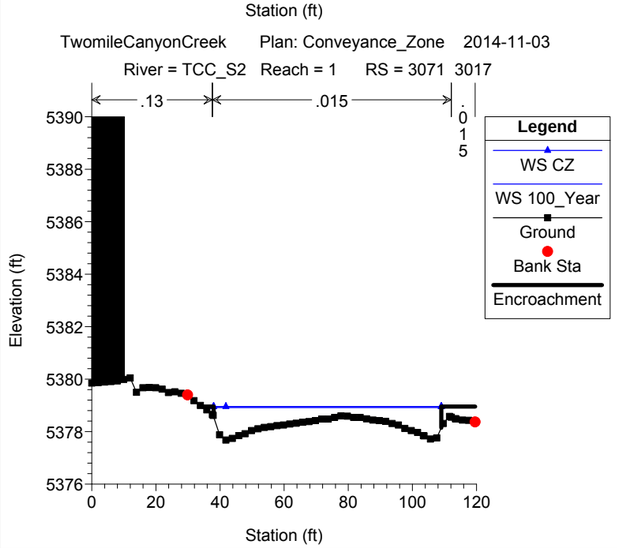
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S2 Reach = 1 RS = 3071 3017
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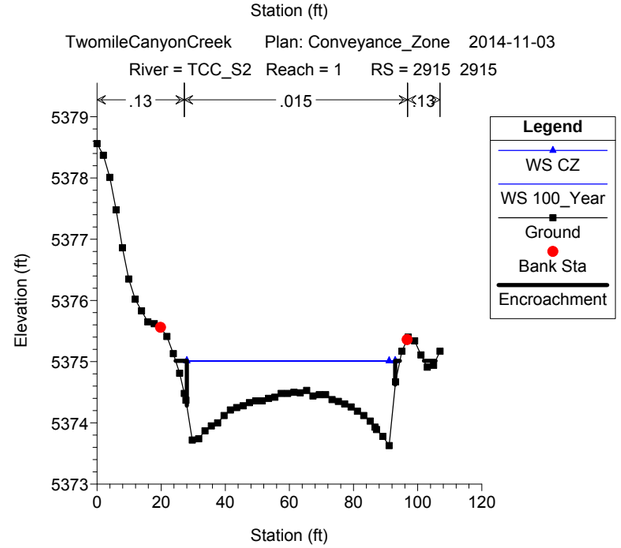
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S2 Reach = 1 RS = 2915 2915
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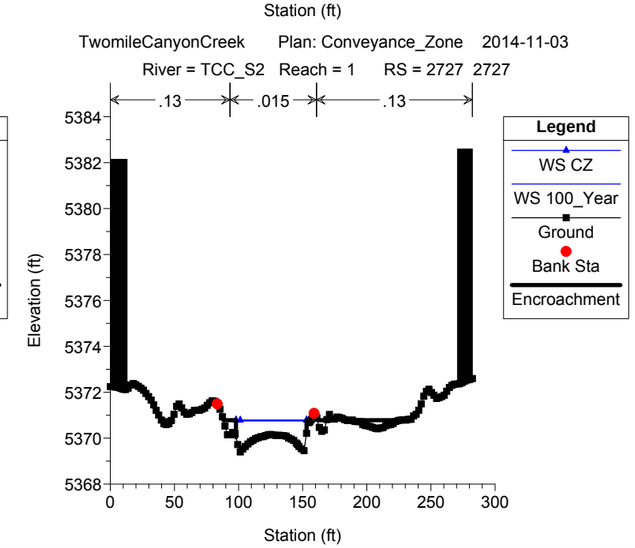
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S2 Reach = 1 RS = 2727 2727
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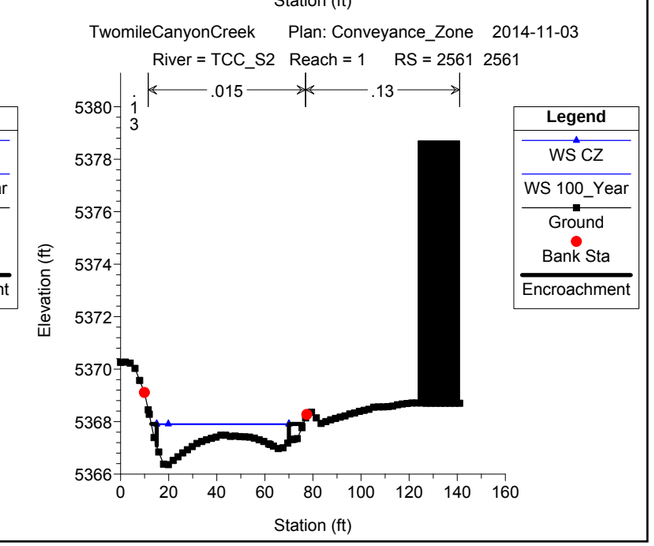
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S2 Reach = 1 RS = 2561 2561
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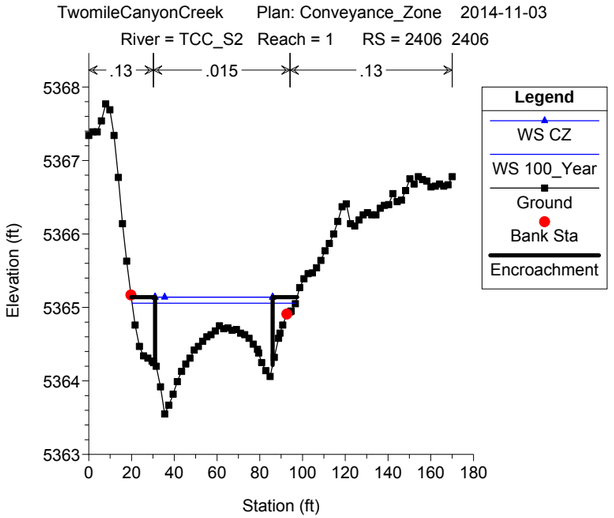
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S2 Reach = 1 RS = 2406 2406
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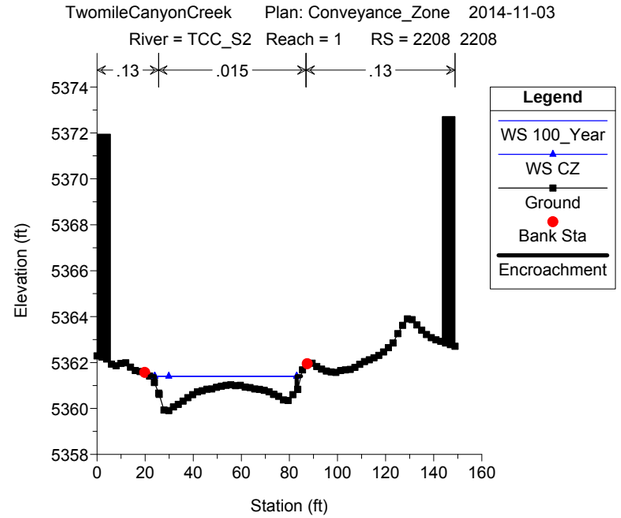
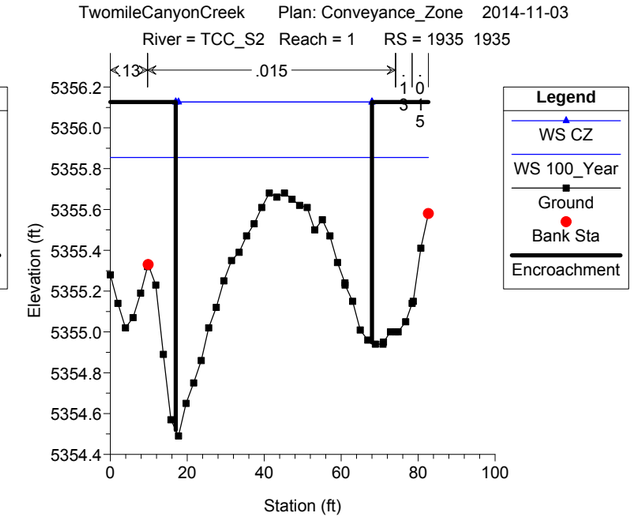
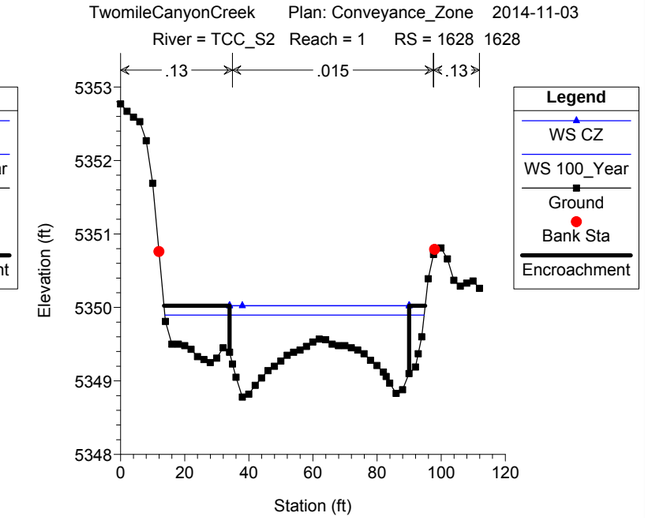
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S2 Reach = 1 RS = 2208 2208
.13 .015 .13
Legend
WS 100_Year
WS CZ
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S2 Reach = 1 RS = 1935 1935
.13 .015
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S2 Reach = 1 RS = 1628 1628
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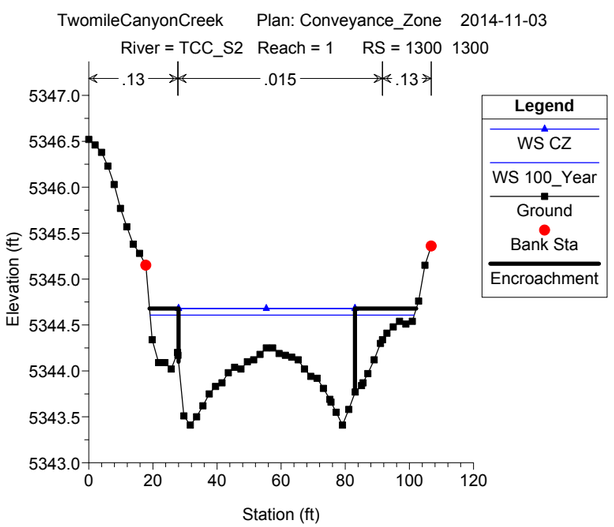
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S2 Reach = 1 RS = 1300 1300
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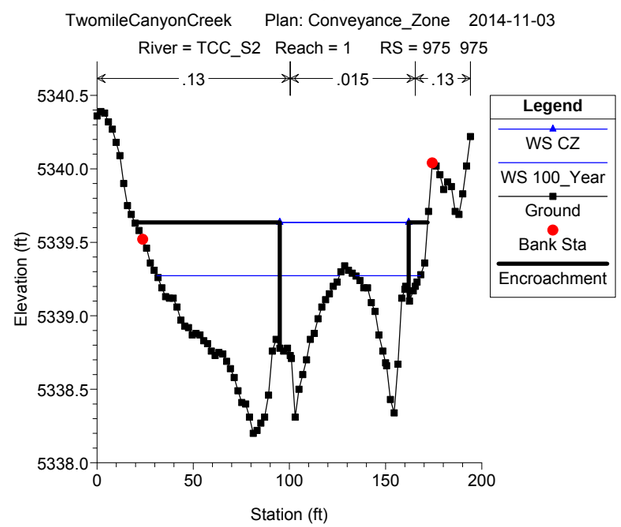
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S2 Reach = 1 RS = 975 975
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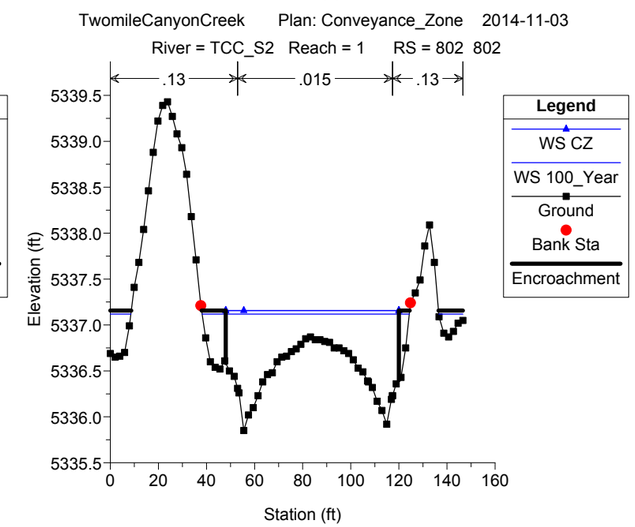
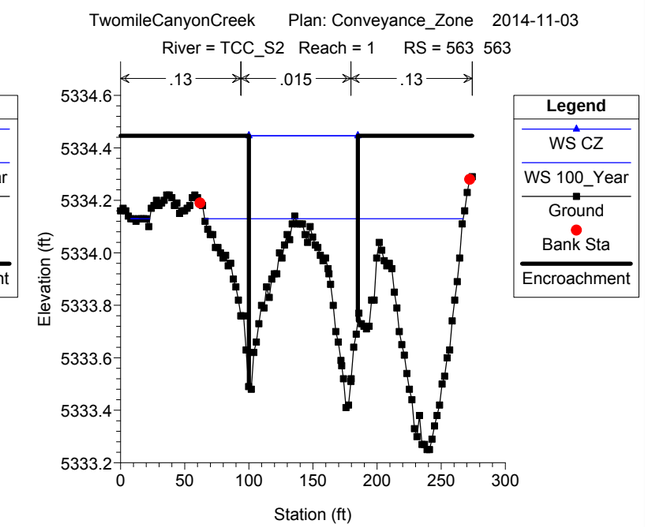
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S2 Reach = 1 RS = 802 802
.13 .015 .13
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S2 Reach = 1 RS = 563 563
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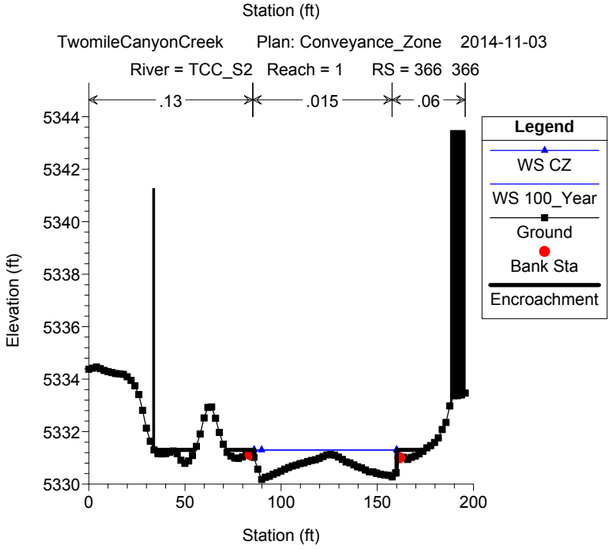
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S2 Reach = 1 RS = 366 366
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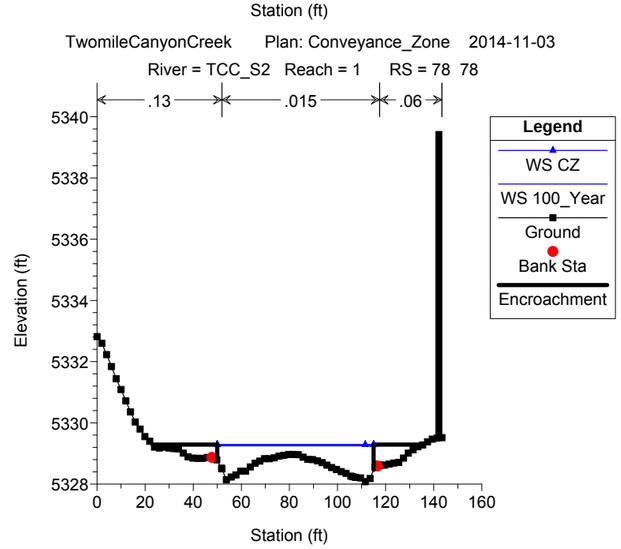
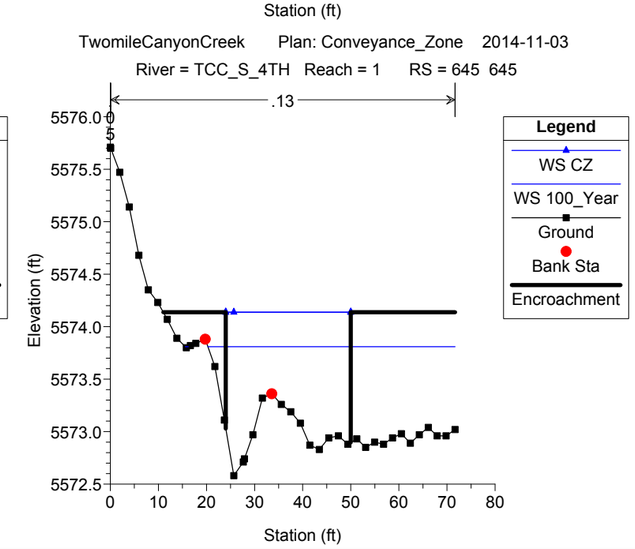
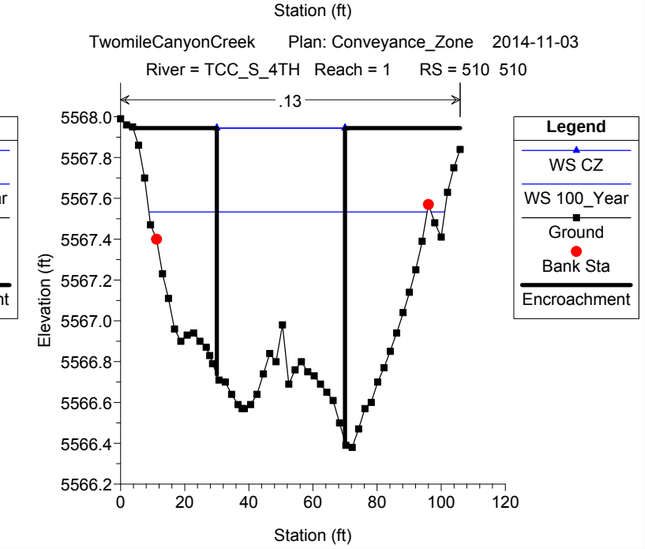
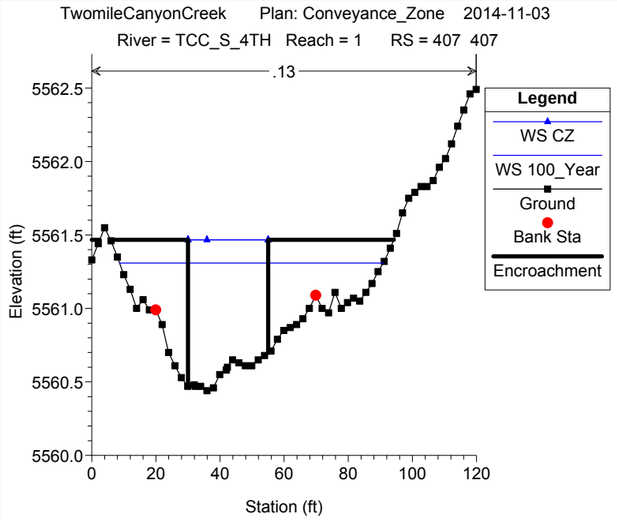
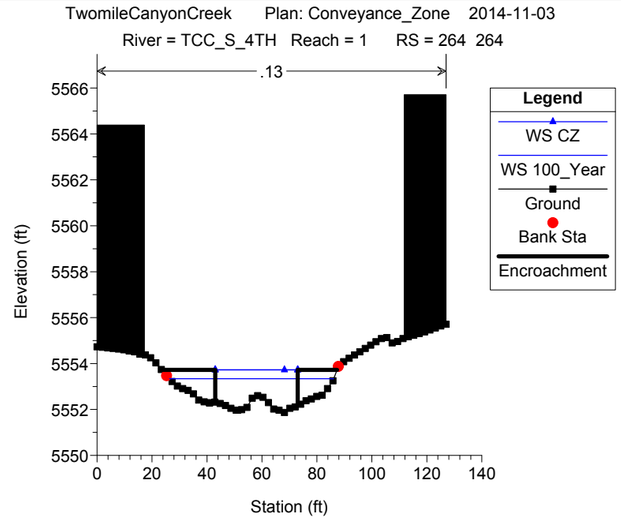
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S2 Reach = 1 RS = 78 78
.13 .015 .06
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S_4TH Reach = 1 RS = 645 645
.13
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S_4TH Reach = 1 RS = 510 510
.13
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S_4TH Reach = 1 RS = 407 407
.13
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S_4TH Reach = 1 RS = 264 264
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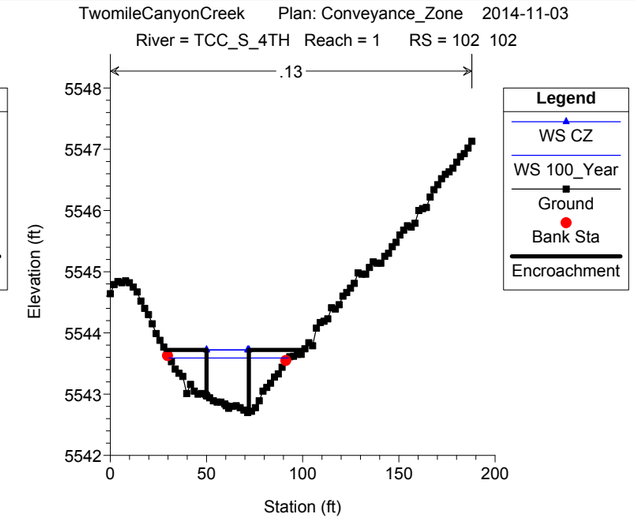
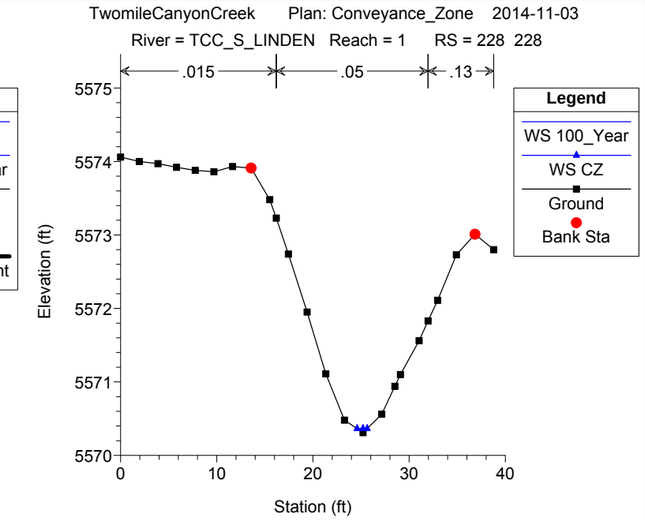
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S_4TH Reach = 1 RS = 102 102
.13
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S_LINDEN Reach = 1 RS = 228 228
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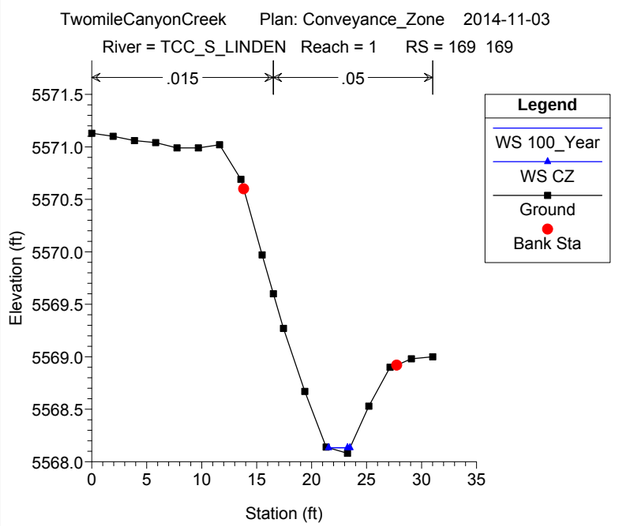
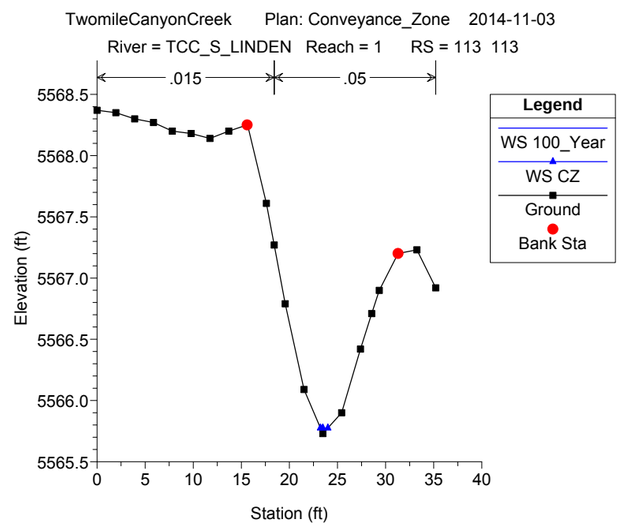
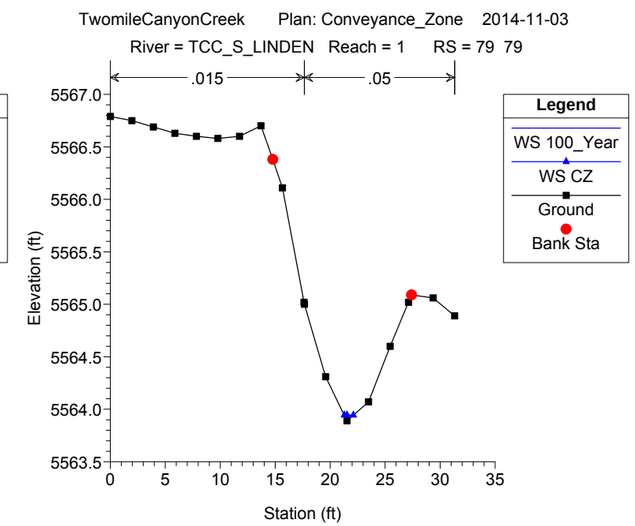
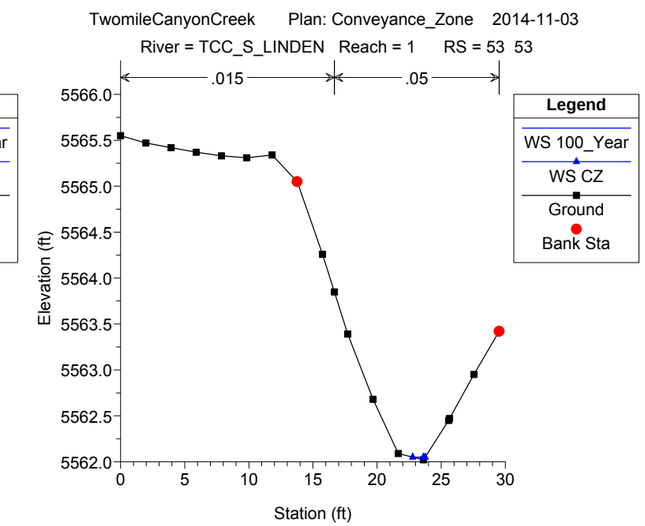
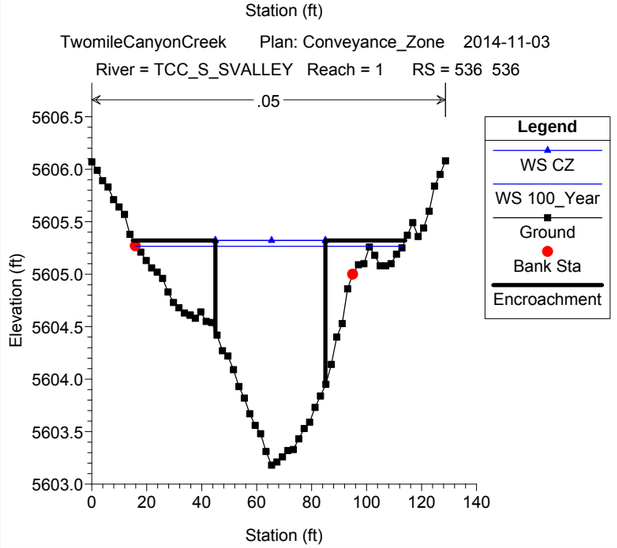
.05
.13
Legend
WS 100_Year
WS CZ
Ground
Bank Sta
Elevation (ft)
Station (ft)

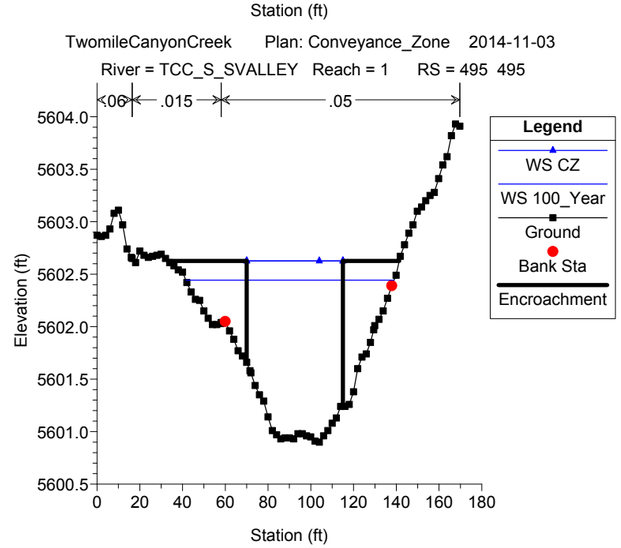

TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S_LINDEN Reach = 1 RS = 169 169
.015
.05
Legend
WS 100_Year
WS CZ
Ground
Bank Sta
Elevation (ft)
Station (ft)

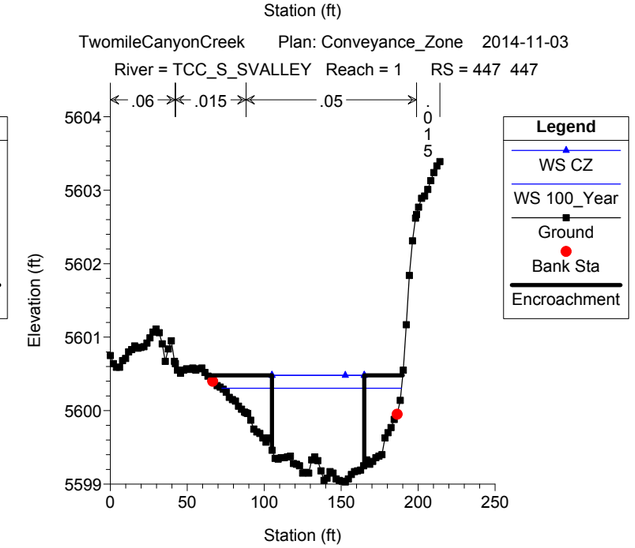

TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S_LINDEN Reach = 1 RS = 113 113
.015
.05
Legend
WS 100_Year
WS CZ
Ground
Bank Sta
Elevation (ft)
Station (ft)

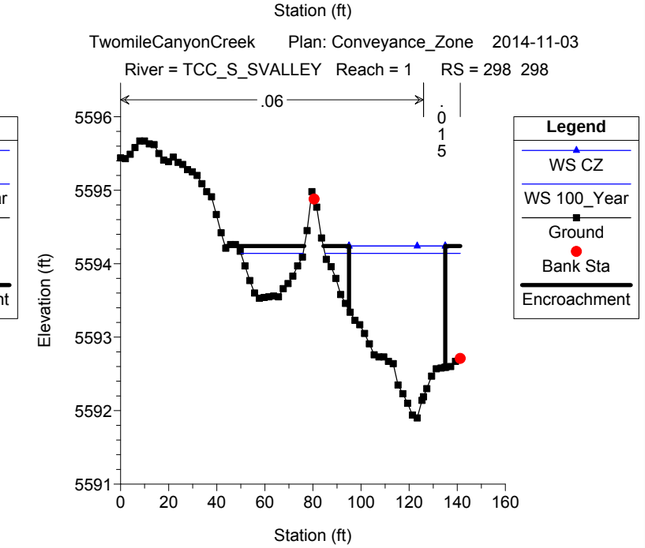

TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S_LINDEN Reach = 1 RS = 79 79
.015
.05
Legend
WS 100_Year
WS CZ
Ground
Bank Sta
Elevation (ft)
Station (ft)

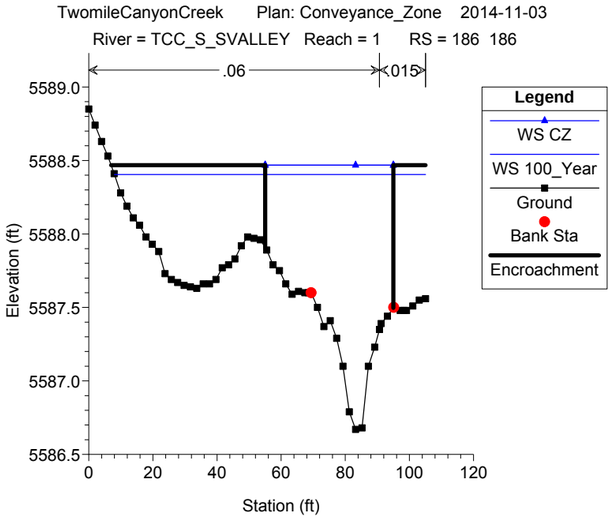

TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S_LINDEN Reach = 1 RS = 53 53
.015
.05
Legend
WS 100_Year
WS CZ
Ground
Bank Sta
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S_SVALLEY Reach = 1 RS = 536 536
.05
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S_SVALLEY Reach = 1 RS = 495 495
.06
.015
.05
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S_SVALLEY Reach = 1 RS = 447 447
.06
.015
.05
.015
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S_SVALLEY Reach = 1 RS = 298 298
.06
.015
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


TwomileCanyonCreek Plan: Conveyance_Zone 2014-11-03
River = TCC_S_SVALLEY Reach = 1 RS = 186 186
.06
.015
Legend
WS CZ
WS 100_Year
Ground
Bank Sta
Encroachment
Elevation (ft)
5589.0
5588.5
5588.0
5587.5
5587.0
5586.5
0
20
40
60
80
100
120
Station (ft)

Appendix D –
Storm Sewer Capacity and Shallow Flooding Cross Section Calculations

Worksheet
Worksheet for Circular Channel

Project Description	
Worksheet	Goose A - 36in
Flow Element	Circular Channe
Method	Manning's Forn
Solve For	Full Flow Capac

Input Data		
Mannings Coeffic	0.013	
Slope	022000	ft/ft
Diameter	36	in

Results		
Depth	3.00	ft
Discharge	98.92	cfs
Flow Area	7.1	ft²
Wetted Perime	9.42	ft
Top Width	0.00	ft
Critical Depth	2.89	ft
Percent Full	100.0	%
Critical Slope	019231	ft/ft
Velocity	13.99	ft/s
Velocity Head	3.04	ft
Specific Energy	6.04	ft
Froude Numbe	0.00	
Maximum Disc	106.41	cfs
Discharge Full	98.92	cfs
Slope Full	022000	ft/ft
Flow Type	N/A	

Worksheet
Worksheet for Circular Channel

Project Description	
Worksheet	Goose B - 36in
Flow Element	Circular Channe
Method	Manning's Forn
Solve For	Full Flow Capac

Input Data		
Mannings Coeffic	0.013	
Slope	029000	ft/ft
Diameter	36	in

Results		
Depth	3.00	ft
Discharge	113.58	cfs
Flow Area	7.1	ft²
Wetted Perime	9.42	ft
Top Width	0.00	ft
Critical Depth	2.94	ft
Percent Full	100.0	%
Critical Slope	025898	ft/ft
Velocity	16.07	ft/s
Velocity Head	4.01	ft
Specific Energy	7.01	ft
Froude Numbe	0.00	
Maximum Disc	122.18	cfs
Discharge Full	113.58	cfs
Slope Full	029000	ft/ft
Flow Type	N/A	

Worksheet
Worksheet for Circular Channel

Project Description	
Worksheet	Goose C - 42in
Flow Element	Circular Channe
Method	Manning's Forn
Solve For	Full Flow Capac

Input Data		
Mannings Coeffic	0.013	
Slope	014000	ft/ft
Diameter	42	in

Results		
Depth	3.50	ft
Discharge	119.04	cfs
Flow Area	9.6	ft²
Wetted Perime	11.00	ft
Top Width	0.00	ft
Critical Depth	3.24	ft
Percent Full	100.0	%
Critical Slope	012122	ft/ft
Velocity	12.37	ft/s
Velocity Head	2.38	ft
Specific Energy	5.88	ft
Froude Numbe	0.00	
Maximum Disc	128.05	cfs
Discharge Full	119.04	cfs
Slope Full	014000	ft/ft
Flow Type	N/A	

Worksheet
Worksheet for Circular Channel

Project Description	
Worksheet	Goose D/E - 54
Flow Element	Circular Channe
Method	Manning's Forn
Solve For	Full Flow Capac

Input Data		
Mannings Coeffic	0.013	
Slope	006000	ft/ft
Diameter	54	in

Results		
Depth	4.50	ft
Discharge	152.32	cfs
Flow Area	15.9	ft²
Wetted Perime	14.14	ft
Top Width	0.00	ft
Critical Depth	3.62	ft
Percent Full	100.0	%
Critical Slope	006217	ft/ft
Velocity	9.58	ft/s
Velocity Head	1.43	ft
Specific Energy	5.93	ft
Froude Numbe	0.00	
Maximum Disc	163.85	cfs
Discharge Full	152.32	cfs
Slope Full	006000	ft/ft
Flow Type	N/A	

Worksheet
Worksheet for Circular Channel

Project Description	
Worksheet	Goose F - 54in
Flow Element	Circular Channe
Method	Manning's Forn
Solve For	Full Flow Capac

Input Data		
Mannings Coeffic	0.013	
Slope	005100	ft/ft
Diameter	54	in

Results		
Depth	4.50	ft
Discharge	140.43	cfs
Flow Area	15.9	ft²
Wetted Perime	14.14	ft
Top Width	0.00	ft
Critical Depth	3.48	ft
Percent Full	100.0	%
Critical Slope	005712	ft/ft
Velocity	8.83	ft/s
Velocity Head	1.21	ft
Specific Energy	5.71	ft
Froude Numbe	0.00	
Maximum Disc	151.06	cfs
Discharge Full	140.43	cfs
Slope Full	005100	ft/ft
Flow Type	N/A	

Worksheet
Worksheet for Circular Channel

Project Description	
Worksheet	Goose G - 54in
Flow Element	Circular Channe
Method	Manning's Forn
Solve For	Full Flow Capac

Input Data		
Mannings Coeffic	0.013	
Slope	006100	ft/ft
Diameter	54	in

Results		
Depth	4.50	ft
Discharge	153.58	cfs
Flow Area	15.9	ft²
Wetted Perime	14.14	ft
Top Width	0.00	ft
Critical Depth	3.63	ft
Percent Full	100.0	%
Critical Slope	006275	ft/ft
Velocity	9.66	ft/s
Velocity Head	1.45	ft
Specific Energy	5.95	ft
Froude Numbe	0.00	
Maximum Disc	165.21	cfs
Discharge Full	153.58	cfs
Slope Full	006100	ft/ft
Flow Type	N/A	

Worksheet
Worksheet for Circular Channel

Project Description	
Worksheet	Goose H/I - 54 i
Flow Element	Circular Channe
Method	Manning's Forn
Solve For	Full Flow Capac

Input Data		
Mannings Coeffic	0.013	
Slope	006000	ft/ft
Diameter	54	in

Results		
Depth	4.50	ft
Discharge	152.32	cfs
Flow Area	15.9	ft²
Wetted Perime	14.14	ft
Top Width	0.00	ft
Critical Depth	3.62	ft
Percent Full	100.0	%
Critical Slope	006217	ft/ft
Velocity	9.58	ft/s
Velocity Head	1.43	ft
Specific Energy	5.93	ft
Froude Numbe	0.00	
Maximum Disc	163.85	cfs
Discharge Full	152.32	cfs
Slope Full	006000	ft/ft
Flow Type	N/A	

Worksheet
Worksheet for Circular Channel

Project Description	
Worksheet	Goose J - 24in
Flow Element	Circular Channe
Method	Manning's Forn
Solve For	Full Flow Capac

Input Data		
Mannings Coeffic	0.013	
Slope	009000	ft/ft
Diameter	24	in

Results		
Depth	2.00	ft
Discharge	21.46	cfs
Flow Area	3.1	ft²
Wetted Perime	6.28	ft
Top Width	0.00	ft
Critical Depth	1.66	ft
Percent Full	100.0	%
Critical Slope	008828	ft/ft
Velocity	6.83	ft/s
Velocity Head	0.73	ft
Specific Energy	2.73	ft
Froude Numbe	0.00	
Maximum Disc	23.09	cfs
Discharge Full	21.46	cfs
Slope Full	009000	ft/ft
Flow Type	N/A	

Worksheet
Worksheet for Circular Channel

Project Description	
Worksheet	Goose K - 42in
Flow Element	Circular Channe
Method	Manning's Forn
Solve For	Full Flow Capac

Input Data		
Mannings Coeffic	0.013	
Slope	008500	ft/ft
Diameter	42	in

Results		
Depth	3.50	ft
Discharge	92.75	cfs
Flow Area	9.6	ft²
Wetted Perime	11.00	ft
Top Width	0.00	ft
Critical Depth	2.98	ft
Percent Full	100.0	%
Critical Slope	007983	ft/ft
Velocity	9.64	ft/s
Velocity Head	1.44	ft
Specific Energy	4.94	ft
Froude Numbe	0.00	
Maximum Disc	99.77	cfs
Discharge Full	92.75	cfs
Slope Full	008500	ft/ft
Flow Type	N/A	

Worksheet
Worksheet for Circular Channel

Project Description	
Worksheet	Goose L/M - 36
Flow Element	Circular Channe
Method	Manning's Form
Solve For	Full Flow Capac

Input Data		
Mannings Coeffic	0.013	
Slope	008500	ft/ft
Diameter	36	in

Results		
Depth	3.00	ft
Discharge	61.49	cfs
Flow Area	7.1	ft²
Wetted Perime	9.42	ft
Top Width	0.00	ft
Critical Depth	2.53	ft
Percent Full	100.0	%
Critical Slope	008112	ft/ft
Velocity	8.70	ft/s
Velocity Head	1.18	ft
Specific Energy	4.18	ft
Froude Numbe	0.00	
Maximum Disc	66.14	cfs
Discharge Full	61.49	cfs
Slope Full	008500	ft/ft
Flow Type	N/A	

Worksheet
Worksheet for Circular Channel

Project Description	
Worksheet	Goose N - 36in
Flow Element	Circular Channe
Method	Manning's Forn
Solve For	Full Flow Capac

Input Data		
Mannings Coeffic	0.013	
Slope	017000	ft/ft
Diameter	36	in

Results		
Depth	3.00	ft
Discharge	86.96	cfs
Flow Area	7.1	ft²
Wetted Perime	9.42	ft
Top Width	0.00	ft
Critical Depth	2.83	ft
Percent Full	100.0	%
Critical Slope	014695	ft/ft
Velocity	12.30	ft/s
Velocity Head	2.35	ft
Specific Energy	5.35	ft
Froude Numbe	0.00	
Maximum Disc	93.54	cfs
Discharge Full	86.96	cfs
Slope Full	017000	ft/ft
Flow Type	N/A	

Worksheet
Worksheet for Circular Channel

Project Description	
Worksheet	Iris A
Flow Element	Circular Channe
Method	Manning's Forn
Solve For	Full Flow Capac

Input Data		
Mannings Coeffic	0.013	
Slope	015000	ft/ft
Diameter	30	in

Results		
Depth	2.50	ft
Discharge	50.23	cfs
Flow Area	4.9	ft²
Wetted Perime	7.85	ft
Top Width	0.00	ft
Critical Depth	2.30	ft
Percent Full	100.0	%
Critical Slope	013015	ft/ft
Velocity	10.23	ft/s
Velocity Head	1.63	ft
Specific Energy	4.13	ft
Froude Numbe	0.00	
Maximum Disc	54.04	cfs
Discharge Full	50.23	cfs
Slope Full	015000	ft/ft
Flow Type	N/A	

Worksheet
Worksheet for Circular Channel

Project Description	
Worksheet	Iris B
Flow Element	Circular Channe
Method	Manning's Forn
Solve For	Full Flow Capac

Input Data		
Mannings Coeffic	0.013	
Slope	018000	ft/ft
Diameter	36	in

Results		
Depth	3.00	ft
Discharge	89.48	cfs
Flow Area	7.1	ft²
Wetted Perime	9.42	ft
Top Width	0.00	ft
Critical Depth	2.84	ft
Percent Full	100.0	%
Critical Slope	015578	ft/ft
Velocity	12.66	ft/s
Velocity Head	2.49	ft
Specific Energy	5.49	ft
Froude Numbe	0.00	
Maximum Disc	96.25	cfs
Discharge Full	89.48	cfs
Slope Full	018000	ft/ft
Flow Type	N/A	

Worksheet
Worksheet for Circular Channel

Project Description	
Worksheet	Iris C
Flow Element	Circular Channe
Method	Manning's Forn
Solve For	Full Flow Capac

Input Data		
Mannings Coeffic	0.013	
Slope	017000	ft/ft
Diameter	36	in

Results		
Depth	3.00	ft
Discharge	86.96	cfs
Flow Area	7.1	ft²
Wetted Perime	9.42	ft
Top Width	0.00	ft
Critical Depth	2.83	ft
Percent Full	100.0	%
Critical Slope	014695	ft/ft
Velocity	12.30	ft/s
Velocity Head	2.35	ft
Specific Energy	5.35	ft
Froude Numbe	0.00	
Maximum Disc	93.54	cfs
Discharge Full	86.96	cfs
Slope Full	017000	ft/ft
Flow Type	N/A	

Worksheet
Worksheet for Circular Channel

Project Description	
Worksheet	Iris D
Flow Element	Circular Channe
Method	Manning's Forn
Solve For	Full Flow Capac

Input Data		
Mannings Coeffic	0.013	
Slope	025000	ft/ft
Diameter	36	in

Results		
Depth	3.00	ft
Discharge	105.45	cfs
Flow Area	7.1	ft²
Wetted Perime	9.42	ft
Top Width	0.00	ft
Critical Depth	2.91	ft
Percent Full	100.0	%
Critical Slope	022058	ft/ft
Velocity	14.92	ft/s
Velocity Head	3.46	ft
Specific Energy	6.46	ft
Froude Numbe	0.00	
Maximum Disc	113.44	cfs
Discharge Full	105.45	cfs
Slope Full	025000	ft/ft
Flow Type	N/A	

Worksheet
Worksheet for Circular Channel

Project Description	
Worksheet	Iris E
Flow Element	Circular Channe
Method	Manning's Forn
Solve For	Full Flow Capac

Input Data		
Mannings Coeffic	0.013	
Slope	016000	ft/ft
Diameter	42	in

Results		
Depth	3.50	ft
Discharge	127.26	cfs
Flow Area	9.6	ft²
Wetted Perime	11.00	ft
Top Width	0.00	ft
Critical Depth	3.29	ft
Percent Full	100.0	%
Critical Slope	013829	ft/ft
Velocity	13.23	ft/s
Velocity Head	2.72	ft
Specific Energy	6.22	ft
Froude Numbe	0.00	
Maximum Disc	136.89	cfs
Discharge Full	127.26	cfs
Slope Full	016000	ft/ft
Flow Type	N/A	

Worksheet
Worksheet for Circular Channel

Project Description	
Worksheet	Iris F
Flow Element	Circular Channe
Method	Manning's Forn
Solve For	Full Flow Capac

Input Data		
Mannings Coeffic	0.013	
Slope	008000	ft/ft
Diameter	42	in

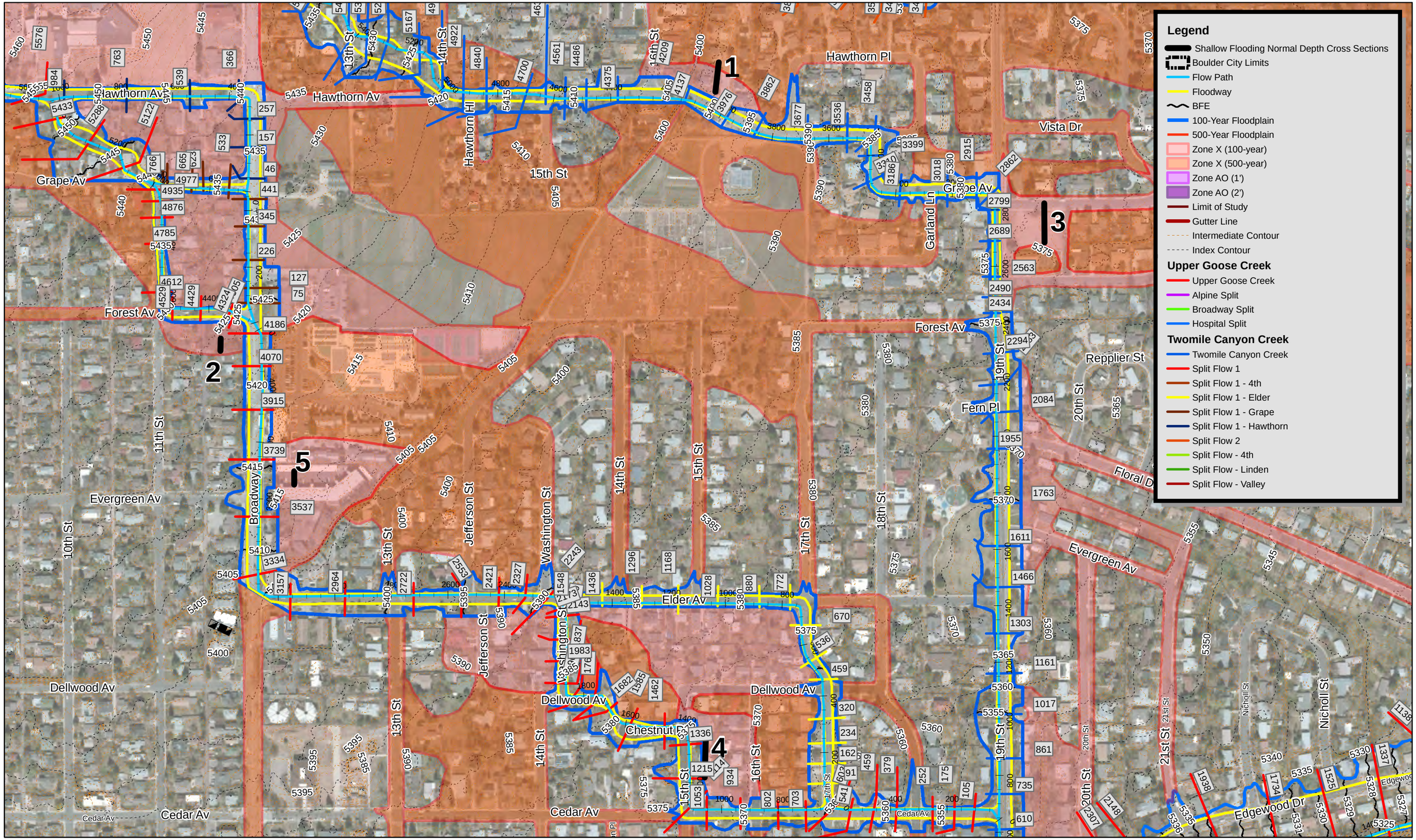
Results		
Depth	3.50	ft
Discharge	89.98	cfs
Flow Area	9.6	ft²
Wetted Perime	11.00	ft
Top Width	0.00	ft
Critical Depth	2.94	ft
Percent Full	100.0	%
Critical Slope	007659	ft/ft
Velocity	9.35	ft/s
Velocity Head	1.36	ft
Specific Energy	4.86	ft
Froude Numbe	0.00	
Maximum Disc	96.80	cfs
Discharge Full	89.98	cfs
Slope Full	008000	ft/ft
Flow Type	N/A	

Worksheet
Worksheet for Circular Channel

Project Description	
Worksheet	Iris G
Flow Element	Circular Channe
Method	Manning's Forn
Solve For	Full Flow Capac

Input Data		
Mannings Coeffic	0.013	
Slope	016000	ft/ft
Diameter	48	in

Results		
Depth	4.00	ft
Discharge	181.69	cfs
Flow Area	12.6	ft²
Wetted Perime	12.57	ft
Top Width	0.00	ft
Critical Depth	3.78	ft
Percent Full	100.0	%
Critical Slope	013839	ft/ft
Velocity	14.46	ft/s
Velocity Head	3.25	ft
Specific Energy	7.25	ft
Froude Numbe	0.00	
Maximum Disc	195.44	cfs
Discharge Full	181.69	cfs
Slope Full	016000	ft/ft
Flow Type	N/A	



ICON ENGINEERING, INC.

Figure D.1 - Upper Goose Creek and Twomile Canyon Creek Floodplain Workmap - Shallow Flooding Normal Depth Sections

N

300 Feet

Worksheet
Worksheet for Trapezoidal Channel

Project Description	
Worksheet	Shallow_XS_1
Flow Element	Trapezoidal Cha
Method	Manning's Form
Solve For	Channel Depth

Input Data		
Mannings Coeffic	0.060	
Slope	014000	ft/ft
Left Side Slope	1.00	H : V
Right Side Slope	1.00	H : V
Bottom Width	100.00	ft
Discharge	274.00	cfs

Results		
Depth	0.96	ft
Flow Area	97.1	ft²
Wetted Perim	102.72	ft
Top Width	101.92	ft
Critical Depth	0.61	ft
Critical Slope	0.062248	ft/ft
Velocity	2.82	ft/s
Velocity Head	0.12	ft
Specific Energ	1.09	ft
Froude Numb	0.51	
Flow Type	Subcritical	

Worksheet
Worksheet for Trapezoidal Channel

Project Description	
Worksheet	Shallow_XS_2
Flow Element	Trapezoidal Cha
Method	Manning's Form
Solve For	Channel Depth

Input Data		
Mannings Coeffic	0.060	
Slope	034000	ft/ft
Left Side Slope	1.00	H : V
Right Side Slope	1.00	H : V
Bottom Width	40.00	ft
Discharge	70.00	cfs

Results		
Depth	0.56	ft
Flow Area	22.9	ft²
Wetted Perim	41.59	ft
Top Width	41.13	ft
Critical Depth	0.45	ft
Critical Slope	0.069309	ft/ft
Velocity	3.06	ft/s
Velocity Head	0.15	ft
Specific Energ	0.71	ft
Froude Numb	0.72	
Flow Type	Subcritical	

Worksheet
Worksheet for Trapezoidal Channel

Project Description	
Worksheet	Shallow_XS_3
Flow Element	Trapezoidal Cha
Method	Manning's Form
Solve For	Channel Depth

Input Data		
Mannings Coeffic	0.060	
Slope	018500	ft/ft
Left Side Slope	1.00	H : V
Right Side Slope	1.00	H : V
Bottom Width	140.00	ft
Discharge	325.00	cfs

Results		
Depth	0.80	ft
Flow Area	112.7	ft²
Wetted Perim	142.26	ft
Top Width	141.60	ft
Critical Depth	0.55	ft
Critical Slope	0.064367	ft/ft
Velocity	2.88	ft/s
Velocity Head	0.13	ft
Specific Energ	0.93	ft
Froude Numb	0.57	
Flow Type	Subcritical	

Worksheet
Worksheet for Trapezoidal Channel

Project Description	
Worksheet	Shallow_XS_4
Flow Element	Trapezoidal Cha
Method	Manning's Form
Solve For	Channel Depth

Input Data		
Mannings Coeffic	0.060	
Slope	019000	ft/ft
Left Side Slope	1.00	H : V
Right Side Slope	1.00	H : V
Bottom Width	67.00	ft
Discharge	182.00	cfs

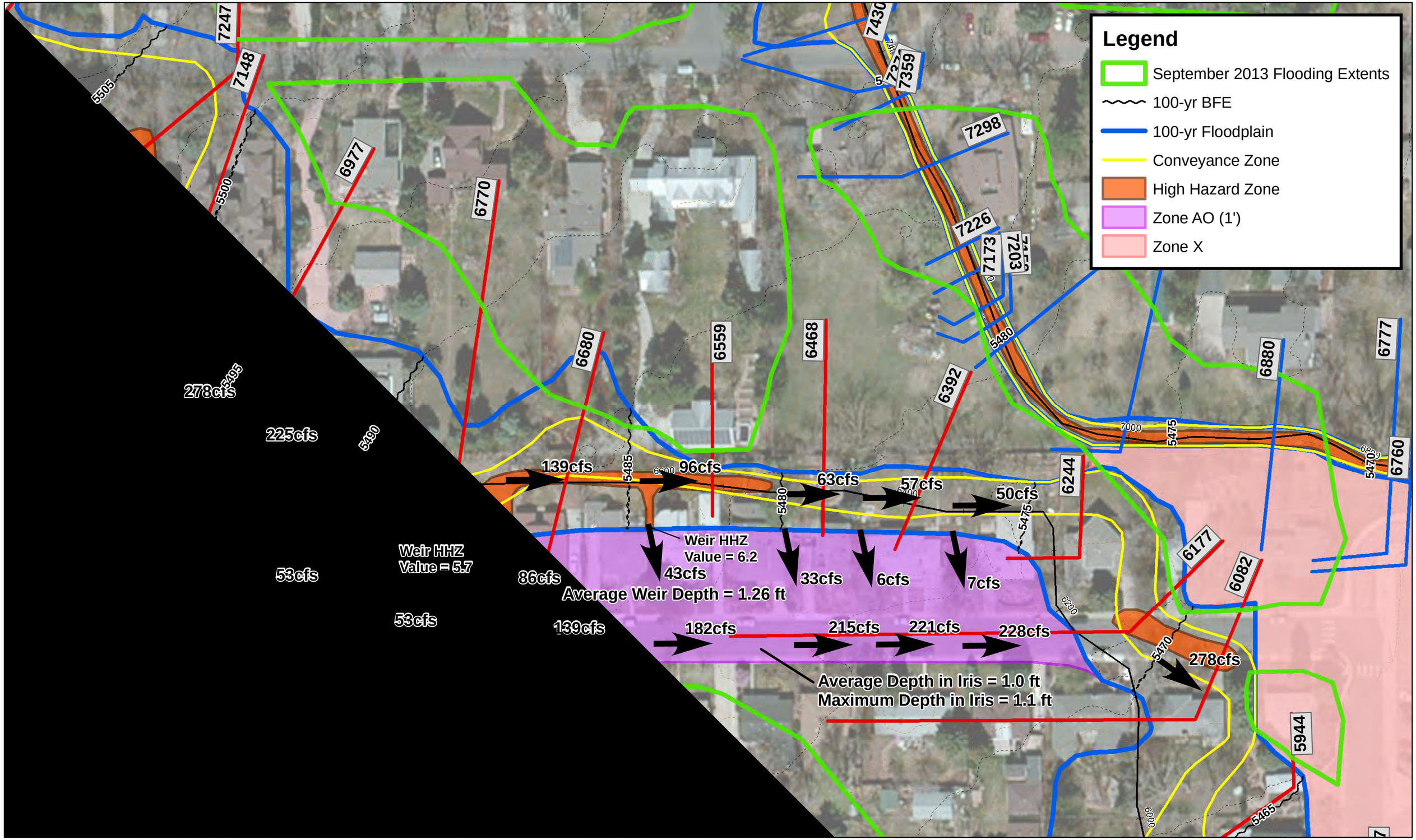
Results		
Depth	0.87	ft
Flow Area	59.3	ft²
Wetted Perim	69.47	ft
Top Width	68.75	ft
Critical Depth	0.61	ft
Critical Slope	0.062646	ft/ft
Velocity	3.07	ft/s
Velocity Head	0.15	ft
Specific Energ	1.02	ft
Froude Numb	0.58	
Flow Type	Subcritical	

Worksheet
Worksheet for Trapezoidal Channel

Project Description	
Worksheet	Shallow_XS_5
Flow Element	Trapezoidal Cha
Method	Manning's Form
Solve For	Channel Depth

Input Data		
Mannings Coeffic	0.035	
Slope	020000	ft/ft
Left Side Slope	1.00	H : V
Right Side Slope	1.00	H : V
Bottom Width	45.00	ft
Discharge	214.00	cfs

Results		
Depth	0.87	ft
Flow Area	40.0	ft²
Wetted Perim	47.46	ft
Top Width	46.74	ft
Critical Depth	0.88	ft
Critical Slope	0.019115	ft/ft
Velocity	5.35	ft/s
Velocity Head	0.45	ft
Specific Energ	1.32	ft
Froude Numb	1.02	
Flow Type	Supercritical	



ICON ENGINEERING, INC.

Figure D.2 - Upper Goose Creek and Twomile Canyon Creek Floodplain Workmap - Iris & 9th Street

Appendix E –
Correspondence and Meeting Minutes

UPPER GOOSE CREEK AND TWOMILE CANYON CREEK
FLOODPLAIN MAPPING STUDY UPDATE
MARCH 20, 2012, 10:00AM

MINUTES

Attendees:
Kurt Bauer, City of Boulder
Chris Trice, City of Boulder
Shea Thomas, UDFCD
Craig Jacobson, ICON Engineering
Brian LeDoux, ICON Engineering

1. **Hydrology Verification Report Review**
   The recommended discharge values and general consensus with the Hydrology Verification Report were noted. The most current version of the report which includes the review comment responses. Kurt noted that he would set up a project website location and include the reports on the website. No objections were noted.

2. **Field Documentation Memorandum Review**
   The channel crossing summary table and general consensus with the Field Documentation Memorandum were discussed. The field documentation information will also be incorporated into the project website.

3. **Review of Existing Data**
   A. **North Broadway Street As-Builts**
   The North Broadway Street storm sewer as-builts have been reviewed by ICON and the general layout of the system was explained to the project team. The storm sewer system currently has a dead end on the spur east along Elder Avenue. The storm sewer pipe that extends further south and eventually ties into the system adjacent to Upper Goose Creek is limited by 24-inch pipe between Elder Avenue and Balsam Avenue. Therefore, it was concluded that the system along Broadway, extending north of Balsam would have a capacity limited to the 24" pipe. Given this was below the threshold for inclusion in the study, it was agreed that this storm sewer system would not be included in the flood study.

   B. **Upper Goose Creek Planning/Storm Sewer Study**
   The information provided by HDR regarding the storm sewer study for the North Broadway Street system appeared to consist of XPSWMM files. No Flo2D files were noted. Given the size of the storm sewer in comparison to the 100-year discharges and incomplete nature of the system, the it was agreed that the storm sewer capacity would have a minimal effect on the overall floodplain delineation. It was agreed that a simplistic approach to estimating the storm sewer capacity would suffice in lieu of further investigating the HDR study. The storm sewer system capacity adjacent to Upper Goose Creek will be estimated based on the full flow capacity for sections of the system from Broadway through 19th Street. It was noted that the property owners adjacent to Broadway may be interested in seeing the storm sewer accounted for in the analysis. The storm sewer is a 36-inch pipe at this location.

C. Hydraulic Model Approach to Storm Sewer System Capacity

The estimated storm sewer system capacity will be reduced by the recommended debris blockage values (10%) and subtracted from the overall discharge value. No separate modeling of the storm sewer system will be completed, beyond what was described above.

4. Upper Goose Creek Hydraulic Model Layout

The draft Upper Goose Creek floodplain and corresponding HEC-RAS cross sections were reviewed. It was noted that the floodplain shown is unrefined (raw Geo-RAS results) and reflects the full Goose Creek discharge without subtractions for the storm sewer system or additions to account for the discharges originating from Twomile Canyon Creek. It was also noted that the backwater caused by Broadway Street is not shown to its full extent due to the orientation of the cross sections and the limitations of Geo-RAS.

Discharges will ultimately by adjusted to account for both the storm sewer system and the addition of flow from Twomile Canyon Creek overflows. The resulting floodplain will be refined to show better connectivity and to show backwater where necessary.

5. Twomile Canyon Creek

Several Flo2D model iterations have been completed and the corresponding floodplains were presented in the draft floodplain workmap exhibits. It was noted that the 100 year event was run both with inflow hydrographs and a steady state condition in an attempt to eliminate the reduction in discharge from storage within the floodplain areas. It was shown that the steady state model approximates discharge conservation in the model (i.e. “discharge in” equal to “discharge out” condition).

The 100 year steady state Flo2D floodplain was reviewed for potential flow path locations and it was discussed how to proceed with the mapping update. Although it was generally agreed that shallow flooding zones could be used, ICON will attempt to model four flow paths in HEC-RAS to see how the results compared with the Flo2D model. These four flow paths include the 1. Main Channel, 2. North Split starting at Kalmia, 3. South Split from Linden Avenue to Foothill Elementary School, and 4. South Split from Iris to the Forest/Broadway intersection.

Discharges for the flow paths will be based on a split flow ratio of flow in the main channel verses flow that splits developed by Flo2D. . This ratio will then be applied to the full discharge to determine the flow used in the HEC-RAS models.

In addition to the four flow paths, the topography along the Iris Avenue split flow east of 19th Street will also be reviewed for depths and potential mapping east to Elmer’s Twomile Creek.

The location of the inflow hydrograph 603 will be moved upstream to near the Floral/19th Street intersection.

The determination of a floodway between Broadway and 19th Street was discussed. The project sponsors and ICON Engineering agreed that without any defined channel within this reach, the designation of a floodway would be arbitrary. Additionally, any HEC-RAS analysis through this area will be based on results of the HEC-RAS flow path analysis west of Broadway and where those flows are ultimately determined to cross Broadway.

6. **Schedule**
   The next progress meeting is anticipated to occur in approximately 6 weeks. At that time the HEC-RAS models for the flow paths of Twomile Canyon Creek will be reviewed. Upper Goose Creek discharges including storm sewer system reductions and additional discharges from Twomile Canyon Creek will be developed and addressed at the next progress meeting.

7. **Action Items:**

   i. ICON will email Kurt the hand written Broadway Street storm sewer sketch
   ii. The City of Boulder will set up a web site for the project which will include the Field Documentation Memorandum, Hydrology Verification Report, and a general vicinity/scope of project map. A public meeting will be noted to be held in the fall of 2012.
   iii. ICON will continue with HEC-RAS analysis of Upper Goose Creek and Twomile Canyon Creek.

- END OF MEETING--

Minutes prepared by: **2012-03-21**
Brian LeDoux, P.E., CFM Date
ICON Engineering, Inc.

UPPER GOOSE CREEK AND TWOMILE CANYON CREEK
FLOOD MAPPING STUDY UPDATE
PROGRESS MEETING
MAY 1, 2012 - 9:00 AM

MINUTES

Attendees:

Kurt Bauer, City of Boulder
Chris Trice, City of Boulder
Shea Thomas, UDFCD
Paul Hindman, UDFCD
Craig Jacobson, ICON Engineering
Brian LeDoux, ICON Engineering

1. **Goose Creek Storm Sewer Review**

The existing capacity estimates for the storm sewer system elements between Broadway and 19th Street, generally following Alpine Street, were reviewed with the project team. It was noted that a couple of manhole depth values were not used as they are inconsistent with the other depths and resulting pipe slopes (ex. 14th Avenue, and just upstream of 19th Street). By using the consistent depth values from the City's storm sewer data, the system capacity was estimated at 100 cfs near Broadway increasing to 150 cfs between 14th and 19th Streets per full flow capacity analysis of individual pipe sections (see attached Storm Sewer Capacity Workmap). As previously determined in the field documentation report, a 10% reduction factor was then applied to the system to account for potential blockage of pipes and/or inlets. It was discussed that a comprehensive storm sewer evaluation was not completed. Similarly, inflow to individual inlets were not verified; however given the large extent of the storm sewer network and recent improvements made by the City along Broadway, there was high confidence that the downstream system capacity could be achieved.

The resulting pre-RAS draft for the Upper Goose Creek floodplain was presented (see attached Draft Floodplain Workmaps). The increases in discharges at 19th Street were noted since both basin 702 (Upper Goose Creek) and spill flows from Twomile Canyon Creek are added to Upper Goose Creek at 19th Street. Based on the flow depths and apparent flowpaths from the Flo-2D model, it was agreed that spill flows from Twomile Canyon Creek could be applied to Upper Goose Creek at a single location as shown (i.e. 19th Street).

2. **Twomile Canyon Creek**

The 100-year Flo-2D model was further revised to reflect a steady state condition hydrology. Brian explained how the inflow hydrographs were adjusted to match the peak discharges, as determined by the hydrology verification report. An expanded "Table 6.1 – Recommended Discharges" (attached) was presented which includes the peak discharge values for each sub-basin and the corresponding peak discharge used in the steady state Flo-2D models to match the SWMM peak discharges.

A similar approach was then taken for the 5-, 10-, 25-, 50-, and 500-year return intervals models.

The split flow values for each return interval were then used to determine a split flow ratio (see attached table of floodplain cross section discharge values and split flow ratios). It was

noted that the split flow ratios were very consistent at each split location. It was discussed if an average split flow ratio should be used based on the results, or if the individual ratios should be used for future HEC-RAS modeling. The project team agreed to use the individually calculated ratios.

The general flow path alignments and cross section layout used for the HEC-RAS modeling was shown on the Twomile Canyon Creek Draft Flo-2D Floodplain Work map (attached). The results from these initial HEC-RAS models were compared to the Flo-2D base flood elevations (BFEs) west of Broadway and east of 19th Street (see attached Figures A, B, and C). The BFEs between the two models compare very reasonably. Based on this correlation, the project team generally agreed to continue with the Flo-2D roadmap approach in this area.

Floodplain mapping between Broadway and 19th Street was further discussed. It was previously noted that a regulatory floodway through this area is not on the FIRM and has not necessarily been requested by the City, given the lack of a main drainageway channel. Shea noted that she had discussed this area with Bill DeGroot previously, and he did not have a preference between a detailed study and or shallow flooding approach, deferring to the City. Given the reasonable correlation between the Flo-2D and HEC-RAS in the upstream reaches, it was agreed that a rough attempt at a similar approach for the middle reach should be explored. ICON will extend the main stem, split 1 and split 2 flowpaths per the Flo-2D roadmap approach to investigate the reasonableness of the cross sections and resulting floodplain. Draft floodplains are expected to be available in approximately 2 weeks and a progress meeting will be scheduled to review the results.

The split flow paths along Iris, Hawthorn, and Grape Avenues were discussed. The City would prefer to limit the detailed study at an appropriate location provided that the floodplain does not result in a High Hazard Area. ICON will review the depths and velocities at these locations and provide recommendations.

3. Schedule

The next progress meeting is expected to occur in approximately 2-3 weeks.

4. Other Items

Kurt noted that the project web site has resulted in several inquiry phone calls. The project web site is:
http://www.bouldercolorado.gov/index.php?option=com_content&view=article&id=16216&Itemid=5411

Construction at the Linden Avenue culvert was also noted by Kurt and Chris. It is anticipated that the culvert is being replaced with an equivalent size culvert which would not impact previous field documentation or culvert modeling assumptions. Kurt and Chris will investigate the culvert construction and provide additional information to ICON.

5. Action Items

i. ICON will move forward with final floodplain, floodway and high hazard designation for Upper Goose Creek based on the confirmation of discharges and inflow locations as discussed in this progress meeting.

ii. ICON will move forward with HEC-RAS analysis of Twomile Canyon Creek between Broadway and 19th Street as discussed. Limit of study options will also be investigated.

iii. The City of Boulder will provide information regarding the culvert construction at Twomile Canyon Creek and Linden Avenue.

- END OF MEETING--

Minutes prepared by: **2012-05-03**

Brian LeDoux, P.E., CFM Date

ICON Engineering, Inc.

UPPER GOOSE CREEK AND TWOMILE CANYON CREEK
FLOOD MAPPING STUDY UPDATE
PROGRESS MEETING
MAY 16, 2012 - 10:30 AM

MINUTES

Attendees (via phone conference):
Kurt Bauer, City of Boulder
Shea Thomas, UDFCD
Craig Jacobson, ICON Engineering
Brian LeDoux, ICON Engineering

1. **Twomile Canyon Creek Flow Paths Between Broadway and 19th**

A HEC-RAS vs. Flo-2D base flood elevation comparison figure was provided to the meeting attendees. This figure also includes a draft (raw data defined – no cleanup completed) high hazard area delineation. It was noted that the BFEs between HEC-RAS and Flo-2D compare very well, similarly to the previous modeling upstream of Broadway. Based on this comparison, it was determined that the three flow path approach as shown in the figure could be pursued for final HEC-RAS modeling.

Based on the occurrence of high hazard criteria, the Iris Avenue split flow will be modeled and mapped east to Elmer's Twomile Creek. The existing storm sewer system in Iris Avenue was noted and quickly estimated to have the potential to carry upwards of 1/3 of the total 201 cfs that is in the Iris Avenue split flow (36-inch to 48-inch in size). To remain consistent with the Upper Goose Creek, the storm sewer capacity will be accounted for reaches with 36-inch or greater pipe size. Additionally, for storm sewer capacity estimates a 10% blockage factor will be used to reduce the full capacity of the storm sewer. The project team agreed that it can be assumed that the inlet capacity of the storm sewer system is adequate for all discharges that are estimated to be in the storm sewer. Kurt will provide ICON with any as-built information that the City has on the storm sewer system.

The issue of storm sewer capacity with respect to coincident discharges originating in the Elmer's Twomile Creek drainage basin was discussed. Based on the relatively small Elmer's Twomile Creek contributing area and its high urban development, it was estimated that the time to peak for discharges in the storm sewer system from Elmer's Twomile basin would be approximately ½ hour. The time to peak for Twomile Canyon Creek for an equivalent location (19th and Iris) is approximately 1 hour and 16 minutes based on the hydrology model. Given the large discrepancy between the time to peak for each basin, it was agreed that storm sewer capacity for the Twomile Canyon Creek Iris Avenue split flow would not likely be affected by discharges originating in the Elmer's Twomile Creek basin.

Shea will confirm the approach in this area with Bill DeGroot.

2. **City of Boulder Floodplain Administrator Comments**

Kurt passed along several comments from the City's floodplain administrator including:

- The final high hazard designation should be adjusted to show continuous connectivity.
- Spill flows south from the main stem flow path along 14th and 17th Avenue and the area near 20th and Grape Street may need to be addressed.
- Shallow flooding less than 0.5 foot will not be mapped as a SFHA.

The high hazard areas will be revised at the time of final floodplain mapping and delineation.

Spill flows south along 14th Avenue will be investigated and will be dependent on the potential for spill flows to exit the main flow path at this location. Spill flows south along 17th avenue have been noted by ICON and will be included in the next iteration of HEC-RAS modeling. The area near 20th and Grape does not appear to warrant modeling due to the total discharge of 50 cfs. This area may be designated as shallow flooding or shaded Zone X.

Shallow flooding less than 0.5 feet will not be mapped, unless the area is included in the 500-year shaded Zone X areas.

3. Application of Hydrology Inflows

The location at which the inflow hydrograph for sub-basin 603 is applied was discussed. The current location is based on the apparent low flow location just upstream of the backyard swale and Floral Avenue. This location is consistent with typical hydrology, however, based on the split flow paths that have the potential to intercept flows from basin 603 and send them east prior to arriving at the swale/Floral Avenue location have been noted. Additionally, areas in the far south of sub-basin 603 appear to flow south to Upper Goose Creek and will not flow to the swale/Floral Avenue location. Shea will review this issue with Bill and provide direction as soon as possible.

- END OF MEETING--

Minutes prepared by: **2012-05-17**

Brian LeDoux, P.E., CFM — Date

ICON Engineering, Inc.

UPPER GOOSE CREEK AND TWOMILE CANYON CREEK
FLOOD MAPPING STUDY UPDATE
PROGRESS MEETING
JULY 24, 2012 - 9:00 AM

MINUTES

Attendees:

Kurt Bauer, City of Boulder
Shea Thomas, UDFCD
Craig Jacobson, ICON Engineering
Brian LeDoux, ICON Engineering

Flo-2D presentation – Craig noted that ICON had developed a short Flo-2D presentation for the City and County of Denver's wastewater department. The presentation included work from the Twomile Canyon Creek project. Copies of the power point presentation were provided to Shea and Kurt for reference and possible feedback.

1. **Sub-basin 603**

   Based on discussions from the previous progress meeting, sub-basin 603 was further divided into five sub-basins. Sub-basin 603 A is the portion of sub-basin 603 north of Iris Avenue; 603 B is located between Iris Avenue and Forrest Avenue and west of 19th Street; 603 C is east of 19th and north of Evergreen Avenue; 603 D is south of Forest Avenue and west of 19th Street; 603 E is south of Evergreen Avenue and east of 19th Street. See the attached "Basin 603 Inflow Distribution Workmap" for additional detail.

   The steady state inflow hydrograph for sub-basin 603 was divided among the five additional sub-basins based on a percentage of area for each sub-basin. The resulting inflow hydrographs were then applied to the steady state Flo-2D model at the following locations:

   603 A – Iris Avenue and 19th Street
   603 B – near Floral Drive and 19th Street
   603 C – Upper Goose Creek
   603 D – Upper Goose Creek*
   603 E – Upper Goose Creek

   *Sub-basin 603 D discharges were ultimately added directly to the Split Flow 1 reach along 19th Avenue within the HEC-RAS model.

2. **Revised Flo-2D Steady State Model**

   The Flo-2D steady state model was revised to reflect the 603 A and 603 B inflow hydrograph locations. This did not significantly alter the previously identified major flow paths but did change some of the peak discharge values as determined by Flo-2D. See the attached "Twomile Canyon Creek Flo-2D Floodplain Workmap" for floodplain extents and discharges.

   It was noted that the inflow hydrograph application location for 603 B was kept at its original location further south along 19th Avenue. This is not expected to have a notable impact on the Flo-2D "roadmap" and ultimately the discharges noted at the Flo-2D cross section number 11 location have been applied to the HEC-RAS model immediately downstream of the 19th Street and Forest Avenue intersection.

3. Revised HEC-RAS Model

The HEC-RAS model was extended based on the Flo-2D "roadmap" approach resulting in three major flow paths throughout the project reach.

i. Main Flow Path
ii. Split Flow 1 (southern major flow path – departs at Linden Avenue)
iii. Split Flow 2 (northern major flow path – departs at Kalmia Avenue)

Discharges were taken directly from the Flo-2D cross sections and applied to the major flow paths at locations noted on the "Twomile Canyon Creek Discharge Workmap". This included flow subtractions for the Iris Avenue storm sewer system (see the attached "Iris Avenue Storm Sewer Capacity Workmap").

An initial iteration of the HEC-RAS model indicated the need for additional split flow paths within the major flow paths including:

i. Main Flow – Spring Valley Road
ii. Main Flow – Linden Avenue (receives lateral weir flow across Linden)
iii. Main Flow – Hawthorn Split Flow
iv. Main Flow – Backyard Channel
v. Main Flow – 17th Street connection to Split Flow 1
vi. Split Flow 1 – Grape Street (west of Broadway)
vii. Split Flow 1 – 11th Street
viii. Split Flow 1 – Elder Avenue
ix. Split Flow 1 – 17th Street
x. Split Flow 2 – Vista Drive

These split flow paths have discharges that are based on the HEC-RAS optimization at the appropriate junction. It was noted that two of the eight split flow junctions required individual optimization followed by manual adjustment of the discharges in order for the model to run (junctions 2 and 10). This is due to the nested junction layout as a result of the 17th Street split flow.

The high hazard designation for the current flow paths has not been addressed.

The HEC-RAS model also includes two major lateral weir structures along the main flow path at Linden Avenue and 19th Street. The Linden Avenue weir was done to estimate the spill flow across the roadway adjacent to the culvert. However, a major length of the spill flow location cannot be modeled due to the inclusion of the culvert routine in HEC-RAS. The weir estimated discharge over the roadway at approximately 82 cfs (total discharge of 362 cfs). The roadway swale on the north side of Linden Avenue was estimated to have only a 6 cfs capacity. Based on the Flo-2D roadmap and the limited capacity on the north side of Linden Avenue, It is anticipated that the vast majority of the spill flow over Linden Avenue occurs adjacent to the culvert. A small shallow flooding area has been delineated in this area along with a limit of study for the minor flows that will remain confined by Linden Avenue.

The lateral weir at 19th Street just north of Forest Avenue was included based on the overtopping of the roadway crown and to also support the flow reduction within the main flow

path as noted in the Flo-2D discharges. It was noted that this lateral weir results in approximately 33 cfs leaving the system. This discharge in addition to the 25 cfs that departs the main flow path south along 17th Street totals 58 cfs which is very close to the flow reduction of 68 cfs (for the 100-year event) as noted by the Flo-2D model. It was also noted that the limit of study designation for this location will be moved east to cover the east flow line along 19th Street and to better tie-in to the shallow flooding originating from Iris Avenue.

4. **Preliminary Floodplain Delineation**
   Initial 100-year floodplain delineation has been completed based on the current HEC-RAS model. Areas of vertically extended cross sections were initially left as a limit of study designation as noted by the yellow lines on the Floodplain Overview Workmap. Many of these areas were then revisited resulting in the delineation of a Zone AO shallow flooding area. The maximum depth of the vertically extended cross section(s) adjacent to the shallow flooding areas were used to determine the depth for the Zone AO areas (all result in a depth value of 1'). The limits of the Zone AO areas are based on approximate methods and engineering judgment from the topography.

   Kurt asked if the vertically extended cross sections adjacent to a Zone AO area were predominately less than 0.5 feet, could the Zone AO area be removed? ICON will revisit the Zone AO areas and determine if this criteria can be used to eliminate any of the shallow flooding areas.

   Shea will confirm the current approach to the Zone AO areas with Bill DeGroot.

5. **New City of Boulder LIDAR mapping on horizon**
   Kurt noted that the new City of Boulder LIDAR mapping would not be available in time for use on this project. ICON will continue using the current mapping as provided by the City.

6. **Twomile Canyon Creek Floodway**
   The project team discussed the desired limits of floodway designation along Twomile Canyon Creek and the associated split flows. At a minimum a floodway designation along the main channel west of Broadway will be completed to match the limits of the effective floodway. Given the significant amount of discharge in split flow paths, regulatory floodways may or may not be useful to the City, depending on the regulation requirements. Kurt will review zoning designations within the split flow areas west of Broadway and discuss floodway designation in these areas with the City's floodplain administrator. Kurt will provide direction on the designation of floodways along the split flow paths and for all areas east of Broadway, as well as for the split flow paths west of Broadway.

7. **Peer Review**
   The project team agreed that a peer review of the 100-year HEC-RAS model and floodplain/floodway delineation would be appropriate prior to developing all of the models/floodplains for the other return intervals. ICON will continue to refine the 100-year floodplain, floodway, and shallow flooding areas based on feedback from the project team and will develop a hydraulic report submittal for peer review.

8. Project Budget

Craig noted that given the extent to which the Twomile Canyon Cr eek HEC-RAS model has evolved (i. e. number and lengt h of split flow paths) the original hy draulic modeling and floodplain delineation budget has becom e much tighter. Craig also explained that the project was more on track up to this month where extend ed effort was put forth in modeling the flow paths in HEC-RAS. Craig wi ll provide a summary and discuss where items requested may differ from the original scope. The summary may also depend on decis ion related to the floodway modeling. Kurt and Craig will review and discuss.

9. Goose Creek

Preliminary Goose Creek floodplain maps were provided for reference. No significant changes have been noted relative to previous draft floodplains. It was noted that the 0.5' floodway was required to be split along Alpine Avenue but that the Broadway and Hospital split flows did not require floodway delineation, as the flow could remain along the main flow path.

10. Public Contact

Steve Hoge had contacted ICON by phone several weeks ago and had recently sent an email correspondence. Kurt asked that the email be forwarded to him and that all public inquiries be referred directly to Kurt.

11. Schedule

Kurt will revise the project website to indicate that the public meeting will be held in the fall of 2012. The 100-year peer review submittal will be completed towards the end of August/early September.

- END OF MEETING--

Minutes prepared by: **2012-07-25**

Brian LeDoux, P.E., CFM Date

ICON Engineering, Inc.

Brian LeDoux

From: Craig Jacobson <cjacobson@iconeng.com>
Sent: Thursday, August 09, 2012 6:13 PM
To: Brian LeDoux
Subject: FW: Floodway Delineations

fyi

From: Bauer, Kurt [mailto:BauerK@bouldercolorado.gov]
Sent: Thursday, August 09, 2012 11:35 AM
To: Craig Jacobson
Cc: Shea Thomas; Harberg, Robert; Noble, Annie; Trice, Chris; Knapp, Katie; Coleman, Christie
Subject: Floodway Delineations

Craig:

City staff and Shea Thomas of UDFCD met recently to discuss delineations of floodways when updating floodplain mapping. It was decided that floodways are to be delineated for all stream segments within city limits including all spill and split flow paths.

Floodways shall be delineated based on the following method:

- Floodways are to be delineated based on the 0.5 foot rise criterion using a reasonable amount of engineering effort. If the hydraulic modeling effort would likely be extensive and the flows relatively small, floodways shall be delineated using an equal conveyance method or the floodway can be delineated to match the floodplain limits.
- Floodways are to be delineated to minimize impacts to existing and future development in the following priority order:
    1. city-owned rights-of-way, parks and open space and drainage easements,
    2. privately owned setback areas, and
    3. Other privately owned undeveloped land
- If it is possible to delineate a floodway along the main stem for all flow, including any spills, it must be possible to physically convey this flow under existing conditions within the 6" rise criteria or have a definable and feasible mitigation project.

Please develop a suggested approach and associated cost estimate to delineate floodways along the Twomile Canyon Creek and Upper Goose Creek drainages based on these decisions. A figure showing your recommended approaches by stream segment may be helpful. For example, a color coded figure showing the stream and spill segments where modeling is recommended to delineate the floodways using equal conveyance method, where modeling is recommended to minimize impacts to private property and where floodways are recommended to match floodplain limits.

Please do not hesitate to call me if you have questions.

Sincerely,

Kurt Bauer, P.E. C.F.M.
Engineering Project Manager
City of Boulder
Public Works Department - Utilities Division

P.O. Box 791
Boulder, CO 80306
303-441-4232
BauerK@bouldercolorado.gov

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TWOMILE CANYON CREEK & UPPER GOOSE CREEK
PMR STUDY
CITY OF BOULDER
JANUARY 21, 2014 – 10:00AM

MINUTES

1) ATENDEES

a) Kurt Bauer, City of Boulder
b) Chris Trice, City of Boulder
c) Katie Knapp, City of Boulder
d) Craig Jacobson, ICON Engineering Inc.
e) Brian LeDoux, ICON Engineering Inc.

2) PAST PROJECT STATUS

Previous work on the Twomile Canyon Creek and Upper Goose Creek project concluded with the May 2013 Water Resources Advisory Board (WRAB) meeting. At that time City staff placed the project on hold until the 2013 City of Boulder mapping was available to use in additional 2D modeling to confirm split flow locations and magnitude.

3) REVIEW OF SEPT 2013 FLOOD EVENT

Based on review of the September 2013 flooding event, it is anticipated that approximately 30% of the hydraulic analysis will be modified to better match observed flow paths. Any new hydraulic cross sections will use the 2013 City mapping. City staff will complete a comparison between the 2004 and 2013 mapping to determine if new elevation data is required to be used within areas of hydraulic analysis that are not being modified.

Based on the lack of flooding observations along Floral Drive east of 19th Street, the inflow hydrograph location near Floral Drive and 19th Street will be re-assessed in the "roadmap" 2D modeling. However, it should be noted that the flood recurrence estimate for discharges within Twomile Canyon Creek or Upper Goose Creek have not been identified. Other changes, particularly with respect to overtopping at the canal and flooding near the recreation center were discussed.

4) PROJECT SCOPE OVERVIEW

ICON will complete new field topographical survey of the Spring Valley Road area. This information will be incorporated into the updated 2D analysis as will the City's 2013 mapping.

Preliminary 2D analysis will be presented to the project team and a final determination on changes to the hydraulic analysis dominant flow path routing will be completed at that time.

City staff requested that the High Hazard designations be reviewed pending new hydraulic analysis and mapping data.

The project team confirmed that the upstream limit of the hydraulic analysis would stop at the City boundary and tie into the effective LOMR at this location.

5) INITIAL STEPS

ICON will complete the field survey within the next 3 weeks. Once field survey and 2013 City mapping is available, the 2D modeling will be started.

6) PROJECT SCHEDULE

A standing progress meeting time has been selected for this project as well as for the Four mile Canyon Creek and Wonderland Creek and Skunk Creek, Bluebell Canyon Creek and King's Gulch projects. These meetings will occur on the 1st and 3rd Tuesday of each month at 10am as needed. No other specific schedule was discussed for this project.

- END OF MEETING--

Minutes prepared by: Brian LeDoux, P.E. Date **2014-01-22**

ICON ENGINEERING, INC.

TWOMILE CANYON CREEK / UPPER GOOSE CREEK
FLOODPLAIN UPDATE
CITY OF BOULDER
APRIL 1, 2014 – 10:30AM

MINUTES

Attendees (via computer conference):

1. Kurt Bauer, City of Boulder
2. Chris Trice, City of Boulder
3. Craig Jacobson, ICON Engineering, Inc.
4. Brian LeDoux, ICON Engineering, Inc.

1) FLO-2D MODELING

The current iteration of the FLO-2D model was reviewed. This model utilizes 10-foot cells along with the City's pre-flood 2013 mapping. A computer issues prevented the FLO-2D model from running to its full duration, so revised discharge values on the attached figures are valid for the areas at Broadway and west of Broadway only.

The resulting floodplain near 4th Street and Linden was discussed at length. The berm on the east side of 4th Street prevented floodwaters from flowing east during the 2013 event. It was noted that the return interval of the 2013 event has not yet been determined and this may reflect the difference between the FLO-2D floodplain and the observed 2013 event flood limits. Kurt noted that WWE has been retained by the City to determine the discharge and return interval for the September 2013 event on Twomile Canyon Creek. This information will ultimately be used to provide a basis for relative comparison between FLO-2D results and the observed 2013 flood limits. Additional detail reflecting the berm and adjacent floodwalls for the FLO-2D model will be reviewed and implemented in future models as determined necessary.

The FLO-2D model continues to show areas of flooding that did not experience flooding in the September 2013 event such as:

- Floral Drive
- Back Yard Channel (just south of Floral Drive
- Vista Drive
- 15th Street south of Hawthorn Drive
- East of the Farmers Ditch between Elder and Hawthorn

Additional cross sections will be added to the FLO-2D model in order to provide discharge values and to provide some information regarding general ponding verses flow path and conveyance zones. Kurt noted that additional scrutiny will need to be applied to the High Hazard Zone along Split Flow 1.

ICON will continue to refine the FLO-2D model. The next progress meeting will likely be held on April 17th.

- END OF MEETING--

Minutes prepared by: Brian LeDoux, P.E., CFM
ICON ENGINEERING, INC.

2014-04-01
Date

TWOMILE CANYON CREEK AND UPPER GOOSE CREEK
FLOODPLAIN MAPPING UPDATE
PROGRESS MEETING – CITY OF BOULDER LIBRARY
APRIL 16, 2014 – 1:00PM

MINUTES

1) Attendees:

- Kurt Bauer, City of Boulder
- Shea Thomas, UDFCD
- Craig Jacobson, ICON Engineering Inc.
- Brian LeDoux, ICON Engineering Inc.

2) Revised Twomile Canyon Creek FLO-2D Analysis

The revised Twomile Canyon Creek FLO-2D model was discussed which included the following revisions:

- 10-ft cells
- City of Boulder 2013 pre-flood mapping
- Includes re-built channel survey upstream of Linden Avenue
- Includes floodwall south of Linden, east of 4th Street
- Berm east of 4th Street reviewed; model does have ~0.5 ft berm in place
- Inflow hydrograph 603B moved north on 19th Street
- Additional cross sections added

The changes in discharge at the original FLO-2D cross section locations were noted – no fundamental change in discharge was identified between the two models.

The floodwall east of 4th Street and south of Linden Avenue was discussed at length. The FLO-2D model shows inundation north of the wall and flows entering the property that is south of the wall. This area was noted as not inundated during the September 2013 event. It was noted that the return interval for the September 2013 event is unknown, and this may impact how the September 2013 inundation is used as a comparison to the 100-year design storm and the corresponding FLO-2D model. The City has recently retained WWE to perform estimates for flood frequency for Twomile Canyon Creek. It was determined that further FLO-2D modeling efforts be postponed until the return interval has been estimated. Once the return interval is estimated, differences in inundation limits can be explained or further model calibration can be completed.

Due to the desire to have return interval estimates and better reasons for differences between the FLO-2D results and the September 2013 inundation, Kurt noted that model results would not be presented to the WRAB in June as previously scheduled.

The floodwall was discussed at length. FEMA and the City will not recognize it as a certified flood protection facility, yet it will impact discharges as determined by the FLO-2D model. One option is to complete with and without floodwall models in order to determine the relative difference that the wall makes on discharges. Shea also requested pictures of the wall and she will review the District's approach with David Mallory.

3) Recommended Flow Path Revisions

Several flow path revisions were noted as a result of the new FLO-2D analysis. The impacts of the canal on flow paths were discussed at length. As noted earlier, without an estimate of the September 2013 return interval, it is difficult to use the inundation limits as noted from the storm as a guide for flow path revisions. Additional review and determination of flow path revisions will be delayed until the estimates for the September 2013 storm return interval are completed.

Additional velocity and depth product mapping was completed as a way to confirm existing and proposed/revised flow paths. This effort brought to light several areas that are candidates for flow path revisions, however the area east of Broadway and south of Hawthorn did not have inundation in the September 2013 event. Additional flow path recommendations will be completed after the return interval estimates for the 2013 event are completed by the City and WWE.

4) Mapping Comparisons by City

No direction was provided regarding the use of 2013 mapping vs. 2004 mapping for revised hydraulic model reaches. The City did complete a review of the mapping differences and ICON will coordinate with Chris in getting the resulting information for display purposes. The City will ultimately make a determination on which mapping source is to be used and to what extent within the hydraulic models.

5) Schedule

The project schedule was not discussed.

6) Next Steps

The project will be put on hold until the September 2013 flood return interval has been estimated. Once this estimation has been made, the models will be updated if applicable and a final flow path revision recommendation will be completed.

- END OF MEETING--

Minutes prepared by: _____ **2014-04-18**

Brian LeDoux, P.E., CFM — Date

ICON ENGINEERING, INC.

TWOMILE CANYON CREEK AND UPPER GOOSE CREEK
FLOODPLAIN MAPPING UPDATE
PROGRESS MEETING – BY PHONE CONFERENCE
AUGUST 11, 2014 – 1:00PM

MINUTES

1) Attendees (by Phone):

- Kurt Bauer, City of Boulder
- Katie Knapp, City of Boulder
- Shea Thomas, UDFCD
- Craig Jacobson, ICON Engineering Inc.
- Brian LeDoux, ICON Engineering Inc.

2) Twomile Canyon Creek FLO-2D Analysis – Discharges East of Broadway

The Twomile Canyon Creek FLO-2D model was adjusted to include additional floodplain cross sections along roadways at and east of Broadway. This was done in an attempt to better understand how shallow flooding between dominant flow paths affected peak discharge values. The resulting FLO-2D discharge values along roadways east of Broadway were noticeable less than the discharges adjacent to Broadway. ICON Engineering contacted the City and asked that the project team review the resulting 2D discharges so that everyone was comfortable moving forward with one of two discharge options:

Option A: Use full discharge as determined at Broadway for each dominant flow path east of Broadway.

Option B: Use reduced discharges as observed within the 2D model east of Broadway

The project team determined that consultation with FEMA and David Mallory at the UDFCD (Floodplain Management manager) would be prudent in order to confirm how FEMA and the District would view either of the discharge options for the regulatory floodplain.

A meeting will be set for the project team to review the project with FEMA and David Mallory at the earliest opportunity.

- END OF MEETING--

Minutes prepared by: _____ **2014-08-11**

Brian LeDoux, P.E., CFM — Date

ICON ENGINEERING, INC.

TWOMILE CANYON CREEK AND UPPER GOOSE CREEK
FLOODPLAIN MAPPING UPDATE
PROGRESS MEETING – UDFCD
AUGUST 13, 2014 – 1:00PM

MINUTES

1) Attendees:

- Kurt Bauer, City of Boulder
- Shea Thomas, UDFCD
- David Mallory, UDFCD
- David Sutley, FEMA
- Craig Jacobson, ICON Engineering Inc.
- Brian LeDoux, ICON Engineering Inc.

2) Project Review

The Upper Goose Creek and Twomile Canyon Creek floodplain mapping project was reviewed for David Sutley and David Mallory who had not yet been involved in the project. Previous modeling approaches, new mapping considerations, September 2013 flooding behavior, and public concern were all reviewed.

Discussions ultimately centered on approaches to dealing with discharges and significant shallow flooding east of Broadway. The City of Boulder would like to have consensus with FEMA and the UDFCD on the selected discharge approach. The project team determined that there were two options for the areas east of Broadway:

Option A: Use full discharge as determined at Broadway for each dominant flow path east of Broadway.

Option B: Use reduced discharges as observed within the 2D model east of Broadway

After lengthy discussions, there was no clear consensus reached on which approach is most appropriate for a regulatory floodplain. Of particular concern with choosing an approach was the City's high hazard zone which includes significant regulatory restrictions for areas impacted by the high hazard designation.

Ultimately the project team determined that a sensitivity analysis was the best way to move forward such that the difference in floodplain limits, depths, and high hazard zones could be compared between the two discharge approach options.

ICON Engineering will move forward with a sensitivity analysis for areas east of Broadway.

- END OF MEETING--

Minutes prepared by: _____ **2014-08-13**

Brian LeDoux, P.E., CFM — Date

ICON ENGINEERING, INC.

TWOMILE CANYON CREEK AND UPPER GOOSE CREEK
FLOODPLAIN MAPPING UPDATE
PROGRESS MEETING – UDFCD OFFICES
OCTOBER 7, 2014 – 10:00AM

MINUTES

1) **Attendees (via phone/computer):**
   - Kurt Bauer, City of Boulder
   - Shea Thomas, UDFCD
   - Craig Jacobson, ICON Engineering Inc.
   - Brian LeDoux, ICON Engineering Inc.

2) **Discharge Distribution East of Broadway**
It was noted that based on previous sensitivity analysis the project team has moved forward with running full discharge in identified flow paths east of Broadway. At this point ICON has draft 100-year, conveyance zone, and high hazard zone delineations that are undergoing final in-house review. Draft floodplain workmaps are expected to be distributed on or before October 17th.

3) **4th Street Area Shallow Flooding**
The floodwall and shallow flooding area along and east of Fourth Street between Linden Avenue and Kalmia was discussed. It was noted that the topography in the area does not support designating a Zone AO or Zone AH north of the wall. Notable depths on the north side of the wall resulting from FLO-2D are likely a result of momentum redirection and will not be incorporated into any Zone AO or AH area. Based on vertical extension of adjacent cross sections, a Zone X flooding designation has been identified both north and south of the floodwall. A "without" floodwall HEC-RAS model has been developed to review flooding depths in this area under a condition where the wall is removed and thus additional effective conveyance area is available. Based on review of the depths, a Zone X designation in the left overbank for this area has been determined to be reasonable. The project team was comfortable with this approach. The hydraulic report will document the area in detail including discussion on the shallow flooding designation.

4) **With and Without Wall and Berm Discharges**
FLO-2D models were run with the removal of the floodwall and with the removal of the berm near Foothill Elementary School. The resulting discharges are provided on the attached figure. The removal of the berm near Foothill Elementary School has a negligible effect on the overall discharges. However, the removal of the flood wall does impact discharges downstream of the wall location. A "without" floodwall condition would put additional discharges in Split Flow 1.

As was done in the original (pre-flood) hydraulics, a sensitivity analysis was completed along Split Flow 1 to determine the impacts of the additional discharge caused by a without flood wall condition. A maximum increase of 90 cfs (33 % increase) would result in a maximum base flood elevation increase of 0.37 feet. The average increase in base flood elevation due to the increased discharge is 0.12 feet. Given the minor overall impacts to the base flood elevation, a without floodwall scenario will not be mapped as part of this study. The hydraulics report will reference the sensitivity analysis and discuss the decision to keep discharges that reflect the floodwall in place.

5) **500-year Floodplain**
The 500-year Zone X delineation was discussed. As previously done, the 500-year Zone X delineation will be based on the FLO-2D results for flooding depths equal to or greater than 0.25 feet. It was noted that this shallow flooding extents will be large and that once the majority of the flow is contained within a roadway the shallow flooding zone will be stopped. Draft delineations of the 500-year floodplain will be developed and provided to the City for review.

6) Flooding Along Iris west of Foothill Elementary School

This area is of particular concern due to the significant documentation of the September 2013 flooding event by adjacent residences. The area was reviewed briefly and ICON will continue to refine the floodplain as necessary.

7) Schedule

The project schedule was reviewed and the following are the key dates:

- Progress meetings will continue to be scheduled for the 1st and 3rd Tuesday of the month at 10am for the remainder of the project including Oct. 21st, Nov. 4th, Nov. 18th, Dec. 2nd, Dec. 16th, Jan. 6th, Jan. 20th…
- Draft Floodplain Workmaps/Files – October 17th
- Anderson Peer Review Meeting – October 21st (Kurt will contact Anderson to set up meeting)
- Draft Hydraulic Report – October 24th
- Public Open House – November 13th **(5:30 pm)**
- WRAB #1 – November 17th
- WRAB #2 – January 19th

- END OF MEETING--

Minutes prepared by: _____ **2014-10-07**

Brian LeDoux, P.E., CFM — Date

ICON ENGINEERING, INC.

Appendix F –
Electronic Hydraulic Models and GIS Data